Understanding Human Development: Prenatal Through Adolescence

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OPEN OREGON EDUCATIONAL RESOURCES

Understanding Human Development: Prenatal Through Adolescence
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Message to Students

Dear Students,

We developed Understanding Human Development in hopes of addressing gaps present in many of the current open sourced resources. Our primary goal was to create a textbook that incorporates a diverse range of perspectives, experiences, and practices. Through inclusive and updated content, we hope to challenge outdated and biased views about children and their development.

The current practice of capitalizing on knowledge within the textbook industry, which results in high cost textbooks, poses a significant equity issue. It is important for us to have a textbook that is free and openly licensed because we feel that education should be accessible to every student, regardless of their socio-economic background, where each person has the access to the same quality of information. When knowledge is monetized through exorbitant textbook costs, it creates a barrier that disproportionately affects economically disadvantaged students. This perpetuates a cycle of inequality, where those with greater financial resources have an advantage over their peers.

Understanding Human Development is written by three female lead authors with diverse cultural backgrounds and career experiences. We developed the content for this book to reflect our knowledge about public health, social work, public education and social policy. We use four case studies that follow children's development over the course of the life stages. Through these stories, we are able to bring to life the many ways in which a child's development is impacted by factors outside of their control, such as poverty or access to quality education. The case studies provide us with a way to infuse our work and life experiences into the textbook to aid instructors and students in their teaching and learning.

As an author team, we represent many diverse experiences in our personal lives and careers. However, we know that the experiences we can speak to are not exhaustive. As you read through this book, we invite you to share with us the ways you were able to find your own story of development and the ways you did not see yourself represented. Please share your reflections with us, as they will help us in the ongoing revision process.

Warmly,

Christina, Esmeralda, and Terese

Understanding Human Development: Lead Authors

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This book was created in good faith to ensure that it will meet accessibility standards wherever possible, and to highlight areas where we know there is work to do. It is our hope that by being transparent in this way, we can begin the process of making sure accessibility is top of mind for all authors, adopters, students and contributors of all kinds on open textbook projects.

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The Open Oregon Educational Resources Targeted Pathways Project seeks to dismantle structures of power and oppression entrenched in barriers to course material access. We provide tools and resources to make diversity, equity, and inclusion (DEI) primary considerations when faculty choose, adapt, and create course materials. In promoting DEI, our project is committed to:

1. Ensuring diversity of representation within our team and the materials we distribute
2. Publishing materials that use accessible, clear language for our target audience
3. Sharing course materials that directly address and interrogate systems of oppression, equipping students and educators with the knowledge to do the same

Designing and piloting openly licensed, intersectional, and antiracist course materials is one starting point among many when addressing inequities in higher education. Our project invites students and educators to engage with us in this work, and we value spaces where learning communities can grow and engage together.

We welcome being held accountable to this statement and will respond to feedback submitted via **our contact page**.

Course Learning Outcomes

Educators, students, and future employers all benefit when course-level learning outcomes guide our shared work. When course-level learning outcomes are public, institutions demonstrate a commitment to equitable student success through the potential for increased collaboration and inclusive course design. This project analyzed learning outcomes across the state of Oregon to identify themes and com-

monalities. The authors used this analysis as a basis for developing course outcomes that could match the curriculum of multiple institutions in Oregon while still considering their local needs and context.

1. Identify the specific stages of development from birth through 6 years old
2. Identify the specific stages of development of middle childhood through emerging adulthood
3. Examine the cultural and environmental factors that influence a child's development from conception to emerging adulthood
4. Compare and contrast theories of development in relation to research and cultural bias
5. Analyze how systems of privilege and oppression influence caregivers, children, and the developmental process
6. Evaluate the major concepts as they relate to the case studies and apply knowledge to work with children and families

Teaching and Learning Approach

The authors of this book embraced an equity-minded design for the structure, scope, and sequence of chapters and chapter content. They sought to honor the needs and experiences of students who are often underserved in higher education in Oregon. Authors considered Transparency in Teaching and Learning (TILT), Universal Design for Learning (UDL), and culturally responsive teaching to design meaningful learning pathways for you. You will find rich images and multimedia in addition to written content. You will also find provocative discussion questions that align with learning outcomes and objectives.

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CHAPTER

1

Understanding Human Development

1.1 Chapter Overview and Learning Objectives

Who are we? How did we become the people we are today? There have been numerous ways to explain and understand the human experience. To begin our exploration, we must identify what **human development** is and understand its evolution as a discipline. **Human development** is a field of study that examines the factors that influence change across the lifespan. In this textbook, we will focus on the period known as childhood, starting from conception through adolescence.

This chapter will address the different developmental stages people progress through in their early lives. Growth will be looked at using eight domains of development: adaptive, cognitive, identity, language, moral, physical, sexual, social, and emotional. Additionally, a brief timeline of human development approaches will be discussed along with historical perspectives. It is imperative to acknowledge how history impacts communities and their ability to support their youngest citizens.

Perhaps you have wondered why some children progress easily through the ages and stages of development while others struggle. There are many factors that can influence development. Social and environmental factors, or **social determinants** like race and class, are clearly connected to the disparities, or differences, seen within child development. Further, **systemic inequalities**, or biases within systems of society, lead to advantages for some groups and disadvantages for others.

Learning Objectives

After reading this chapter, you will be able to do the following:

1. Summarize the rise of human development as

a discipline and how historical context has impacted views on human development.
2. Describe the developmental lifespan through the foundational principles of **equity** and inclusion.

Key Terms

Throughout this chapter, you will be introduced to important key terms that will help deepen your understanding of human development.

- **Adaptive development**: a process by which children learn skills and behaviors that allow them to engage in developmentally appropriate self-care and life tasks.
- **Cognitive development**: a process by which children acquire and process information and then learn how to use it in their environment.
- **Developmental domain**: a broad area of development that encompasses a range of skills and abilities.
- **Developmental milestones**: skills and behaviors used to evaluate age-related progress within a given domain.
- **Developmental justice**: the belief that children are deserving of respect, equal rights, and access to the optimal conditions needed to thrive in their lives.
- **Equity**: an ideal aimed at achieving fairness and justice by providing the conditions needed for people to thrive in their environments.
- **Gender identity development**: the construction of one's understanding of their gender.
- **Human development**: the study of how humans change and grow over their lifespan.
- **Intersectionality**: the interconnected relationship between systemic privilege and oppression, social identities, and the impact on one's experiences in society.
- **Language development**: a process by which children acquire and process language and learn how to use it to communicate with others.
- **Moral development**: a process by which children process their understanding of right and wrong as related to their social and environmental contexts.
- **Physical development**: a process in which children's brains and bodies grow to help them engage with and thrive in their environment.
- **Privilege**: advantage and opportunity based on social identity, which can be earned or unearned.
- **Oppression**: a form of systemic injustice based on social identity, resulting in social disadvantages and barriers to individuals and groups.
- **Sexual development**: a biological and physiological process by which children develop awareness of their bodies, leading to sexual maturation, sexual identity, and awareness of oneself as a sexual being.
- **Social construction**: a concept or idea that is assigned a specific meaning or value in a society.
- **Social determinants**: the physical and social circumstances, shaped by larger societal forces, that can substantially influence individual and group outcomes.
- **Social determinants of health**: the conditions in the places where people live, learn, work, and play that affect a wide range of health risks and outcomes.
- **Social and emotional development**: a process by which children gain understanding of themselves, their emotions, and the connections between themselves and others.
- **Social justice**: the belief that all people are deserving of equal rights, protections, and opportunities in society.

- **Systemic inequalities**: biases and practices embedded within systems of society that lead to advantages for some groups in society and disadvantages for others.

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1.2 What Is Human Development?

Humans have been around for a very long time. We have learned how to adapt to various environments and form connections with one another in ways that help us thrive as individuals, family units, communities, and societies. We are diverse in our looks, languages, thinking, and expression. As distinct as we are from each other, we also share many commonalities in how our bodies and brains develop over the lifespan (figure 1.1).

Human development is an interdisciplinary social science. Many fields of study contribute to our understanding of how humans grow and change. Human development covers topics that range from physical and biological changes to human interactions. Human development as a discipline depends on research from more traditional "hard science" disciplines such as biology and chemistry as well as social sciences like sociology, psychology, and anthropology. If a field of study involves people as a subject, it has the potential to deepen our understanding of how humans change and grow. Some disciplines may be more prominent, but many questions in human development can be informed best through an interdisciplinary approach, or one that blends the sciences together.

Those studying human development are often interested in understanding the differences and similarities between groups of people. Researchers may see that a child who grows up in the United States displays a similar growth pattern as a child from Brazil. They may also see that two children raised in the same city can have very different outcomes based on the neighborhood in which they are raised. Throughout the textbook, we will examine how these diverse outcomes are influenced by biology and the environment and vice versa. We will also explore how the relationship between a child and the social systems they live in becomes more complex as development occurs.

There is much to learn from studying humans and their development. We can gain an understanding of ourselves and others. We can learn more about how the environment impacts us or how biology and genetics influence us. We can learn how social issues impact people's development and identify what people need to overcome adverse experiences. Most importantly, we can grow in our awareness and appreciation of the resilience of humans.

Figure 1.1. People who study human development pay attention to the differences and similarities between groups of people and how they change over time. Human development helps us learn more about what people need to overcome adversity and build resilience.

Major Domains of Human Development

The first 18 years of life are marked by periods of rapid growth and opportunities for children to learn the skills they need to be successful in their lives. This development is influenced by many factors, such as biology, genetics, history, location, culture, social contexts, and environment. Given the variety of factors that impact us, researchers have found ways to organize and explain periods of growth and development to increase our understanding of what humans need to thrive during the various ages and stages of life.

Growth periods throughout childhood are categorized by **developmental domains**, which refer to broad areas of development that encompass a range of skills and abilities. The most common domains found in human development literature include cognitive, language, physical, social, and emotional development. These are important domains for understanding the events and experiences of human development.

Some areas of development, such as language, reflect the dynamic impact domains have on each other. **Language development** is a set of skills on its own, but social relationships and **physical development** are important factors in the ability to form language. Without interpersonal interaction (social and emotional), it would be hard to learn a language. The atypical development of the ear canal (physical development) may also impair language skills. Development in one domain may significantly shape the development of another. For this reason, we must be sure to consider how

each unique element of development shapes the whole person.

- **Cognitive development** refers to the way children take in and process information, acquire knowledge and skills, and use information to problem solve. It includes growth in intellectual abilities such as critical thinking, reasoning, and understanding, as well as information organization and memory. Cognitive development impacts other developmental domains, such as language and social-emotional development.
- **Language development** is the process by which children acquire and process language and learn how to use it to communicate with others. Language development is a dynamic process impacted by cognitive, physical, social, and emotional growth.
- **Physical development** is the process in which children's brains and bodies grow to help them thrive in their environment. The body and brain grow from the prenatal stage through early adulthood. Physical development includes skeletal growth, muscle development, coordination, and the development of gross and fine motor skills.
- **Social and emotional development** is the process by which children gain understanding of themselves, their emotions, and the connections between themselves and others. These domains focus on changes in self-perception, emotions, and interpersonal relationships, including those with family, friends, and peer groups. Social and emotional development is impacted by the cognitive and language domains since the capacity for complex thinking and information integration is needed to develop and maintain relationships.

Developmental Milestones

Developmental milestones are skills and behaviors used to evaluate developmental progress within a given domain. Domains represent important categories of development across the lifespan, whereas milestones are typically age-driven, meaning they change as the developmental expectations shift with age. We will discuss developmental milestones within each stage and age of development throughout the chapters. Some developmental milestones are witnessed across cultures, while others vary based on community values and structures. While we include typical developmental milestones based on Western culture within our textbook, we also recognize that many factors influence when and how children will develop certain skills.

A study in cultural differences highlights the existence of important distinctions in mother-infant interactions, attachment, motor development, and the development of self-identity among cultures (Keller, 2017). For example, children in Western cultures go through formalized schooling during most of their childhood. Formal schooling acts as a specific kind of learning environment that influences the type of skills a child learns and the timing of when those skills are formed. Children who live in farming or hunting communities with limited or no formal schooling may develop similar skills but through different means (hands-on experience), or they may develop skills at a later time, which would shift our understanding of expected developmental milestones based on age.

Additional Domains Highlighted in This Textbook

Human development literature and research have generally focused on the major developmental domains when describing children's growth. While these domains encompass important skills

and behaviors, they do not give us a full sense of how a child develops into an adult, nor do they describe on their own the nuances that influence children in their daily lives. In this textbook, we have expanded the domains to include adaptive, sexual, moral, gender identity, and identity development. We see these areas as equally important in understanding the whole child's experience, and we also recognize that development in these areas varies widely from child to child.

Adaptive Development

Adaptive development is a process by which children learn skills and behaviors that allow them to engage in developmentally appropriate self-care and life tasks. Grooming, feeding, and hygiene routines are common examples of adaptive skills. Some specific examples of adaptive development may traditionally be covered in other domains, such as toilet training as part of physical development.

We are choosing to address adaptive development as its own domain to bring attention to the individuality of these skills and how they relate to a child's development within their social context. We believe this allows greater exploration of how children thrive in their environments.

Sexual Development

Sexual development is a biological and physiological process by which children develop an awareness of their bodies leading to sexual maturation, sexual identity, and awareness of oneself as a sexual being. Sexual development also includes psychological and sociocultural processes that shape personal experiences and one's understanding of the self as a sexual person. Gender identity and sexual orientation are important in sexual development, but they are also distinct and will be explored as the complex constructs they are.

In this textbook, we want to highlight sexual development throughout the stages of childhood and discuss how it plays a role in the overall formation of one's identity. As authors, educators, and human service workers, we believe sexuality is a natural and inherent part of the human experience. So, why isn't sexual development included as a standard domain in the literature? Based on our experience working in human development fields, we believe this oversight is attributed to several factors:

- the belief that children are not sexual
- the idea that sexuality is bad and therefore only discussed when necessary
- a misunderstanding of what sexual development looks like in the early years

Society often views sexuality as an adult-centered activity. In reality, sexuality is present throughout the lifespan but has distinct features in childhood. Children are sexual, but not in the same way that adults are. In the early years, sexual development is focused on the formation of the sexual organs and a child's understanding of their body parts and functions. In adolescence, sexual development is related to puberty, hormones, distinct physical body changes, and sometimes sexual activity.

Cultural norms play a significant role in how sexuality is manifested and celebrated in society. In some cultures, there are rites of passage for children that involve changes or alterations to the sexual organs, such as male circumcision or female genital surgery. About a third of the world performs these rituals (Stevens, 2014). In other cultures, topics such as menstruation or masturbation are ignored, shamed, or discussed only when needed.

It is important to acknowledge the role that sexual development plays in children's awareness of their bodies, their understanding of consent and

physical boundaries, their emotional growth, and the social and romantic relationships they will have as they mature. We believe that all children should be educated about their bodies and that sexuality should be managed as a healthy and normal function of development.

Moral Development

Moral development occurs as children process their understanding of right and wrong as related to their social and environmental contexts. It develops across the lifespan and can change over time. Increasingly complex cognitive development and diverse social interactions are key to the formation of more advanced moral understanding.

We believe that moral development depends on the different bioecological systems a child encounters. As described by theorist Uri Bronfenbrenner, five interrelated ecological systems impact a child's development. These systems include:

- microsystem (family, peers)
- mesosystem (interaction between child, family, community)
- exosystem (neighborhood, media)
- macrosystem (wealth, poverty, race)
- chronosystem (major life changes, history)

A child who grows up with an incarcerated parent or lives in an environment with a high crime rate may develop a specific understanding of right and wrong that is different from the understanding of a child who grows up in a safe, wealthy suburb with two parents.

Gender Identity Development

Gender identity development refers to one's innermost understanding of themselves as a man, woman, neither, or a combination of. The norms and roles of one's gender are based on biological sex or sex determined at birth. Gender has historically been seen as a binary system (man, woman), but we now understand that gender is fluid and exists on a continuum. Children experience gender in various societal systems such as the microsystem, the mesosystem, and the macrosystem.

We learn very early (by at least age 3) about the categories of gender in our culture and that elaborate beliefs, behaviors, and meanings are associated with each gender. We can think of this complex set of ideas as a gender ideology or a cultural model of gender. All societies have gender ideologies, just as they have belief systems about other significant areas of life.

Identity Development

Identity development refers to a person's sense of self. Identity is formed in infancy and transforms over the lifespan. Identity development depends on the experiences each person has throughout the developmental domains and the experiences they have within their social and environmental systems.

Theories and research are often centered on identity development during the adolescent experience. While adolescents go through many changes and refinements in their sense of self, we recognize that a child's identity formation starts early and is highly dependent on their relationship with their caregivers and home environment. We will discuss identity development throughout the textbook.

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Figure 1.1. Photo by Rajiv Perera on Unsplash.

1.3 Historical Overview

In this section, we will briefly review the history of childhood and describe the role childhood has played in shaping our understanding of **human development**. According to the UN World Population Prospects data, there are now over two billion children worldwide (UN, 2022). Children make up around 25 percent of the world's eight billion people. All across the globe, children play various roles within their families, communities, and larger social structures. One important role that children often have in society is to learn and continue societal norms and teachings. These roles have changed over time and have been influenced by cultural shifts and traditions, religion, immigration, war, as well as government and political systems.

One example on how social and political structures influence a child's role in their communities involves the history and treatment of indigenous American peoples, Indigenous peoples in Northern America have a specific high regard for children in their communities. Children are seen as gifts from the Creator and are carefully reared and supported by their primary caregivers as well as extended family and community members (Cajete, 2017). European colonization, the process by which Europeans immigrated to the Americas and took control over land and resources, had a profound impact on the role and well being of indigenous children.

One of the impacts of colonization including the creation of residential boarding schools. Residential schools were set up by the government and churches with the primary goal of assimilating children into European views and culture. Children were taken by force from their families, cutting them from their cultural roots and separating them from their way of life. Indigenous children, who were responsible for learning and maintaining their cultural ways and knowledge, now became detached from their homes, and often suffered abuse and trauma along the way. How do you think this deep shift in the lives of indigenous children impacted their overall development?

Figures 1.2 and 1.3 show examples of the impact of residential boarding schools and the impact of extreme cultural erasure. Kylie Rice, a young indigenous author from the Mohawk and Algonquin groups, comments on her family's experience with boarding schools, which both of her grandparents endured.

> "Statements like 'Kill the Indian, Save The Man' or 'Kill the Indian in Child' were common slogans that perfectly explain the veracity of the school's intentions. Indigenous children were not allowed to speak their own language, use their own names, or practice anything of their own religion and culture.
>
> To detach the children from their culture, they would give them new names, cut their hair short, and force them to wear uniforms. Every aspect of their identity was suppressed, they had to abandon their

way of life due to the belief that their culture was inferior to the mainstream white man's ways." (Rice, n.d.)

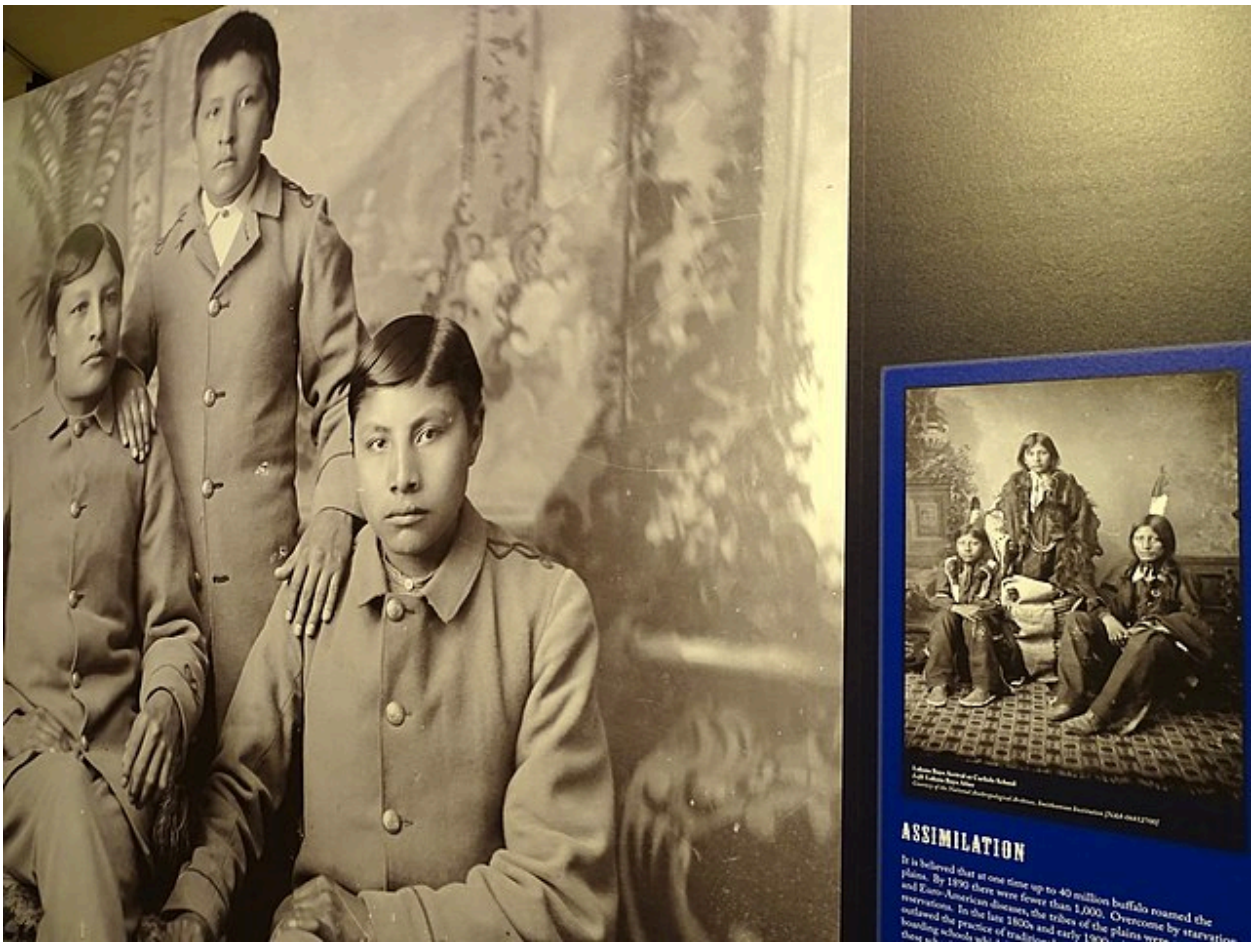

Figure 1.2. In an example of cultural erasure, three indigenous boys are depicted with short hair and wearing European uniforms. In contrast, the image beside them shows them with uncut hair and indigenous clothing.

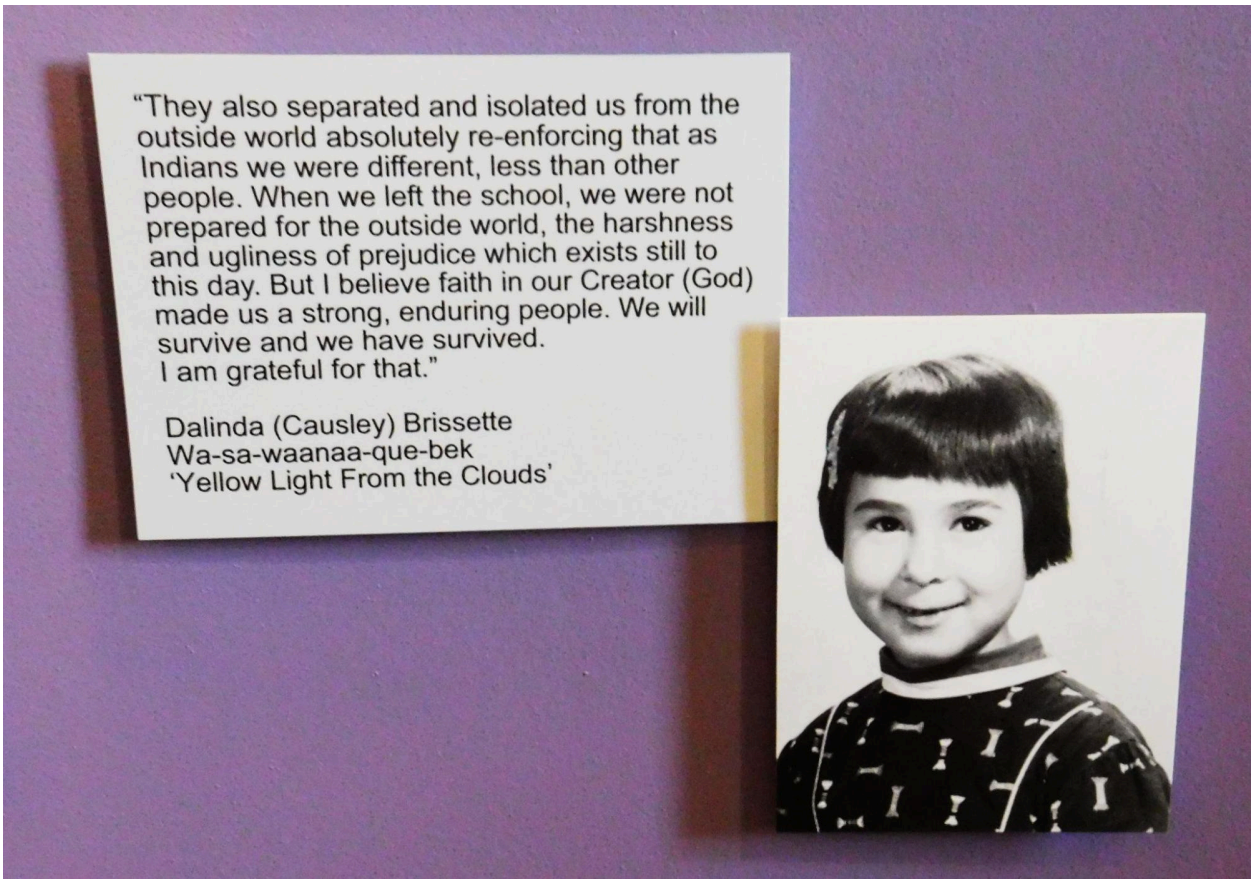

Figure 1.3. Dalinda Brissete, a survivor of residential boarding schools, describes the impact of colonization and boarding schools. **Image description.**

Childhood as a Social Construction

To begin our understanding of childhood, let's compare and contrast the two following scenarios:

SCENARIO 1

A child grows up in the United States in the late 19th century. They work daily in a factory to help out their family financially. The factory exposes them to toxic chemicals and fumes. There are many children working there alongside adults. The child is independently caring for themselves as they learn work skills. Socialization takes place within the workplace and is centered around work tasks and goals.

SCENARIO 2

A child engages in activities in a classroom with other children in the United States in 2022. The adults present observe the child but do not interrupt while the child explores and plays. The child puts away and gathers new activities as they please. They socialize with peers and share meals together. They have free time to go outside and explore nature.

The idea of childhood is a **social construction**. A **social construction** is a concept or idea that has been assigned a specific meaning or value in a society. When we say that childhood is socially constructed, we mean that our ideas about childhood are socially created instead of being determined by the biological age of children or some other concrete factor or identifier. Childhood is instead viewed through cultural and historical contexts, and the role of a child varies from group to group.

Think about the children in the two previous scenarios. Each child experiences life differently based on the social and environmental context in which they live.

In the first scenario, the child's role is most similar to that of an adult. They are independent and tasked to care for themselves while they are away from home. They do not attend school, nor are they enrolled in extracurricular activities. They are expected to spend their day helping out their family. There is no explicit regard for their physical or mental safety.

In the second scenario, the child spends their day in a classroom monitored by several adults. They are independent but also rely on adults for guidance when necessary. The child has access to toys and materials that enhance developmental skills. They play with peers, have access to healthy foods, and spend time in nature. They are afforded more "free" time to engage with others and their environment.

Now, try to determine what aspects of their childhood are influenced by society. For example, their age, their rights and responsibilities, the legal restrictions and protections placed on them or their parents, and the treatment given by others around them. How has the concept of childhood, or what it means to be a child, changed over time?

The Role of Children in Society

Childhood is commonly and legally recognized as the time from birth through 17 years of age. At 18 years old, the child becomes an adult. Historically, we may have learned about children marrying young and taking on adult responsibilities well within the age range now defined as childhood. It was not uncommon for children to marry at a young age, particularly girls who were married off to older men, reflecting different gender expectations and trajectories (Dukakis, 2017).

In many parts of the world, child marriage is still a regular practice, including in the United States, and is considered a human rights violation (Cassidy & Turner, 2021). Historically, it was also common for children to work outside the home to support their families financially. This was especially true for children from lower-income families who were not afforded the same private education or extracurricular freedoms as upper-class children.

Current human development frameworks view childhood as a distinct period of existence that differs widely from adulthood. All cultures demonstrate this understanding to some extent, although the age ranges and expectations vary (Grant, 2012). There has been great debate about the role of children throughout history, particularly dur-

ing pre-industrial and industrial Western European times. Still, we can safely assume that childhood as a particular state of being has always existed. Children have always been in the care of their parents or other guardians, living under their guidance, and engaging in child-like behaviors and activities.

Optional resource:
Interested to learn more about the history of American childhood through photography? Watch **These photos ended child labor in the US [Streaming Video]**.

Western European Perspective

In 1962, Philippe Ariès, a French historian, published his writing *Centuries of Childhood: A Social History of Family Life*. In this account. Ariès discusses the state of childhood in the Middle Ages and argues that childhood is a relatively new concept, one that was not present in historical artifacts until around the 17th century (Ariès, 1962).

In this summary, Ariès proposes that children were regarded as little adults, not as unique humans with their own needs and wants. Some of what Ariès states is discussed in other works. In the *Routledge History of Childhood in the Western World*, Julia Grant (2012) writes:

> . . . medieval philosophers conceived of childhood as a period of "deficiency." The social norms in place, which include dressing young children in adult clothing and engaging them in economically productive activity as soon as possible, seem to suggest that childhood would be best thrown over for the superior status of the adult.

In modern Western Europe and in the early foundations of the United States, we see a rising interest in the development and welfare of children. Child welfare laws were implemented in the late 19th and early 20th century (Trattner, 1999). We also see the rise of formal education in which most children, rich or poor, spend their days under the supervision of teachers for the sole purpose of discipline and education (figure 1.4). The separation of children into age-based groups helps us understand the distinction of childhood as a specific era of life, historically.

Figure 1.4. Indigenous and government collaborations, like this Head Start program in British Columbia, Canada, offer public services through an Indigenous lens. These efforts support cultural diversity and inclusion.

Indigenous Perspectives About Children

Dr. Gregory Cajete, a member of the Tewa tribe in New Mexico, discusses the role of children and caregivers in many of his writings. In the article titled "Children, myth, and storytelling: An Indigenous perspective," Cajete remarks on the special qualities of children and their sacred role within the community (Cajete, 2017). All adults within a community play a role in the care and education of Indigenous children. The use of storytelling and social bonding is vital in the socialization process and the teaching of morals, values, and cultural knowledge.

Dr. Darcia Narvaez describes common Indigenous principles and practices involving children in her article "Principles Of Indigenous Child-Raising: Our Ancestors Were Smart And Good." She summarizes principles of living, one of which is the idea of noninterference, which is the belief that one should not interfere with another's path in life. "There is no coercion, no force used on others, in everyday life" (Narvaez, 2020). This practice is expanded to adult relationships with children. The significance of this principle is stark when contrasted with the harsh and punitive ways children have been treated historically.

While there are diverse practices and beliefs within Indigenous groups across the globe, there exist important commonalities among all. Indigenous children receive positive guidance and care from their parents, family, and tribal members. The behaviors and attitudes adults hold toward children honor the dignity of each person. Each

child is respected as an individual and a valued community member.

Author Views on Childhood and Development

As authors, we believe that children are valued and respected members of society. They are unique in their needs, ways of being, skills, behaviors, and attitudes. We do not view children as little adults or as extensions of the adults who birthed or care for them. They are individuals.

Children have rights, both morally and civilly. Our goal as authors, educators, and human service workers is to promote the well-being of all children so that they may thrive in their developmental paths. Our vision most closely aligns with one of the goals of the United Nations Convention on the Rights of the Child, which is an international agreement on childhood. Their website reads:

> The Convention recognizes the fundamental human dignity of all children and the urgency of ensuring their well-being and development. It makes clear the idea that a basic quality of life should be the right of all children, rather than a **privilege** enjoyed by a few. (UNICEF, n.d.)

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Figure 1.2. Display on Indian Assimilation – Old Courthouse – St. Louis – Missouri – USA – 01 by Adam Jones on Wikimedia licensed under CC BY-SA 2.0.

Figure 1.3. Quote, the boarding Schools, The Museum of Ojibwa Culture, St. Ignace, Michigan by Deb Nystrom on Flickr, licensed CC BY 2.0.

Figure 1.4. Image from XWCHIYO:M Cheam First Nation Community Newsletter, May 20, 2022, included under fair use.

1.4 Equity in Human Development

In order to fully understand the human experience from conception to emerging adulthood, it is important to acknowledge and analyze how our social and environmental surroundings impact our development. How does the neighborhood I live in impact my access to learning? How do race and ethnicity relate to opportunities or barriers I may face in my early life? These questions bring up the notions of **equity** and **social justice**. **Equity** is defined as an ideal aimed at achieving fairness and justice by providing the conditions needed for people to thrive in their environments. **Social justice** is the belief that all people deserve equal rights, protections, and opportunities in society.

In this textbook, we acknowledge that a child's development cannot be separated from the larger forces surrounding them. Significant social and environmental inequalities such as racism, classism, and ableism affect certain groups more than others. These issues need to be addressed directly if we want to achieve **developmental justice** for all children. We define **developmental justice** as the belief that children deserve respect, equal rights, and access to the optimal conditions they need to thrive. Developmental justice incorporates the ideal of equity and the beliefs that underlie social justice work.

In 1943, Abraham Maslow introduced his psychological theory, known as the hierarchy of

needs, in an attempt to understand human motivation (figure 1.5). Maslow was a humanist who believed that people strive to be the best version of themselves. While the table structure somewhat demonstrates a rigid flow up the hierarchy, Maslow recognized that the order of one's needs does not always follow a standard progression.

Need	Definition
Self-actualization	One's achievement of one's full abilities or desires Example: Becoming a musician because of a love for music
Self-actualization	One's achievement of one's full abilities or desires Example: Becoming a musician because of a love for music
Self-esteem	One's need to be valued by others and to contribute something to the world Example: Achieving an academic accomplishment
Love, acceptance, belonging	One's need for emotional connection, which drives human behavior Example: Getting married or being part of a sports team
Safety	One's primary need to feel secure and safe in one's environment and relationships Example: Forming a positive attachment to a healthy caregiver
Physiological	One's primary need to maintain the body's functions for survival Example: Seeking food and water above all else

Figure 1.5. Maslow's Hierarchy of Needs.

From a **human development** perspective, we can see how a child who lacks safety in their home or surrounding environment might have a difficult time self-actualizing. Or how a child who lacks regular access to food or water might struggle with their self-esteem or sense of belonging. While we certainly do not believe that children progress through this hierarchy predictably, we can confidently say that children who do not have their basic needs met experience some form of disruption or barrier to their development. Unfortunately, some children will experience more disadvantages than others over their lifetime.

Systemic Inequalities

Privilege and power structures play a significant role in how people interact with the world and thereby impact a child's identity, physical and mental health, and development. **Privilege** is an advantage and opportunity based on social identity, which can be earned or unearned. Privilege can be seen as a special right or immunity denied to others outside your group.

Oppression is the opposite of privilege. Oppression is a form of systemic injustice based on social identity, resulting in individuals and groups facing social disadvantages and barriers. Oppression can be seen as negative treatment that

is unjust, or the feeling of being heavily burdened by negative conditions.

Children will experience varying levels of privilege and oppression based on their social identity groups. For example, a child may be born into a family with two parents and average or greater wealth, live in a safe neighborhood, and have access to quality health care and education. This child experiences privileges on many levels, and we can assume that they will have fewer disruptions to their development based on the opportunities available.

Children of color often have negative experiences based on their race or ethnic identity. They might be taunted at school by other children or be discriminated against in the school system. This treatment can impact a child's self-esteem, attendance at school, or level of academic achievement. Their experience with race may be compounded by the burdens of poverty or by living in an unsafe neighborhood. The cumulative effects of these disadvantages are significant and can negatively impact development.

Intersectionality

Each person carries a variety of personal and social identities that can change over time. These identities are tied to specific experiences with privilege and oppression. Kimberlé Crenshaw (1989) developed the term "**intersectionality**" to describe how experiences with racism and sexism contribute to the marginalization of Black women, specifically in legal sectors of society. The term has been broadened in recent literature. **Intersectionality** refers to the interconnected relationship between systemic privilege, oppression, and one's social identities.

Social Determinants

Social determinants are the physical and social circumstances into which people are born and live throughout their lives. These circumstances are shaped by larger forces such as the economy, politics, and **systemic inequalities** like racism and classism. Social determinants can substantially influence the development of children and adults throughout their lifespan. Some examples of social determinants include access to quality education, community cohesion and resources, the health and safety of one's neighborhood, and the level of financial stability present in one's life.

The United States, one of the wealthiest countries in the world, is not even close to being one of the healthiest countries globally (Swain, 2016). Disparities in health outcomes among socially disadvantaged populations appear to drive this gap. Eliminating these disparities to achieve health equity has been the goal of public health institutions for quite some time. Public health officials have focused their efforts on identifying and addressing **social determinants of health**. **Social determinants of health** are the "conditions in the places where people live, learn, work, and play that affect a wide range of health risks and outcomes" (CDC, 2022).

Examples of social determinants of health include access to quality health care, the toxicity of neighborhoods, and access to nutritious foods. Resources that improve quality of life, such as access to affordable housing, education, and healthy foods, can significantly influence population health outcomes (CDC, 2022). We will discuss these issues in more depth throughout the textbook.

Case Studies

In preparation for our discussion of equity in human development, we would like to introduce the case studies that will be used. Starting in Chapter 3, the case studies will feature a child, some history about their birth mother, and pertinent information about the family or community. They will also detail important experiences within the child's developmental history.

It is important that we view a child's development through a comprehensive societal lens. Children do not grow up in a bubble but are instead influenced by what is happening in the world. One important factor that we will consider is how systemic inequalities impact growing children and their families. Systemic inequalities are things like poverty or racism that have been created through unequal distribution of power and opportunity. The case studies will help highlight how these big issues influence parenting and children.

Next are summaries of the four case studies. We will be following each child from infancy through adolescence. Each chapter in the textbook will highlight particular aspects of development that are impacted by environmental, social, and genetic issues. Therefore, you may not find information on every child in each chapter. We hope that these case studies help deepen your understanding of the complexity of child development.

Dyani

Dyani is an Alaskan Native who was born in Chevak, Alaska. She lives with her mom, dad, and siblings in a small rural village. As an Indigenous person living in her homeland, she is taught to retain her cultural heritage and ways of being. Her community experienced the impact of residential boarding schools, forced religion, and erasure of Indigenous identity. This resulted in conflicting practices surrounding birth, postnatal experiences, and child rearing. Dyani's case study will highlight the link between history and current outcomes for Indigenous peoples, including issues with cultural identity, health disparities, access to resources, and the school experience.

Anthony

Anthony is a Black male who was born in Seattle, Washington. He lives with his parents in a middle-class neighborhood and has access to educational opportunities, as well as extracurricular activities. Despite the family's success, Anthony faces issues related to his race. These issues began when his mother, Amira, was pregnant with him. Amira experienced bias and discrimination in her prenatal care, which resulted in Anthony being born 6 weeks prematurely. As a result, he was born with lung issues and developed severe asthma, which greatly impacted his development. Anthony's case study will help us understand the struggles families and children face due to racial discrimination, bias within the healthcare system, and disparities within the school system.

Gabriela

Gabriela is a Native American born in the United States. Gabriela and her family migrated to the United States from Mexico before she was born. As a Mexican-American, she grew up in bicultural environments that often contrasted with each other. Her mother, having had several pregnancies before Gabriela's, experienced very different prenatal and postnatal care in Mexico than she did in the United States, where she faced racism and bias. Gabriela's case study will highlight her interaction with her multicultural background growing up in America and her identity formation while struggling with the immigration, health care, and educational systems.

Jesse

Jesse is White and lives in a small rural community in Southern Oregon. Jesse was born as a biological male and identifies as nonbinary, using they/them pronouns. They are the oldest child of Ashley and Jeremy, who grew up with traditional gender roles in a conservative, religious community. Jesse's family is working class, getting by on one income so Ashley can be a stay-at-home mom. The financial challenges of working-class poverty impact every area of development, from access to educational opportunities to quality of medical care. Jesse's case study will highlight the rural community experience, the impact of access to resources, and gender identity struggles.

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Figure 1.5. Maslow's Hierarchy of Needs by Christina Belli is licensed under CC BY 4.0.

1.5 Conclusion

The study of **human development** is vast and helps us categorize behavior and learning. We experience a tremendous amount of change and growth over our lifespans. This growth is not only dependent on biology, but also on the social and environmental structures surrounding us. Children's growth is categorized using developmental domains and milestones that give us guidance on when to expect certain behaviors and how to support those behaviors. Parents and caregivers play a vital role in this process, but children are also sensitive to the outside social and environmental forces that can either support or hinder growth.

Oppressive social circumstances and negative environmental stressors create disparities that impact the lives of children over the course of their development. Understanding and addressing these barriers is one of the primary goals of this textbook. There are many diverse views about child development, but what is clear is that all societies strive to support healthy development and the ability to live long and happy lives. This is the essence of the human experience.

Review of Learning Objectives

1. Summarize the rise of human development as a discipline and how historical context has impacted views on human development.
2. Describe the developmental span through the foundational principles of **equity** and inclusion.

Review of Key Terms

- **Adaptive development**: a process by which children learn skills and behaviors that allow them to engage in developmentally appropriate self-care and life tasks.
- **Cognitive development**: a process by which children acquire and process information and then learn how to use it in their environment.
- **Developmental domain**: a broad area of development that encompasses a range of skills and abilities.
- **Developmental milestones**: skills and behaviors used to evaluate age-related progress within a given domain.

- **Developmental justice**: the belief that children are deserving of respect, equal rights, and access to the optimal conditions needed to thrive in their lives.
- **Equity**: an ideal aimed at achieving fairness and justice by providing the conditions needed for people to thrive in their environments.
- **Gender identity development**: the construction of one's understanding of their gender.
- **Human development**: the study of how humans change and grow over their lifespan.
- **Intersectionality**: the interconnected relationship between systemic privilege and oppression, social identities, and the impact on one's experiences in society.
- **Language development**: a process by which children acquire and process language and learn how to use it to communicate with others.
- **Moral development**: a process by which children process their understanding of right and wrong as related to their social and environmental contexts.
- **Physical development**: a process in which children's brains and bodies grow to help them engage with and thrive in their environment.
- **Privilege**: advantage and opportunity based on social identity, which can be earned or unearned.
- **Oppression**: a form of systemic injustice based on social identity, resulting in social disadvantages and barriers to individuals and groups.
- **Sexual development**: a biological and physiological process by which children develop awareness of their bodies, leading to sexual maturation, sexual identity, and awareness of oneself as a sexual being.
- **Social construction**: a concept or idea that is assigned a specific meaning or value in a society.
- **Social determinants**: the physical and social circumstances, shaped by larger societal forces, that can substantially influence individual and group outcomes.
- **Social determinants of health**: the conditions in the places where people live, learn, work, and play that affect a wide range of health risks and outcomes.
- **Social and emotional development**: a process by which children gain understanding of themselves, their emotions, and the connections between themselves and others.
- **Social justice**: the belief that all people are deserving of equal rights, protections, and opportunities in society.
- **Systemic inequalities**: biases and practices embedded within systems of society that lead to advantages for some groups in society and disadvantages for others.

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CHAPTER

2

Theory and Research in Child Development

2.1 Chapter Overview and Learning Objectives

In Chapter 1, you were introduced to the history of **human development** and some of the **equity** issues that impact children and their families. A historical perspective of childhood was explored, including discussing childhood as a **social construction**. In this chapter, you will learn how researchers use social constructions to organize or explain aspects of their study and work. This helps them ground big ideas or themes in ways that the general population can understand. We will also take a look at how theory and research is created and adapted based on cultural and knowledge shifts. This textbook covers several theories for each of the ages and stages of childhood. We will discuss those theories and the researchers, as well as explore the limitations and biases within each theoretical framework.

Learning Objectives

After reading this chapter, you will be able to:

1. Recognize how theories are developed and applied in research and study design.
2. Identify the major developmental theories used throughout the textbook.

Key Terms

Throughout this chapter, you will be introduced to important key terms that will help deepen your understanding of human development.

- **Empirical evidence**: research that produces consistent and verifiable results.
- **Hypothesis**: an educated guess used in research.

- **Qualitative research**: the collection of non-numeric data to understand or explain big concepts or human perspectives.
- **Quantitative research**: the measurement of phenomena by collecting numerical data.
- **Self-actualization**: a concept in Maslow's theory that describes the ability for one to reach their full potential and desires.
- **Self-efficacy**: the belief in one's ability to accomplish tasks and goals.
- **Theory**: an explanation of behaviors or actions based on research data or evidence.
- **Transcendence**: a concept in Maslow's theory that describes the highest level of the human experience in which one relates to a higher goal outside of oneself.

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2.2 Theories and Research

Humans have always strived to understand the world around them. The information encompassed within the **human development** field is so vast that researchers have found ways to organize information to explain their ideas, observations, and findings. This is where theories come in. They help us answer questions and make sense of the world. Theories are developed once researchers gather ample data and facts from observations or research. Patterns and outcomes that are similar and that occur over and over again are analyzed and form the basis of theoretical frameworks (Dwyer, 2020). Theories in child development help us understand and even predict behavior and when it will emerge. Let's take a closer look at what a theory is.

What Is a Theory?

A **theory** is an explanation about behaviors or actions based on the collection of research data or evidence. Theories are formulated using a **hypothesis** (an educated guess) about why something is happening. Researchers "test" the theory and gather evidence that supports their guess or refutes it. If you have ever wondered why your sibling is so very different from you despite having the same parents, there are theories to help make sense of it. Theories are important tools for guiding our understanding. They are also important for researchers who want to improve existing theories or develop new ones.

A theory tends to be established in the scientific community once scholars agree on the meanings of concepts. Many concepts used in scientific theories have fairly stable properties, which means that once established, those concepts do not change much over time. This is very important because a theory about adolescence, for example, would not make sense if the meaning of adolescence changed every time we used the word. Because the ages and behaviors related to adolescence have remained fairly consistent over time, we are able to use theories decades after they were first established.

However, it is important to note that theories, much like fashion trends, can become outdated. Society continually changes, and researchers must review and evaluate theories in order to keep up

with scientific advancements and patterns of human behavior. One example of this is John Locke's 17th century "tabula rasa" (blank slate) theory. He believed that children are born with minds that are blank slates and rely solely on experience, or nurture, to develop socially and morally (Locke, 1689). Modern research informs us that while we are indeed influenced by our environment (nature), we inherit genetic information and qualities (nature) that also influence our development.

By updating the knowledge around how children's brains are developed from birth, researchers can form better theories to explain human development.

How Research and Theory Work

Human development is a field of study that encompasses natural, social, and human sciences. Science is important because it helps us understand how the world (and people) work. Fundamentally, all sciences are concerned with ideas, data, and the relationships between them. Theory is based on ideas, and research is based on data. Science can only advance as long as its theories and research studies are productive and mutually reinforcing. If research produces consistent and verifiable results, or **empirical evidence**, the data might lead to the development of a new theory or support an existing theory.

Empirical research can be categorized into two types: qualitative and quantitative. Each method provides us with different ways to understand information. **Qualitative research** involves collecting non-numerical data to understand or explain big concepts or human perspectives (Bouchrika, 2023). Some examples of qualitative research include observations, case studies, or interviews. This type of research helps us answer "why" and "how" questions. **Quantitative research** involves measuring phenomena by collecting numerical data (Bouchrika, 2023). Some examples of quantitative research methods include surveys, polls, and questionnaires, which aim to gather statistical information that can be analyzed objectively. This type of research helps us answer questions like "what" and "how much."

Both methods are important in providing us with information. Together, they can give us a broader or more well-rounded understanding about a particular topic, experience, or behavior. Theories are important during the research process and can be applied during different stages of quantitative and qualitative research (Stewart & Klein, 2016). For example, theories can help researchers define their research questions, provide rationale for their studies, and provide a framework for analyzing and understanding data (Stewart & Klein, 2016).

How Theories Change Over Time

We have learned so far that theories offer explanations about how something works and that there is a lot of research involved in testing and supporting theories. However, we also learned that theories can shift over time. The way that we use theories can also change. Change can be influenced by new data or evidence that contradicts previous assumptions or theoretical frameworks. Similarly, advances in technology or methodology that allow for more accurate or precise measurements can influence how theories change or how they are used.

The following are some common reasons why theories can change over time:

- Paradigm shifts: Sometimes a new way of thinking about a phenomenon emerges that alters the way scientists approach the subject. This can be the result of a major discovery or breakthrough or a new theoretical framework that provides a more comprehensive or com-

pelling explanation for existing data. For example, Isaac Newton's theory of physics proposes that time and space are the same everywhere, for all observers. Albert Einstein later developed his theory of relativity, which proposes that time and space are relative to the observer's perspective (Westacott, 2019). This shift in physics was profound and increased our understanding of how the universe works.

- Modification of assumptions: As new data or evidence emerges, scientists may need to modify their underlying assumptions about the nature of the phenomenon they are studying. For example, in the early days of astronomy, it was assumed that the Earth was at the center of the universe, but this idea was gradually replaced with the heliocentric model, which acknowledges that Earth and planets revolve around the sun.
- Incorporation of new data: As new data becomes available, scientists may need to revise their theories to account for it. This can involve adding new concepts or mechanisms to the theory, or adjusting existing parameters to fit the new data.
- Refinement of methodology: Advances in technology and methodology can also lead to changes in theories over time. For example, the development of the electron microscope allowed scientists to see structures at the cellular and molecular level that were previously invisible, leading to new insights into the workings of living systems.
- Evolution of scientific consensus: As new data and ideas are debated and evaluated, a consensus can emerge within the scientific community about the best explanation for a given phenomenon. This consensus can evolve as new evidence and arguments are presented, and it can lead to changes in the dominant theories or frameworks within a field.

Overall, theories change over time as our understanding of the world evolves and new discoveries are made. Science is a repetitive process, and theories are continually refined and updated as new data and insights emerge.

Bias in Research and Theory

Theory in the human development field has been crucial in helping us understand how people grow and change over their lifespan. It is important to note that developmental theories have faced criticisms for their lack of attention to **equity** and inclusion issues, especially in the early stages. Some of the issues with equity and inclusion in human development theory include:

- Universalism: The early formulations of human development theory assumed that everyone had the same needs and aspirations, which could be met through economic growth and the provision of basic services. However, this approach ignores the fact that different groups may have different needs and aspirations based on their social, cultural, and economic backgrounds.
- Individualism: Human development theory has traditionally focused on the individual as the unit of analysis, which can lead to neglect of the social and structural factors that shape people's lives. This approach overlooks the impact of discrimination, inequality, and marginalization on people's opportunities and choices.
- Eurocentrism: The origins of human development theory lie in Western academic traditions and values, which can lead to a biased and narrow understanding of human development. This approach can neglect the diverse cultural and historical contexts in which development takes place and the different perspectives of non-Western societies.

- Inadequate participation: The early formulations of human development theory did not emphasize the participation of marginalized and excluded groups in the development process. This approach can lead to the neglect of their perspectives and priorities and limit their agency in shaping their own lives.
- Sexism: Historically, human development theory was developed by men and often focused on the experiences and needs of men, with little attention given to the specific experiences and needs of women.
- Gender-blindness: In the early formulations of human development theory, gender was often ignored as a category of analysis. This meant that the development policies and programs were often designed with men in mind, and the experiences and needs of other genders were not taken into account.
- Stereotyping: When women were acknowledged in human development theory, they were often portrayed in stereotypical roles as caregivers, mothers, or wives. This portrayal reinforced gendered stereotypes and ignored the diversity of women's experiences and roles.
- Invisibility of unpaid care work: Women's unpaid care work, which includes activities such as childcare, cooking, cleaning, and other household tasks, was often invisible in human development theory. This invisibility meant that women's contributions to the economy and society were undervalued and overlooked.
- Limited agency: Women were often portrayed as passive recipients of development policies and programs, rather than as active agents in shaping their own lives. This approach ignored women's agency and ability to create change in their own communities.
- Classism: Classism in research refers to bias or discrimination against individuals based on their socioeconomic status. Classism can manifest in research in several ways, including exclusion of lower-income participants, failure to account for socioeconomic factors, limited access to research funding, limited diversity in research teams, and use of classist language.
- Ableism: Ableism in research refers to the exclusion, marginalization, or discrimination of individuals with disabilities in research studies. Ableism in research can manifest in several ways, including exclusion of individuals with disabilities from research studies, stereotyping of individuals with disabilities, lack of accessibility in research studies, and including individuals with disabilities in research studies solely to meet diversity quotas, rather than to actively engage them in the research process.

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2.3 Stage Theories

There are many theories used to describe how children develop over their lifespan. Stage theories are those that are organized into distinct changes in development, or leaps, which help us understand growth and provide us with guidance on when to expect changes in learning or skills. These theories often align with age based expectations and milestones. We mentioned earlier that theories can become outdated due to cultural shifts and new research findings. Because of this, we do not include many of the typical developmental theories present in other textbooks.

For example, students or instructors who have studied psychology or **human development** in the past might be surprised that we do not feature Sigmund Freud and his research. While we recognize that parts of Freud's work were used by other theorists featured in this textbook, we simply do not find his theories relevant in describing child development in today's society. Lastly, we will include common criticisms of each theory. Theories are helpful, but we recognize that they are not always inclusive or free from bias.

Theory of Cognitive Development

Featured in Chapter 5, Chapter 7, Chapter 10, and Chapter 13.

Jean Piaget (1896–1980) is one of the most influential cognitive theorists. Piaget was inspired to explore children's ability to think and reason by watching his own children's development. He was one of the first to recognize and map out the ways in which children's thought differs from that of adults. His interest in this area began when he was asked to test the IQ of children and began to notice that there was a pattern in their wrong answers. He believed that children's intellectual skills change over time through maturation. Children of differing ages interpret the world differently.

Piaget believed our desire to understand the world comes from a need for cognitive equilibrium. This is an agreement or balance between what we sense in the outside world and what we know in our minds. If we experience something that we cannot understand, we try to restore the balance either by changing our thoughts or by altering the experience to fit into what we do understand. Perhaps you meet someone who is very different from anyone you know. How do you make sense of this person? You might use them to establish a new category of people in your mind, or you might think about how they are similar to someone else.

Schemas are categories of knowledge. They are like mental boxes of concepts. A child has to learn many concepts. They may have a schema for "under" and "soft" or "running" and "sour." All of these are schemas. Our efforts to understand the world around us lead us to develop new schemas and modify old ones.

One way to make sense of new experiences is to focus on how they are similar to what we already know. This is assimilation. So the person we meet who is very different may be understood as being "sort of like my brother" or "his voice sounds a lot like yours." Or a new food may be assimilated when we determine that it tastes like chicken!

Another way to make sense of the world is to change our minds. We can make a cognitive accommodation to this new experience by adding a new schema. For instance, when you try a new food and think, "This food is unlike anything I've tasted before. I now have a new category of foods that are bitter-sweet in flavor," you are engaging in accommodation. Children accommodate more frequently as they build new schemas. In contrast, adults tend to look for similarities in their experi-

ences and assimilate. They may be less inclined to think "outside the box."

Piaget suggested different ways of understanding that are associated with maturation. He divided this into four stages (figure 2.1).

Name of Stage	Description of Stage
Sensorimotor stage	Piaget believed that at the outset of life children are working to develop their sensory systems and motor skills. During the **sensorimotor stage**, they exercise their senses through use and practice; many parents can remember times when their children touched everything, put everything in their mouths, and smelled everything. Because the only way children have of taking in information is through their senses, and the only way to move and take care of themselves is through their motor skills, it's quite logical that the first stage of life would include a great effort to refine these skills.
Preoperational stage	Children in the **preoperational stage** have fairly well-developed sensory systems but have not yet developed the logic needed to make sense out of all they can perceive. For instance, they use their ability to generalize in an illogical way, perhaps believing that, because they have a cat, all fur-bearing animals are cats. They may also notice parts of an object, but not relate those parts to the whole object. Children in this stage often see things as static and unchanging. They also lack the skill of reversibility, meaning they are unable to tell that 300 ml of water in a tall, thin glass is still the same amount of water when it is poured into a short, wide glass. Perhaps because of their limited ability to understand all that they perceive, children often ask "why," sometimes driving their parents to distraction. And, since we don't allow children to experience adult life and adult concerns, they often act out fantasy games and make-believe during this stage in an effort to experience and understand the world.
Concrete operational	Between the ages of 7 and 11, children enter the **concrete operational** stage and develop the ability to think logically about the physical world. Middle childhood is a time of understanding concepts such as size, distance, constancy of matter, and cause-and-effect relationships. A child knows that a scrambled egg is still an egg and that 300 ml of water is still 300 ml, no matter what shape of glass contains it.
Formal operational	At about age 12, children reach the **formal operational** stage and acquire the ability to think logically about concrete and abstract events. An older child who has reached this stage is able to consider possibilities and contemplate ideas about situations that have never been directly encountered. A more abstract understanding of religious ideas, morals, and ethics is possible, and abstract principles, such as freedom and dignity, can be considered.

Figure 2.1. Jean Piaget's Theory of Cognitive Development.

Criticisms of Piaget's Theory

Although Piaget's theory has made significant contributions to the science of child development, Piaget has been criticized for overemphasizing the role that physical maturation plays in **cognitive development** and for underestimating the role that culture and interaction (or experience) play in cognitive development. Looking across cultures reveals considerable variation in what children are able to do at different ages. Piaget may have underestimated what children are capable of, given the right circumstances.

Piaget's theory of cognitive development suggests that cognitive development is complete by the age of 12. However, most recent research demonstrates that this developmental period of adolescence is one of important cognitive increases. Another main criticism of Piaget is his methodological approach, especially with regard

to his use of his own children in his observations and his cultural bias.

Psychosocial Theory

Featured in **Chapter 6** and **Chapter 8**.

In his theory of psychosocial development, Erik Erikson (1902–1994) suggested that our relationships and society's expectations motivate much of our behavior. Erikson was a student of Freud, but he emphasized the importance of the ego, or conscious thought, in determining our actions. In other words, he believed that we are not driven by unconscious urges. We know what motivates us and consciously think about how to achieve our goals. He is considered the father of developmental psychology because his model gives us a guideline for the entire life span and suggests certain primary psychological and social concerns throughout life.

Erikson expanded on Freud's theory by emphasizing the importance of culture in parenting practices and motivations and adding three stages of adult development (Erikson, 1950; 1968). He believed that we are aware of what motivates us throughout life and that the ego has greater importance in guiding our actions than the id. We make conscious choices in life, and these choices focus on meeting certain social and cultural needs rather than purely biological ones. Humans are motivated, for instance, by the need to feel that the world is a trustworthy place, that we are capable individuals, that we can contribute to society, and that we have lived a meaningful life. These are all psychosocial problems.

Erikson divided the lifespan into eight stages (figure 2.2). In each stage, we have a major psychosocial task to accomplish or a crisis to overcome. Erikson believed that our personality continues to take shape throughout our lifespan as we face these challenges.

Name of Stage	Description of Stage
Trust versus mistrust (0–1)	Infants must have their basic needs met consistently to feel that the world is a trustworthy place.
Autonomy versus shame and doubt (1–2)	Mobile toddlers have newfound freedom they like to exercise, and by being allowed to do so, they learn some basic independence.
Initiative versus guilt (3–5)	Preschoolers like to initiate activities and emphasize doing things "all by myself."
Industry versus inferiority (6–11)	School-aged children focus on accomplishments and begin comparing themselves with their classmates.
Identity versus role confusion (adolescence)	Teenagers try to gain a sense of identity as they experiment with various roles, beliefs, and ideas.
Intimacy versus isolation (young adulthood)	In our 20s and 30s, we make some of our first long-term commitments in intimate relationships.
Generativity versus stagnation (middle adulthood)	In our 40s through our early 60s, we focus on being productive at work and home, and are motivated by wanting to feel that we've contributed to society.
Integrity versus despair (late adulthood)	We look back on our lives and hope to like what we see—that we have lived well and have a sense of integrity because we lived according to our beliefs.

Figure 2.2. Erik Erikson's Psychosocial Theory.

Criticisms of Erikson's Theory

These eight stages form a foundation for discussions on emotional and social development during a lifespan. However, these stages or crises can occur more than once. For instance, a person may struggle with a lack of trust after infancy under certain circumstances. Erikson's theory has been criticized for focusing so heavily on stages and assuming that the completion of one stage is a prerequisite for the next crisis of development. His theory also focuses on social expectations that exist in certain cultures but not in all. For instance, the idea that adolescence is a time of searching for identity might translate well in the middle-class culture of the United States but not as well in cultures where the transition into adulthood coincides with puberty through rites of passage and where adult roles offer fewer choices.

Kohlberg's Stages of Moral Development

Featured in Chapter 5, Chapter 7, Chapter 11, and Chapter 13.

Lawrence Kohlberg (1927-1987) was an American psychologist who was interested in learning about moral reasoning throughout the lifespan. He was influenced by Piaget's ideas on cognitive development, specifically the way in which an individual reasons and thinks. Kohlberg was less interested in how reinforcement influenced behavior, which was a popular view during his time, and instead wanted to learn more about how an individual forms moral ideas that influence their decision-making.

Kohlberg studied his ideas by analyzing how children respond to moral dilemmas. He interviewed boys ages 10, 13, and 16 and taped their

responses, leading to his creation of the six stages of **moral development** (Kohlberg, 1963). Kohlberg organized these stages into three levels of moral reasoning, coinciding with age progression and advances in cognitive thinking (figure 2.3).

The Heinz dilemma is one of Kohlberg's most well-known dilemmas and consists of a person responding to the question "Should the husband have done that?" (Kohlberg, 1969).

> A woman was near death from a special kind of cancer. There was one drug that the doctors thought might save her. It was a form of radium that a druggist in the same town had recently discovered. The drug was expensive to make but the druggist was charging ten times what the drug cost him to make. He paid $200 for the radium and charged $2,000 for a small dose of the drug. The sick woman's husband, Heinz, went to everyone he knew to borrow the money but he could only get together about $1,000, about half of what the drug cost. He told the druggist that his wife was dying and asked him to sell it cheaper or let him pay later. But the druggist said: "No, I discovered the drug and I'm going to make money from it." Heinz got desperate and broke into the man's store to steal the drug for his wife.

Stage of moral development	Age range	Stage Number	Description
Preconventional Morality	Young children	Stage 1	Individuals are focused on their own self-interest and avoiding punishment. The man shouldn't steal the drug, as he may get caught and go to jail.
Preconventional Morality	Young children	Stage 2	Individuals seek rewards. A person at this level will argue that the man should steal the drug because he does not want to lose his wife, who takes care of him.
Conventional Morality	Older children, adolescents, most adults	Stage 3	Individuals focus on how situational outcomes impact others and want to please and be accepted. The man should steal the drug because that is what good husbands do.
Conventional Morality	Older children, adolescents, most adults	Stage 4	People make decisions based on laws or formalized rules. The man should obey the law because stealing is a crime.
Post Conventional Morality	Some adolescents, some adults	Stage 5	Individuals employ abstract reasoning to justify behaviors. The man should steal the drug because laws can be unjust, and you have to consider the whole situation.
Post Conventional Morality	Some adolescents, some adults	Stage 6	People base their moral behavior on self-chosen ethical principles. The man should steal the drug because life is more important than property.

Figure 2.3. Lawrence Kohlberg's Levels of Moral Reasoning Using the Heinz Dilemma.

Criticisms of Kohlberg's Theory

The biggest criticism of Kohlberg's work concerns the lack of female subjects and inclusivity. Kohlberg only tested male subjects, and he presumed that only males could achieve higher levels of moral development and that women would get stuck at stage 3 due to their focus on relationships and nurturance (Waller, 2005). Kohlberg's stages were also reviewed for cultural inclusivity. It was noted that while similarities exist across cultures regarding moral reasoning in the earlier stages, this was not the case in the later stages, most likely due to significant cultural differences in ideas of respect, truth, and other moral values (Gibbs et al., 2007).

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Figure 2.1. Jean Piaget's Theory of Cognitive Development adapted from **Child Growth and Development**, by Jennifer Paris, Antoinette Ricardo, & Dawn Rymond is licensed under **CC BY 4.0**.

Figure 2.2. Erik Erikson's Psychosocial Theory adapted from **Erikson's Psychosocial Stages of Development, Child Growth and Development** by Jennifer Paris, Antoinette Ricardo, & Dawn Rymond is licensed under **CC BY 4.0**.

Figure 2.3. Lawrence Kohlberg's Levels of Moral Reasoning Using the Heinz Dilemma table adapted from "**Child Growth and Development**" by Jennifer Paris, Antoinette Ricardo, & Dawn Rymond is licensed under **CC BY 4.0**.

2.4 Social, Environmental, and Attachment Theories

The theories presented in this section are similar to stage theories because they help us explain and understand behavior. Yet, these theories do not follow a specific progression and instead acknowledge that behavior and skills are influenced by many factors, such as social context, environmental influences, and caregiver interactions. Therefore, changes or leaps in development can happen at any time, for many reasons.

We will provide some background on each theory and include important criticisms and biases within the theory that may misinform our understanding of child development. It is important to note that science in Western cultures, such as in the United States, represents a specific set of cultural values. This is often contrasted with a growing, ethnically diverse population. Children are often raised in environments that may not follow mainstream norms or that combine norms and values from multiple cultures. By recognizing these differences, we can better understand how children develop within their specific social and cultural environments.

Maslow's Hierarchy of Needs

Featured in: **Chapter 1**, **Chapter 4**, **Chapter 6**, and **Chapter 9**.

Abraham Maslow (1908-1970) was an American psychologist who was interested in many aspects of the human experience. He was motivated to understand human behavior due to his childhood experiences and the horrors he witnessed in the United States during World War II (Hoffman, 2008). He believed that the field of psychology could remedy social issues by helping people understand each other (Hoffman, 2008). In 1943, Maslow published his famous work *A Theory of Human Motivation* in which he describes the physical and psychological conditions humans need for their well-being.

In his attempt to understand human behavior, Maslow's theory categorized people's actions and needs into a hierarchy of needs, which we previously introduced in **Chapter 1**. He believed that people were motivated to first fulfill their basic needs before moving to "higher" needs (Maslow, 1943). The most basic human needs are defined as physiological needs, those which satisfy our hunger, thirst, sexual reproduction, and important bodily functions. This also includes the need for safety and security, which entails healthy attachments to our caregivers, safe and predictable environments, and protection from harm. Maslow believed that when people's basic needs are not met, they may develop a fixation on those needs and even develop neurosis or psychological issues as a result (Maslow, 1943). This impacts their overall well-being.

The third level in the hierarchy of needs is the social needs, which include love, acceptance, and belonging (Cherry, 2022). These needs become the primary focus for individuals once their basic needs are met. Humans seek positive relationships with others and affection through family relationships, romantic relationships, and community activities, such as religious groups or sports (Cherry, 2022). The fourth level of Maslow's hierarchy includes esteem needs. "All people in our society (with a few pathological exceptions) have a need or desire for a stable, firmly based, (usually) high evaluation of themselves, for self-respect, or self-esteem, and for the esteem of others" (Maslow, 1943). Maslow believed that people strive to be respected and valued by others, as well as to feel as though they are of value to the world. Together, the social and esteem needs make up the psychological focus of Maslow's theory (Cherry, 2022).

At the top of Maslow's hierarchy is the need to attain **self-actualization**, or a person's ability to reach their full potential and desires (Maslow, 1943). Once all of the lower needs are satisfied, people can focus on their inner selves. Before Maslow died in 1970, he added an additional level known as transcendence to the hierarchy of needs (Figure 2.4). He describes **transcendence** as the highest level of the human experience in which one relates to a higher goal outside of oneself (Messerly, 2017). This amendment is significant in understanding Maslow's theory because it changes the focus from fulfilling one's own potential (personal needs) to serving something that is greater than oneself (world or community needs).

Need	Definition
Self-transcendence	One's dedication of energy to reaching a goal or a state of consciousness that is higher than one's concern for oneself Example: Concern for social justice or global issues
Self-actualization	Achieving one's full abilities or desires Example: Becoming a musician because of a love for music
Self-esteem	One's need to be valued by others and to contribute something to the world Example: Achieving an academic accomplishment
Love, acceptance, belonging	One's need for emotional connection, which drives human behavior Example: Getting married or being part of a sports team
Safety	One's primary need to feel secure and safe in one's environment and relationships Example: Forming a positive attachment to a healthy caregiver
Physiological	One's primary need to maintain the body's functions for survival Example: Seeking food and water above all else

Figure 2.4. Maslow's Hierarchy of Needs.

Criticisms of Maslow's Theory

Despite the importance of Maslow's theory on human motivation, it has faced many criticisms since its publication. The main issue raised by critics concerns the hierarchical nature of the order of needs. Scholars feel that there is insufficient evidence to support the idea that human needs exist in a hierarchy (Celestine, 2017), although modern research confirms that humans across the globe share universal needs (Tay and Diener, 2011). Maslow's theory is often portrayed as a pyramid, emphasizing the hierarchical nature, but it is important to note that Maslow did not create this image of this theory, nor did he fully emphasize a strict order to human needs. Maslow recognized that the hierarchy is not rigid and that there are many reasons why people move through the levels in different orders, including personal preferences and skills, as well as societal standards (Maslow, 1943).

Other issues raised by scholars include the failure of the hierarchy to account for cultural differences, the impact of gender on the hierarchy of needs, and the impact of an individualist versus collectivist worldview (Celestine, 2017). One of the more notable controversies concerns the origin of Maslow's theory. In 1938, Maslow spent several weeks with the Sisika (Blackfoot) people, doing research on the Blackfoot reservation in Canada (Taylor, 2019). He learned about their generosity and how prestige and security were earned in their society (Taylor, 2019). Many people feel that Maslow appropriated Blackfoot teachings without giving them credit, since he published his paper on the hierarchy of needs after his visit (Taylor, 2019). Blackfoot scholars Narcisse Blood and Ryan Heavy Head studied Blackfoot influence on Maslow and summarized their findings in

video lectures published in the Blackfoot Digital Library. They found that Maslow was impressed by the levels of cooperation and satisfaction experienced by the community as a whole. He saw that self-actualization (a concept which would later be coined in Maslow's published work) was a norm for the Blackfoot people, which eventually led to a deeper understanding of human motivation (Blood & Heavy Head, 2007). Given the concern of cultural appropriation and Indigenous erasure in history and modern American culture, it is important for theorists to acknowledge the origins of theoretical thought and research. Clearly, Maslow learned a lot by immersing himself in Blackfoot culture.

While Maslow's theory is widely accepted and studied, it is important to acknowledge that it was developed within the context of Western culture, and its applicability to other cultures may be limited. The Blackfoot tribe, for example, has its own unique cultural and spiritual traditions that shape its understanding of human needs and motivations. They do not have a specific model, but their culture values the well-being of the community as a whole, which is just as important as the well-being of the individual. Therefore, their "hierarchy of needs" is more holistic and encompasses the individual's relationship with the community and the natural world.

Social Cognitive Theory (Social Learning Theory)

Featured in **Chapter 6** and **Chapter 8**.

Albert Bandura (1925-2021) was a Canadian psychologist who recognized the importance of observation, modeling, and imitation in learning. Bandura conducted several experiments to test his theories around observational learning in children (Bandura, Ross, & Ross, 1961; Bandura, 1965). His 1961 lab experiments consisted of preschool aged children observing adult models who were physically and verbally aggressive toward Bobo inflatable dolls. In his 1965 study, children observed adult behavior combined with positive and negative reinforcement. Both sets of studies demonstrated that children mimic observed behaviors, especially when the adult model is rewarded. Imitation was less likely if the adult was reprimanded for their actions.

These studies were key in the development of Bandura's social learning theory, illustrated in figure 2.5, which proposes that children's behaviors are reinforced by social interactions and context (Bandura, 1977). Bandura's beliefs aligned with the theories of classical and operant conditioning, which state that learning takes place in association with external stimuli and/or through positive and negative reinforcement. Further, Bandura emphasized that both the environment and cognitive factors influence a child's learning and behavior (Sutton, 2021). Children can learn simply by observing others, but "attention, retention, reproduction, and motivation are required in order to benefit from social learning practices" (U.C. Berkeley, 2023).

In 1986, Bandura updated his theory to account for cognitive factors, as well as placing emphasis on a child's sense of **self-efficacy**, or the belief in their ability to accomplish tasks and goals. Social cognitive theory proposes that learning occurs through the interactions between a person's environment, personal factors, and behavioral factors (Bandura, 1986).

Figure 2.5. Bandura's theory is helpful for understanding motivation as a factor of whether one believes their actions make achieving their goals more or less likely. **Image description.**

Criticisms of Bandura's Theory

Albert Bandura's social cognitive theory has been helpful in understanding and sometimes predicting people's behavior, but it is not without some criticism. The Bobo Doll studies shed light on how a child might learn about aggression, which has been instrumental when researching the effects of media, such as violence on television or in video games. Unfortunately, the studies themselves are considered unethical due to the fact that they exposed young children to, and taught them to exhibit, aggression. Another criticism includes the lack of attention to biological factors, which may downplay the importance of temperament and personality in how children learn. There are also cognitive differences in how children learn, which can influence whether or not children will mimic the behaviors they are exposed to.

Sociocultural Theory

Featured in **Chapter 5**, **Chapter 7**, **Chapter 10**, and **Chapter 13**.

Lev Vygotsky (1896–1934) was a Russian psychologist whose work was discovered in the United States in the 1960s but became more widely known in the 1980s (figure 2.6). Vygotsky differed from Piaget in that he believed that a person not only has a set of abilities, but also a set of potential abilities that can be realized if given the proper guidance from others. His sociocultural theory emphasizes the importance of culture and interaction in the development of cognitive abilities. He believed that through guided participation known as scaffolding, with a teacher or capable peer, a child can learn cognitive skills within a certain range known as the zone of proximal development. His belief was that development occurred first through children's immediate social interactions, and then moved to the individual level as they began to internalize their learning.

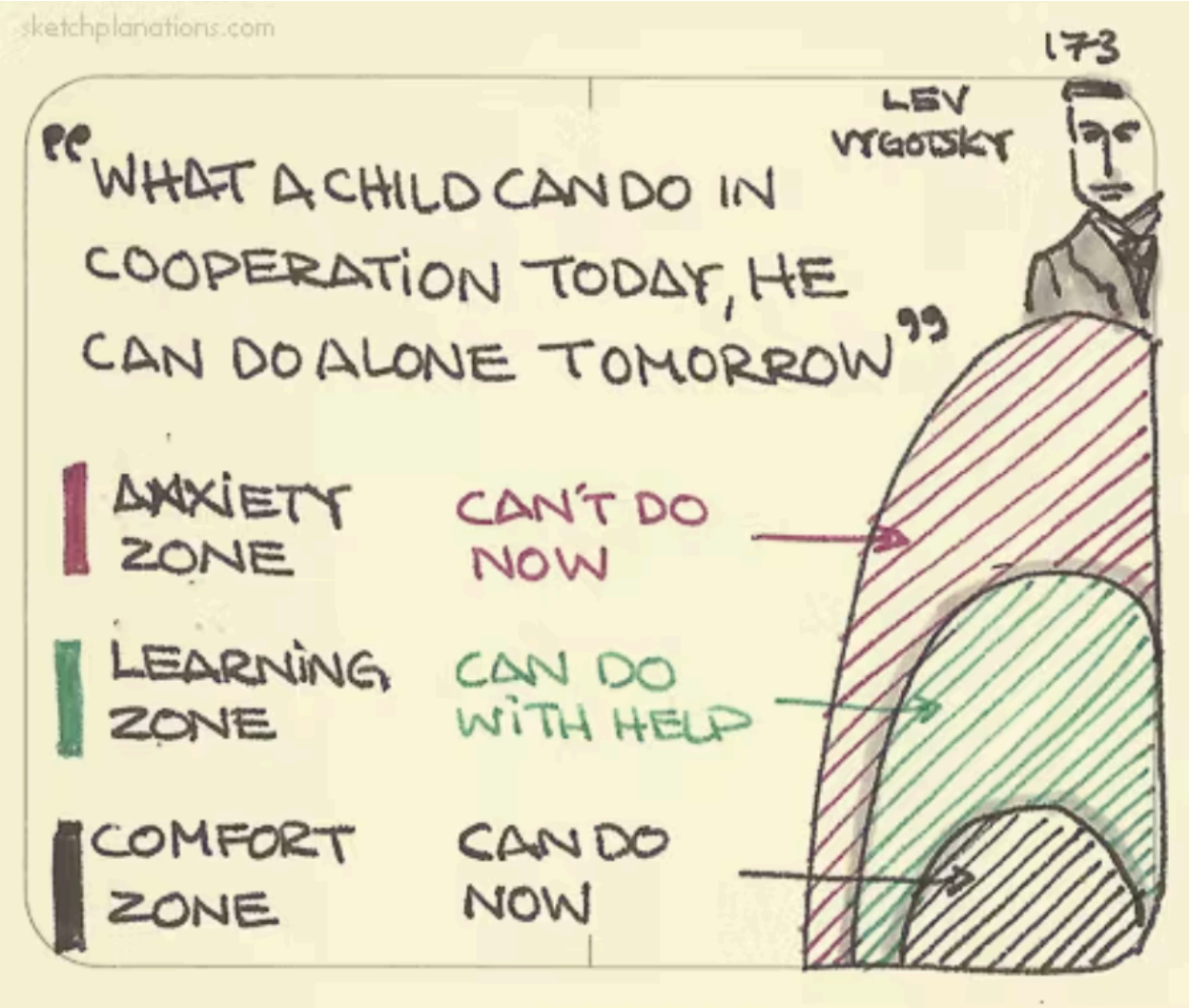

Figure 2.6. Lev Vygotsky's zone of proximal development is visualized as the "learning zone" in this diagram. **Image description.**

Have you ever taught a child to perform a task? Maybe it was brushing their teeth or preparing food. Chances are, you spoke to them, describing what you were doing as you demonstrated the skill and let them work along with you throughout the process. You gave them assistance when they seemed to need it, but once they knew what to do, you stood back and let them go. This is scaffolding and can be seen in cultures throughout the world. This approach to teaching has also been adopted by educators. Rather than assessing students on what they are doing, they should be understood in terms of what they are capable of doing with the proper guidance. You can see how Vygotsky would be very popular with modern-day educators.

> Vygotsky concentrated on the child's interactions with peers and adults. He believed that the child was an apprentice, learning through sensitive social interactions with more skilled peers and adults.

Vygotsky concentrated more on children's immediate social and cultural environment and their interactions with adults and peers. While Piaget

saw the child as actively discovering the world through individual interactions with it, Vygotsky saw the child as more of an apprentice, learning in a social environment under the guidance of others who had more experience and were sensitive to the child's needs and abilities.

Criticisms of Vygotsky's Theory

Vygotsky's social cognitive theory has been instrumental in understanding how children's learning is impacted by their social environment. One of the criticisms of Vygotsky's work is the assumption that the theory is relevant regardless of culture. For example, is learning similar when looking at individualistic cultures versus collectivist ones? Similarly, social cognitive theory does not take into account biological factors, such as the child's unique skills and functioning. Things like temperament or personality can have a profound impact on how a child learns.

Ecological Systems Model

Featured in **Chapter 5**, **Chapter 7**, **Chapter 10**, and **Chapter 13**.

Like Vygotsky, Urie Bronfenbrenner (1917–2005) examined social influences on learning and development. Bronfenbrenner offers us one of the most comprehensive theories of **human development** (figure 2.7). He studied Freud, Erikson, Piaget, and learning theorists and believed that all of those theories could be enhanced by adding the dimension of context. What is being taught and how society interprets situations depends on who is involved in the life of a child and on when and where a child lives.

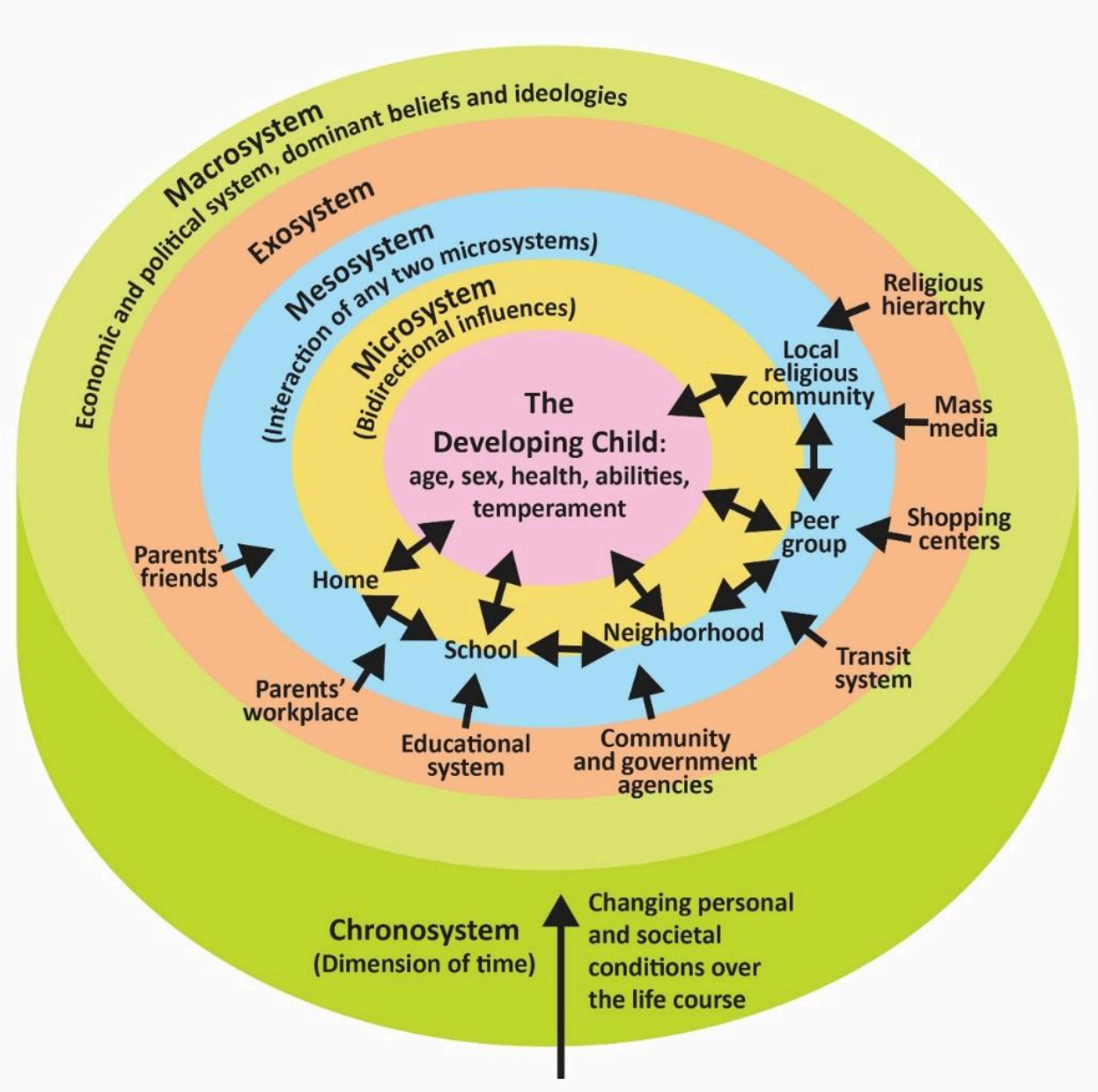

Figure 2.7. Bronfenbrenner's ecological systems model explains the direct and indirect influences on an individual's development. **Image description.**

Name of System	Description of System
Microsystems	**Microsystems** impact a child directly. These are the people with whom the child interacts, such as parents, peers, and teachers. The relationship between individuals and those around them needs to be considered. For example, to understand a student's progress in math, it's essential to know the relationship between the student and teacher.
Mesosystems	**Mesosystems** are interactions between the people and institutions surrounding the individual. The relationship between parents and schools, for example, will indirectly affect the child.
Exosystem	Larger institutions, such as the mass media or the health-care system, are referred to as the **exosystem**. These have an impact on families, peers, and schools that operate under the policies and regulations found in these institutions.
Macrosystems	We find cultural values and beliefs at the level of **macrosystems**. These larger ideals and expectations inform institutions that will ultimately impact the individual.
Chronosystem	All of this happens in a historical context referred to as the **chronosystem**. Cultural values change over time, as do the policies of educational institutions and governments in certain political climates. Development occurs at a point in time.

Figure 2.8 Urie Bronfenbrenner's Ecological Systems Model.

For example, to understand a student in a math class, we can't simply look at that individual and what challenges they face directly with the subject. We also have to look at the interactions that occur between teacher and child. Furthermore, we need to account for any modifications the teacher needs to make. The teacher may be responding to regulations made by the school, such as new student benchmarks or time constraints that interfere with the teacher's ability to instruct. These new demands may be in response to national efforts to promote math and science, which may in turn have been prompted by international relations at a particular time in history.

Bronfenbrenner's ecological systems model challenges us to go beyond the individual if we want to understand human development and promote improvements.

Criticisms of Bronfenbrenner's Theory

Bronfenbrenner's work provides a holistic view of how people learn and adapt, which allows the theory to be applied in many situations and cultural contexts. The biggest criticism of his theory is that it cannot be fully measured or empirically tested. While we can apply the theory in practice, we may not be able to attribute specific outcomes to the theory itself. Despite this, Bronfenbrenner's work has been valuable in analyzing children's behavior through a wider and more comprehensive lens.

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2.5 Conclusion

Theories help us ground our ideas and hypotheses about why people do what they do. The major developmental theories described in this chapter help us understand the developing child and explain common skills and behaviors that occur during specific periods of life. Next, we will take a look at the factors surrounding conception and birth. This is where our developmental journey starts with our parents or primary caregivers.

Review of Learning Objectives

1. Recognize how theories are developed and applied in research and study design.
2. Identify the major developmental theories used throughout the textbook.

Review of Key Terms

- **Empirical evidence**: research that produces consistent and verifiable results.
- **Hypothesis**: an educated guess used in research.
- **Qualitative research**: the collection of non-numeric data to understand or explain big concepts or human perspectives.
- **Quantitative research**: the measurement of phenomena by collecting numerical data.
- **Self-actualization**: a concept in Maslow's theory that describes the ability for one to reach their full potential and desires.
- **Self-efficacy**: the belief in one's ability to accomplish tasks and goals.
- **Theory**: an explanation of behaviors or actions based on research data or evidence.
- **Transcendence**: a concept in Maslow's theory that describes the highest level of the human experience in which one relates to a higher goal outside of oneself.

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CHAPTER

3

Conception, Pregnancy, and Prenatal Development

3.1 Chapter Overview and Learning Objectives

Long before we are born, there are a variety of factors that will influence our development. As seen in Chapter 2, there are many theories to explain how these factors contribute to our growth. Our biological parents and their biological families before them directly influence our genetic health upon conception. We know through medical science that diet or toxins cause changes with DNA. The field of **epigenetics** (the study of how our behaviors and environment can change the way our genes work) builds on this by examining the way that stressors like abuse or trauma are imprinted in DNA and passed down familial lines. In other words, our ancestors' past experiences can leave lasting marks that get passed to us.

Did you know that mitochondrial DNA, the energy producing structure in our cells, is passed down from our mothers (figure 3.1)? Scientists note that mitochondrial DNA changes very little from generation to generation. Because of this, they can trace back our ancestors through the maternal line for thousands of years. This is important when we think about development because mitochondria are responsible for generating 90 percent of the energy we need to function. Scientists once believed that our DNA make-up was fixed throughout our lives, but as we previously noted, we now understand that life events and environmental stressors can impact our DNA. For example, mutations within mitochondrial DNA may contribute to factors in aging and certain diseases (Srivastava, 2017).

In this chapter, we will be looking at the biological and environmental factors that influence

pregnant mothers and their developing babies. For the purposes of this textbook, the terms "pregnant mother," "pregnant person," "pregnant people," or other similar descriptors are used interchangeably to describe any person with a uterus who experiences pregnancy. The term "transgender men" will be used when addressing specific issues related to this group.

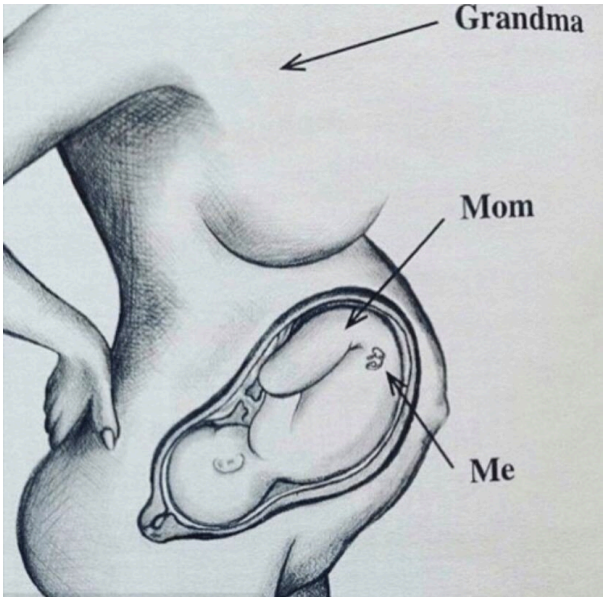

Figure 3.1. A pregnant figure, their female fetus, and the ova that will become future grandchildren. Environmental stressors and factors experienced by the pregnant mother can have a lasting impact on future generations.

Learning Objectives

After reading this chapter, you will be able to do the following:

1. Identify the biological, social, and environmental factors influencing conception and pregnancy.
2. Identify the stages of prenatal development.
3. Analyze the relationship between access to services and life outcomes.
4. Compare and contrast the cultural and social influences on pregnancy and prenatal care, and how they result in diverse pregnancy experiences.

Key Terms

Throughout this chapter, you will be introduced to important key terms that will help deepen your understanding of human development.

- **Advanced maternal age**: a term used to describe older expecting mothers, generally 35 years of age or older.
- **Biological sex**: the biological differences between males and females, such as differences in reproductive organs, hormones, and chromosomes; not the same thing as gender.
- **Chemoattractant**: a chemical signal that attracts cells or organisms to its source. Chemoattractants can be produced by cells or tissues in the body, and they can be found in the external environment.
- **Chromosomes**: the strands of proteins and genetic material, made up of DNA, that live within our cells.
- **Chromosomal abnormality**: occurs when a child inherits too many or too few chromosomes.
- **Cisgender**: a term used to describe people whose gender identity matches the sex they were assigned at birth.
- **Classism**: prejudice or discrimination based on social class or economic status, including factors such as wealth, income, education, and occupation.
- **Differential susceptibility**: the degree to which a person is sensitive to negative environmental influences, such as adverse childhood experiences, or resilient and able to cope with such experiences.
- **Dominant gene**: a gene that expresses itself in the phenotype even when paired with a different version of the gene.
- **Epigenetics**: the study of how our behaviors and environment can change the way our genes work.

- **Gender**: is a social construct based on biological sex that determines gender roles, behaviors, and expectations associated with being male or female.
- **Genes:** the basic building blocks of heredity, which are made up of DNA.
- **Genotype**: the total number of genes we inherit from our parents.
- **Geriatric pregnancy**: an outdated term that refers to a pregnancy in which the mother is 35 years of age or older. The term is used because there are certain increased risks associated with pregnancy at this age.
- **Heterozygous genotype**: when a person receives a different version of a gene from each parent.
- **Homozygous genotype**: when a person receives the same version of a gene from each parent.
- **Implicit bias**: the unconscious beliefs and attitudes that influence our judgments and actions.
- **Mitosis**: the process by which a cell's nucleus makes an exact copy of all the chromosomes and splits into two new cells.
- **Meiosis**: the process by which gametes (sperm and egg cells) are formed.
- **Nature**: the biological, genetic, and hereditary factors that are passed on to us from our parents and ancestors.
- **Nurture**: the environmental and social factors that influence development.
- **Phenotype**: the observable traits or characteristics of an organism that are expressed in its development.
- **Plasticity**: the ability of an organism or system to adapt to changes in its environment or experiences.
- **Polygenic**: a trait or characteristic that is influenced by multiple genes, rather than being controlled by a single gene.
- **Racism**: is a system of disadvantage based on race or perceived race.
- **Recessive gene**: a type of gene that is only expressed or observed in an individual's phenotype when two copies of the gene are present, one inherited from each parent.
- **Social determinants of health**: the conditions in the places where people live, learn, work, and play that affect a wide range of health risks and outcomes.
- **Teratogens**: environmental factors that can contribute to birth defects.
- **Transgender**: a term used to describe people whose gender identity differs from the sex they were assigned at birth.

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3.2 Becoming You: How Human Development Begins

Each one of us begins our developmental story at conception when the successful joining of an egg and sperm eventually produces an embryo. A lot happens during this beginning phase of life, including the influence of nature and nurture. **Nature** refers to the biological, genetic, and hereditary factors passed on to us by our parents and ancestors. **Nurture** refers to the environmental

and social factors that influence development, such as nutrition, stress, or access to health care (Tabery et al., 2014; Hosken et al., 2019).

Many scholars support the idea that nature and nurture are both significant in development, and it would be hard to attribute a trait or characteristic to only one factor. Both are important, and they even impact each other in a process called **bidirectionality** (Lerner, 2006). This means that aspects of our genetic and hereditary factors may influence the kind of nurturing environment we need to thrive. Nurture may, in turn, influence how our genes impact our day to day interactions with ourselves and others. The influence works in both directions. **Genes** are the basic building blocks of heredity, which are made up of DNA.

Let's use height as an example of how nature and nurture influence each other. You may have an idea about how tall you will be based on your genes. Your parents' height is a great predictor of how tall (or not so tall) you will grow. However, height is a **polygenic** trait, meaning that it is not determined by a single gene, but rather a network of genes. In fact, most of our features are polygenic (Turchin et al., 2012). So, you may be able to estimate your genetic potential for height, but what about the impact of the environment?

Height is not determined at conception, or even birth. It's more like genes create a range of what is genetically possible, and then your environment tips the scale one way or the other. With good sleep, nutrition, and regular exercise, you may grow to be on the high end of the genetic range. Low socioeconomic status or chronic stress may tip you the other way. These examples represent how nature and nurture constantly interact, expanding or contracting the possibilities of what may be for each individual.

It can be difficult, sometimes impossible, to know exactly how specific aspects of **human development** occur. Perhaps some of us are more sensitive to the influences of our genes, while others are more impacted by nurturing experiences (Sameroff, 2010). We may not all respond the same way to the same situation.

One theory that helps us understand the variations in human development is **differential susceptibility**. Differential susceptibility suggests that each person is born with a unique and varying degree of **plasticity**, which is the ability to be influenced by their environment (Belsky, 1997; Belsky et al., 2007). The level of plasticity depends on each individual, with some having a higher level than others. There is not a single factor that determines how plastic one is in their development. Instead, plasticity is influenced by our genetic make up and our environment.

For individuals who are more plastic, the conditions and experiences within their environment may have a greater impact on their development. In these cases, the effects of the good or positive inputs in a person's environment are heightened, and the negative or detrimental inputs in a person's environment, intensify the impact and degree of adversity (Jaffee et al., 2012). For individuals whose development is less plastic, the conditions of their environment and their experiences will have less of an impact on their overall development. However, this doesn't mean that the quality of input doesn't matter to the person and their overall well-being. It simply means that an individual with less plasticity may not fall as fast or as far in the face of adversity. We will have a deeper conversation about plasticity in Chapter 5.

Now that you have an understanding of the way nature and nurture work together, we will explore a little about our genetic makeup and the dynamic process of conception and prenatal development.

What Are Genes and Chromosomes?

Every single cell in our bodies, except for red blood cells (because they do not have a nucleus) contains deoxyribonucleic acid, or DNA, the unique material that serves as the building blocks for our genes. **Chromosomes** are thread-like structures that carry genetic information in the form of genes, which are made up of DNA. Imagine our DNA, genes, and chromosomes as a LEGO set. The DNA are the individual pieces. As with LEGO pieces, each piece of DNA serves a specific function in the design of the gene. The genes are like the blueprints for the buildings. In our bodies, genes contain the information to determine features like our hair color or whether our cheekbones resemble those of our mom or dad. Like the instructions for the LEGO set, the genes are how we get our unique look. Each completed minifigure or vehicle in the LEGO set is like a chromosome. When all 46 chromosomes come together, they represent a fully completed LEGO set, all of the people, buildings, and accessories in place. All of the pieces fit together to complete the puzzle.

Chromosomal and Genetic Abnormalities

In the United States, there are approximately 3 million babies born each year (Martin et al., 2021). The majority of these babies are born with the typical 46 chromosomes. Roughly 33 in every 1,000 babies, or about 3 percent, are born with a chromosomal abnormality. **Chromosomal abnormalities** are either structural or numerical. With a structural abnormality, a part of the chromosome does not duplicate correctly, resulting in missing information and an incomplete chromosome. Numerical abnormalities result when there are too many or too few chromosomes. Abnormalities may occur as early as conception. In many cases, a chromosomal abnormality will make it impossible for the fetus to survive, resulting in a spontaneous termination, more commonly called a miscarriage. According to the American College of Obstetricians and Gynecologists, 10 out of 100 known pregnancies end in miscarriage.

One risk factor that increases the risk of a chromosomal abnormality is the exposure to external factors that compromise fetal health, also known as **teratogens.** Some examples of teratogens are alcohol, smoking, exposure to pesticides and other chemicals, and use of pharmaceuticals, both prescription and illicit substances. Later in the chapter we will look more closely at how teratogens impact maternal and fetal health.

Genotype, Phenotype, and Heredity Factors

Do you like cilantro? You may love it and add it to all of your favorite dishes. You may hate it and think it tastes like soap. What you may not know is that the taste of cilantro is an inherited trait, determined by your genes. In fact, genes influence a lot of who we are, from what we look like to whether we are right or left handed. Even some of our preferences (such as whether you like cilantro) are impacted by our genetic makeup.

The genes we inherit from our parents make up our **genotype**. Because we get genetic material from both parents, it is possible to receive the same version of a gene from each. We call this a **homozygous genotype**. In this instance, we will display the characteristic because it is the only genetic option available. But it is also possible to get different versions of the same gene, such as the gene for eye color, which is called a **heterozygous genotype.** Eye color is an example of a trait that can be either homozygous or heterozygous. Blue eyes only occur if a person gets the same recessive gene from both parents. Brown eyes could result from either homozygous or heterozygous genes. If

a person gets a recessive blue eye gene from one parent, but the dominant brown eye gene from the other, they would have brown eyes, but a heterozygous genotype for eye color. If a person receives the dominant brown eye gene from both parents, they would have brown eyes, and a homozygous genotype for eye color.

In some instances, such as eye color, we cannot display both genes, so one gene will be visible or active, while the other will not. Dominant and recessive genes influence which genes are expressed. The observable traits or characteristics of an organism that are expressed in our development are called the **phenotype. Dominant genes** express themselves in the phenotype, even when paired with a different version of the gene. Their silent partner gene is called recessive. **Recessive genes** express themselves only when paired with a similar version gene. If you sneeze when you are exposed to the sun, you can thank your parents—both of them—because photic sneezing is caused by a recessive gene! Red hair is also recessive, which means that in order for you to have it, you must receive the gene from both parents.

As we learned earlier in this chapter, many characteristics are **polygenic**, meaning they result from several genes. In addition, the dominant and recessive patterns described are usually not that simple either. Sometimes, the dominant gene does not completely suppress the recessive gene. This is known as incomplete dominance.

A DEEPER DIVE INTO GENETICS

Our understanding of genetics has evolved throughout centuries of scientific inquiry. Much of what we know about how genetic traits work can be traced back to the work of Gregor Mendel, who first identified the concept of dominant and recessive genes through observing hybrid pea plants. He discovered that when he bred certain species of plants together, specific traits seemed to be passed on more often than others (dominant) and that other traits were only passed on when both plants shared the same trait (recessive). Of course, humans are much more complicated than pea plants, but the concept proved to be true, albeit a little more nuanced.

Reginald Punnett was also an important figure in biogenetics. He created the first tool for predicting the probability of hereditary traits being passed on. The Punnett square uses a simple two-by-two square and basic multiplication to predict the offspring's probability of a specific trait based on the possible combinations of two parents' genetic information (figure 3.2).

Check out the link for more information on how dominant and recessive genes interact. You can even play with this **Punnett square calculator [Website]** and see probabilities of gene makeup.

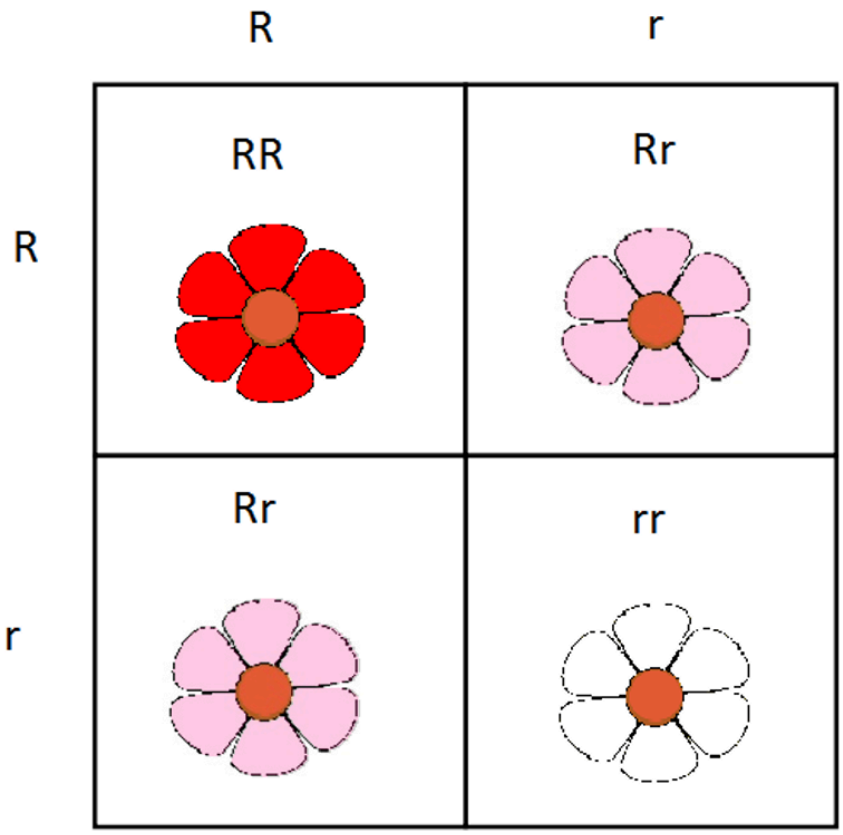

Figure 3.2. A Punnett Square predicts the probability of hereditary traits being passed on.

Epigenetics

Earlier in the chapter, we learned about how nature and nurture interact to help shape our development. We learned that our genetic material is inherited (genotype) and that genes are expressed in several ways (phenotype). A gene may be turned on (expressed) or turned off (not expressed) based on environmental factors. To help us think about how epigenetics is related to gene expression, let's think about baking cookies.

A recipe of chocolate chip cookies, using all of the same ingredients, can present differently each time. The phenotype of the cookie changes, even though the genes do not. How is this possible? The answer is the environment. In this case, the phenotype of a cookie will change based on the environmental changes in the ingredient butter. If you want a fluffy, soft cookie with a cake-like texture, it is best to soften the butter before mixing it into the batter. But perhaps you prefer a cookie that is thin and chewy in the middle, but crispy around the edges. If so, you need to melt the butter before mixing the dough. Altering the butter (the environment) changes how the cookie develops in the oven and the finished product that comes out (phenotype), even though the ingredients (the genotype) stayed the same.

Our genetic material is determined at conception, but the conditions after conception may alter how genes present. Even though there is no actual DNA change, environmental conditions may prompt some genes to be switched on or others to be switched off. The genetic potential is reacting to the environment. Without actually changing the DNA, the cells "remember" the environmental

conditions and prepare future genes to respond, creating a heritable change that comes from outside of the gene itself. Some examples of epigenetic changes can be attributed to nutrition and diet, such as an increased risk of diabetes or obesity, while others can be attributed to chronic stress, such as increases in anxiety and attention deficit (Toperoff et al., 2012; Nilson et al., 2014). Like the butter in cookies, the DNA remains the same, but it may look and feel different based on external factors.

Research on mice that carry the agouti gene, a gene responsible for making the rodents yellow in color and more prone to diabetes and cancer, further demonstrates the impact of epigenetics on organisms. Researchers simply changed the mother mice's diet, feeding them methyl-rich foods found in onions, garlic, and beets, which resulted in surprising changes to the offspring (Jirtle, 2014). The baby mice were thinner than the prior generation, with a brown coat versus a yellow coat, and were not as susceptible to disease. They also lived longer than the prior generation (Jirtle, 2014). These mice contained the same DNA as prior generations, but the change in diet was enough to "turn off" the negative impacts of the agouti gene. This research is important in helping us understand how maternal environments and exposure to both positive and negative factors can influence future generations.

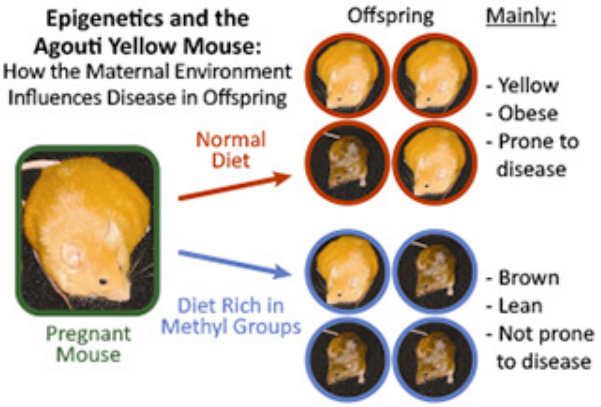

Figure 3.3. When pregnant mice are fed different diets, the expression of genetic material changes in their offspring, even if DNA remains the same. **Image description.**

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Figure 3.2. "**Incomplete dominance punnett square**" by **Adabow**, **Wikimedia Commons** is licensed under **CC BY-SA 3.0** / A derivative from **the original work**.

Figure 3.3. **Epigenetics and the Agouti Mice** from the **National Institute of Environmental Health Sciences**, included under fair use.

3.3 Conception and Prenatal Development

When we imagine pregnancy, often think of it in terms of time: weeks, months, trimesters. Pregnancy is a dynamic process, with both mother and fetus changing almost daily. Beginning with conception, prenatal development is organized by stages: the germinal period, embryonic period, and fetal development period. To help our understanding of what happens during conception, let's first take a closer look at the building blocks of our DNA.

Stages of Prenatal Development

Conception has occurred, and the fertilized egg has been implanted in the uterus. The next series of events involves the growth of the embryo and fetus. This is a time-consuming process and requires a considerable amount of energy from the mother. In this section, we will discuss the stages of prenatal development, which includes all of the genetic processes mentioned earlier. We will also examine the environmental influences that impact the developing child.

Germinal Period

The germinal period begins with the fertilization of the egg by sperm, which results in the formation of the **zygote**. The fertilized egg, or zygote, then grows into a ball of cells called a blastocyst. The blastocyst then attaches to the wall of the uterus and starts to invade it. This allows the blastocyst to get the oxygen and nutrients it needs from the mother's blood supply. If everything goes well, the blastocyst will develop into a placenta, which helps the baby grow. This process is called implantation and is very important for a successful pregnancy (Gilbert, 2000).

The genetic material from both the mother and the father are already present at this stage of development. In fact, the biological sex is already determined based on the chromosomes of the egg and sperm. Eggs always carry an X chromosome, so ultimately, the sex is determined by the chromosome from the fertilizing sperm. However, growing research supports the idea that eggs may attract specific sperm, giving an advantage to some over others. This is a complex genetic process sometimes referred to as a **chemoattractant state**, in which human eggs release chemicals to selectively attract sperm (Fitzpatrick, 2020).

The fertilized egg contains 46 chromosomes, 23 from each parent. Following fertilization, the fertilized egg undergoes a process called **mitosis**, making an exact copy of all 46 chromosomes, dividing into two cells, and then repeating the process again, until all cells except those required for sexual reproduction are created. Sperm and ova, called gametes, are the cells for sexual reproduction. They are created through **meiosis.** The gametes duplicate, but then divide twice instead of once, making four cells with only 23 chromosomes. When fertilization occurs, the sperm and ova combine to complete the 46 chromosomes, resulting in exactly half of the genetic material contributed from each biological parent.

Embryonic Period

The implantation of the blastocyst begins the next period, called the embryonic period. The implanted blastocyst, now a multicellular organism, is now referred to as an embryo. During this period, the cells begin to differentiate as they divide. Development starts at the head and progresses to the toe, a pattern that will continue on into the toddler years. Implantation is also what initiates the secretion of human chorionic gonadotrophic hormone (hCG). This is the hormone detected by pregnancy tests. During this period, which is approximately 3 weeks post-fertilization, blood vessels grow to form a structure called the **placenta**. The placenta is critical in the development of the fetus. This is where the exchange of nutrients, waste, hormones, and antibodies occurs between the mother and the developing fetus.

About 20 percent of organisms fail during the embryonic period, usually due to chromosomal abnormalities, often before the mother even knows that she is pregnant. It is during this stage that the major structures of the body are taking form, making the embryonic period the time

when the organism is most vulnerable to the greatest amount of damage if exposed to harmful substances. Prospective mothers are not often aware of the risks they introduce to the developing embryo during this time. The embryo is approximately 1 in. (2.5 cm) in length and weighs about 4 g at the end of 8 weeks. The embryo can move and respond to touch at this time.

Fetal Period

From the 9th week until birth (which is approximately 40 weeks for a full-term pregnancy), the organism is referred to as a fetus. During this stage, the major structures are continuing to develop. By the 3rd month, the fetus has differentiated body parts, including external genitalia. The fetus is about 3 in. (7.6 cm) long and weighs about 28 g. In the following weeks, the hair, nails, teeth, and the excretory and digestive systems will develop.

During months 4–6, the eyes become more sensitive to light and hearing develops. The respiratory system continues to develop, as do reflexes such as sucking, swallowing, and hiccupping. The fetus also begins establishing sleep cycles at this time.

Between months 7 and 9, the fetus is primarily preparing for birth and viability outside of the womb. It is exercising its muscles, and its lungs begin to expand and contract. The fetus gains about 5 lb. (2.3 kg) and 7 in. (17.8 cm) during this last trimester of pregnancy, and during the 8th month, a layer of fat develops under the skin. This layer of fat serves as insulation and helps the baby regulate body temperature after birth.

At around 36 weeks, the fetus is almost ready for birth. It weighs about 6 lb. (2.7 kg) and is about 18.5 in. (47 cm) long. By week 37, all of the fetus's organ systems are typically developed enough that it could survive outside the mother's uterus without many of the risks associated with premature birth or the need for resuscitation. The fetus continues to gain weight and grow in length until approximately 40 weeks. By then, the fetus has very little room to move around, and birth becomes imminent. The progression through the stages is shown in figure 3.4.

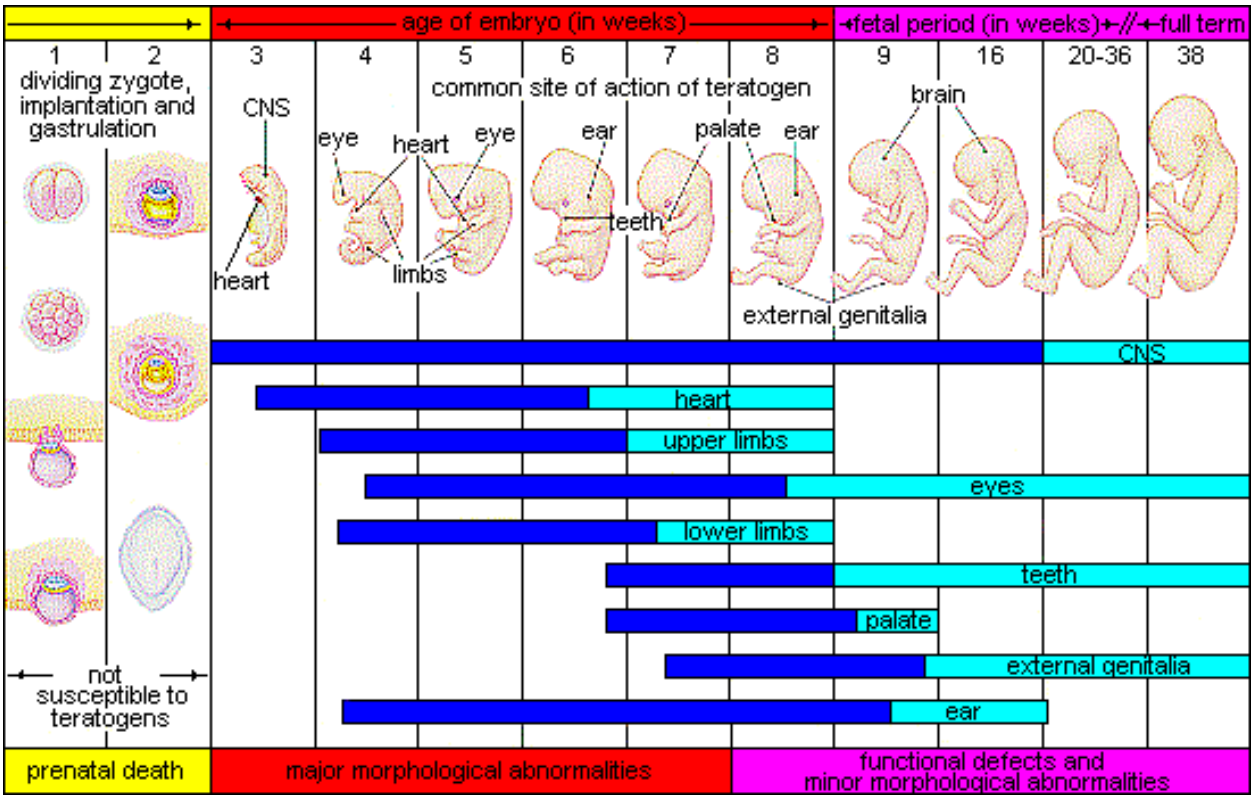

Figure 3.4. Critical Periods of Prenatal Development. **Image description.**

Prenatal Brain Development

Fetal brain development begins during the 3rd week of gestation with the differentiation of stem cells, which are capable of producing all the different cells that make up the brain. In the 9th week, the brain appears smooth but has further differentiated into the forebrain, midbrain, and hindbrain. Throughout the pregnancy, the brain's smoothness will change, and it will form many folds for the different regions of the brain (Konkel, 2018).

While the foundational development of the brain is assembled in gestation, brain function will change and develop after birth and for decades to come. Brain development during the fetal period involves neuron production, migration, and differentiation. From the early fetal period until midgestation, most of the 85 billion neurons have been generated, and many have already migrated to their brain positions. Neurogenesis, or the formation of neurons, is largely completed after 5 months of gestation. One exception is in the hippocampus, which continues to develop neurons throughout life (Tobin, 2019).

The neurons that form the neocortex begin lining up and communicating. This is the part of the brain related to sight, sound, language, spatial reasoning, and conscious thought (Stiles, 2010). Regions of the brain that contain the cell bodies are referred to as gray matter because they look gray in appearance. The axons that form the neural pathways make up the white matter, which is covered in myelin, a fatty substance that is white in appearance. Myelin aids in both the insulation and efficiency of neural transmission.

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Figure 3.4. Teratogens by Martha Lally and Suzanne Valentine-French is licensed under CC BY-SA.

3.4 Determining the Sex of the Child

When you think about the term **biological sex**, you may only think of male and female. However, biological sex is not binary. Though male and female, or XY and XX are the most commonly presenting biological sex assignments, biological sex is more complicated.

It might be helpful to think about biological sex in two ways: genetic sex identification and morphological sex identification. The genetic sex of a person is their chromosomes. For example, XX and XY represent female and male chromosomal sex. **Morphological sex** represents reproductive organs, external genitalia, and commonly associated sexual characteristics. During pregnancy, an expecting parent may wish to find out the biological sex of their baby. Typically, sex is confirmed through a visual identification via ultrasound. This process may confirm morphological sex, but genetic testing would be required to confirm the chromosomal makeup of the fetus.

While it is most common to find XY chromosomes presenting with external male genitalia and XX presenting with external female genitalia, this is not always the case. In some instances, the formed genitalia do not align with the chromosomal sex. Broadly, this is referred to as intersex. The prevalence of intersex individuals is somewhat controversial. Some research suggests that intersex individuals make up 1.7 percent of the population, but other research suggests that they make up only 0.018 percent of the population (Sax, 2002). However, research results are dependent on how the data was collected, the inclusion criteria, and how representative the sample is, among many other factors. In later chapters, we will include information on the physical and **sexual development** of intersex individuals.

Chromosomal Abnormalities

Chromosomal abnormalities refer to alterations in the structure or number of chromosomes in an individual's cells. These abnormalities can occur during the formation of reproductive cells (eggs and sperm) or during early development after fertilization. Chromosomal abnormalities can have various effects on an individual's health and development, ranging from mild to severe.

Types of Chromosomal Abnormalities

Structural abnormalities occur when parts of chromosomes are missing, duplicated, inverted, or rearranged:

- Deletions*:* Portions of a chromosome are missing.

- Duplications*:* Sections of a chromosome are repeated.
- Inversions*:* A segment of the chromosome breaks off and reattaches in reverse orientation.
- Translocations*:* Segments of one chromosome break off and attach to another chromosome.

Numerical abnormalities involve changes in the number of chromosomes and include the following:

- Aneuploidy: An abnormal number of chromosomes, such as trisomy (an extra chromosome) or monosomy (a missing chromosome). Examples include Down syndrome (trisomy 21), Turner syndrome (monosomy X), and Klinefelter syndrome (XXY).
- Polyploidy*:* The presence of additional sets of chromosomes beyond the usual diploid number (46 chromosomes in humans). Examples include triploidy (three sets of chromosomes) or tetraploidy (four sets of chromosomes).
- Mosaicism*:* This occurs when an individual has cells with different chromosomal compositions. For example, some cells may have a normal chromosomal complement, while others have an abnormal one.
- Ring chromosomes: In this abnormality, a chromosome forms a ring structure due to loss of genetic material at both ends and subsequent fusion.
- Marker chromosomes*:* These are small, additional chromosomes that lack a distinct banding pattern and often contain genetic material of uncertain origin.
- Uniparental disomy (UPD): In UPD, an individual inherits both copies of a chromosome from one parent and none from the other. This can occur when both chromosomes are inherited from one parent or when there is a duplication of one parent's chromosome and the absence of the other parent's chromosome.

Chromosomal abnormalities can have a wide range of effects, from causing no noticeable symptoms to resulting in severe developmental disabilities or health problems. The specific consequences depend on factors such as the type of abnormality, the chromosomes involved, and the extent of the alteration.

Optional resource:
Interested to learn more about chromosomal variations? Watch **Alteration of Chromosome Number and Structure [Streaming Video]**.

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3.5 Health and Wellness

In this section of the chapter we will be focusing on factors that influence health and wellness during conception, pregnancy, and fetal development. Genetics and heredity play an important role in conception, pregnancy, and fetal health, but they do not address issues of **equity** and equality. There are environmental and social factors that impact a pregnant person's experience and their develop-

ing child. It is important to look deeper into social issues like health care, environment, and mental health to understand how they result in diverse pregnancy experiences and how they impact life outcomes.

Social Determinants of Health

Social determinants of health (SDOH) are the "conditions in the places where people live, learn, work, and play that affect a wide range of health risks and outcomes" (CDC, 2022). You may be wondering how these **social determinants** are related to pregnancy outcomes. Economic stability, an important determinant of health, involves financial resources such as income, cost of living, and socioeconomic status. Therefore, poverty, unemployment, food insecurity, and housing instability can influence pregnancy outcomes and complications. Research shows that higher socioeconomic status (SES) is associated with better pregnancy outcomes.

Economic Stability

Financial hardship is highly prevalent among pregnant women. A weighted study representing more than 1 million women found that financial hardship was common in 2013–2018. Twenty-four percent of pregnant women reported unmet health-care needs, 60 percent reported health-care unaffordability, and 54 percent reported general financial stress (Taylor et al., 2021). Pregnancy outcomes associated with poverty include increased risk for preterm birth (babies that are born before 37 weeks of pregnancy), intrauterine growth restriction (when the baby in the uterus does not grow as expected), and neonatal and infant death. Additionally, experiencing poverty during and after pregnancy is linked to delayed **cognitive development** and poor school performance in children (Larson, 2007). Therefore, having access to good quality prenatal care, financial stability, and food security, among many other SDOH, is crucial for optimal health and thriving development.

There is a significant disparity in pregnancy outcomes in the United States based on race and ethnicity (Akinyemi et al., 2022). Indigenous, Black/African American, Latin, and Asian women have higher rates of unemployment and poverty (Chinn et al., 2021; Srinivasan & Guillermo, 2000; Vega et al., 2009). The stresses associated with these two factors have a significant impact on the developing child and maternal health. A healthy pregnancy requires access to quality prenatal care. Consistent prenatal care throughout pregnancy helps identify potential problems and concerns early on that can be prevented or treated and reduces the risk of pregnancy and birth complications.

Health-Care Access and Quality

The World Health Organization (WHO) is striving for a world in which "every pregnant woman, and newborn receives quality care throughout pregnancy, childbirth, and the postnatal period." A key word in this statement is quality. First, not everybody has access to prenatal care. However, having access to prenatal care is only half of the equation because not all prenatal care is created equal. Quality of the prenatal care can facilitate a healthy pregnancy, childbirth, and health of a newborn and mother postnatally. Yet, barriers to this care continue to affect many. In this section, first we will discuss access to healthcare and then quality of care.

Although the United States is one of the wealthiest countries in the world, it has the highest maternal mortality rate of 26.4 deaths per 100,000 live births versus 8.4 deaths per 100,000 live births for 10 other high-income nations (Australia,

Canada, Denmark, France, Germany, Japan, the Netherlands, Sweden, Switzerland, and the United Kingdom). Additionally, the United States has the highest newborn mortality, infant mortality, and cesarean rates and the second highest low birth weight rate compared to these 10 nations (Papanicolas et al., 2018). Finally, the United States ranks 33rd among world nations on a composite index (Save the Children's Mothers Index) that includes maternal health, child well-being, education, economic security, and political participation (Save the Children, 2016).

Unsurprisingly, these unfavorable maternal and infant indicators are driven by inequitable outcomes of maternity care. Racial and ethnic disparities especially impact Black and Native women and their newborns. Black women are more than three times as likely and Native women more than two times as likely as White women to experience a pregnancy related death (Peterson et al., 2019). It is important to note that even when race and access to healthcare are put aside, research has determined that 60 percent of pregnancy-related deaths are considered preventable (Daw et al., 2017). This highlights the importance of women's health and maternal care overall.

Unfortunately, disparities that drive unequitable maternal and infant indicators also include geographic location. Rural women are 9 percent more likely than urban women to experience a composite measure of severe maternal morbidity and mortality (Kozhimannil et al., 2019) and 59 percent more likely to have a substance use disorder diagnosis at birth (Soni et al., 2019). In rural counties, infant, newborn, and post-birth mortality rates are higher than in urban counties (Ely et al., 2018). Finally, the rates of teen births vary across states, from 7.2 per 1,000 births in the state of Massachusetts to 30.4 per 1,000 in the state of Arkansas (Daw et al., 2017).

As discussed previously, financial stability is an important factor in both access to and quality of prenatal care. Low-income women experience lack of health insurance and/or gaps in health insurance coverage (Admon et al., 2021). Therefore, low-income pregnant women are less likely to receive prenatal care in their first trimester or postpartum visits than women with steady health insurance coverage. While prenatal care can help identify potential pregnancy related complications, postpartum care is also essential for identifying potentially serious and life-threatening complications post birth and weeks after.

Admon and colleagues (2021) found that in a nationally representative sample of 39,378 women with an average age of 27, about 44 percent were continuously insured, 21 percent experienced changes between private and Medicaid coverage, 32 percent had shifted between insurance coverage and no coverage, and more than 2 percent were continuously without insurance coverage. Additionally, Spanish-speaking Hispanic women composed two-thirds of the women who experienced no health insurance coverage continuously.

Given the variability in access to care, how can we ensure access to quality care? The WHO defines quality of care as "the extent to which health care services provided to individuals and patient populations improve desired health outcomes." To achieve this, health care should be "safe, effective, timely, efficient, equitable, and people-centered." We can extend the last factor from people-centered to women-centered. Figure 3.5 breaks down each of these factors one by one.

Variable	Milestone
Safe	delivering health care that minimizes risks and harm to service users, including avoiding preventable injuries and reducing medical errors
Effective	providing services based on scientific knowledge and evidence-based guidelines
Timely	reducing delays in providing/receiving health care
Efficient	delivering health care in a manner that maximizes resource use and avoids wastage
Equitable	delivering health care that does not vary in quality because of personal characteristics such as gender, race, ethnicity, geographical location, or socioeconomic status
People-centered	providing care that takes into account the preferences and aspirations of individual service users and the cultures of their communities

Figure 3.5. Variables for Quality Health Care.

Environmental Risk Factors and Pregnancy Outcomes

Because the developing baby is particularly vulnerable to environmental pollutants, limiting environmental exposures plays a crucial role in a healthy pregnancy. Many epidemiological studies suggest that there is an association between environmental exposures (teratogens) and pregnancy outcomes. Some examples of environmental exposures include air pollution, environmental tobacco smoke, pesticides, solvents, metals, radiation, water contaminants, and chemicals. Potential pregnancy outcomes include pregnancy loss, stillbirth, and congenital abnormalities (Nieuwenhuijsen et al., 2013). However, chemical and non-chemical exposures that have a detrimental effect on maternal health are not equitably distributed across the population (Boyles et al., 2021).

This inequitable distribution contributes to the many disparities observed in health conditions. Racial and ethnic minorities often live in largely different physical and social environments than the majority of the White population (Daw et al., 2017). Furthermore, the exposure to stressors can come from institutional and individual behaviors, as well as internalized discriminatory policies and practices. This can lead individuals to experience either a higher or lower risk across the lifespan, including during the essential reproductive period.

These conditions can contribute to the disparity in increased risk of adverse maternal health behaviors (increased stress exposure) and outcomes (preeclampsia) (Feinstein et al., 2020; James-Todd et al., 2016). More importantly, environmental risk factors have a greater impact on the health of racial and ethnic minorities than on White populations. The affected cardio and metabolic health conditions include obesity, hypertension, type II diabetes mellitus, chronic kidney disease, and cardiovascular disease (James-Todd et al., 2016; Liu et al., 2019; Noor et al., 2019; Varshavsky et al., 2019).

A recent review found an association between the effects of synthetic chemicals, such as some POPs (e.g., perfluoroalkyl/polyfluoroalkyl substances) and non-POPs (i.e., phenols, phthalates, and parabens), and gestational diabetes and non-regulated glucose metabolism in pregnant women and other vulnerable populations (Gaston et al., 2020). Moreover, racial and ethnic minority women commonly have a higher body burden of exposures that include consumer products, occu-

pations, and residential environments (James-Todd et al., 2011; McDonald et al., 2019). For example, people living in low-income neighborhoods often have little access to fresh and healthy food. As a result, they consume higher quantities of EDCs (endocrine-disrupting chemicals) in the processed food available at fast-food restaurants, convenience stores, and discount stores. These environments are known as "food deserts" (i.e., lacking access to healthy food) or "food swamps" (i.e., "swamped" with unhealthy food options). When grocery shopping, people without a lot of money are more likely to purchase cheaper, more chemically loaded consumer products (Ruiz et al., 2018).

A main focus of minority health research is to investigate and identify health burdens of racial and ethnic minority populations that stem from environmental exposure and social disadvantages resulting from discriminatory policies and to identify how these practices contribute to maternal health disparities (Duran & Perez-Stable, 2019). For example, pregnant mothers who belong to racial and ethnic minorities will often have to navigate food deserts and food swamps as they seek nutritious food for their developing fetuses. When they go to the doctor, they will also experience structural discrimination in the form of discriminatory policies and practices. Often, Black women express that they are not listened to and that their concerns, signs, and symptoms are ignored.

Serena Williams, the professional tennis player, has spoken up about her experience as a Black woman with the healthcare system in the United States. As she wrote, "No one was really listening to what I was saying." The tennis player felt something was wrong after she gave birth to her child. However, although she insisted that something was wrong, the nurses continued to dismiss her worries. Finally, her obstetrician listened to her and ordered some tests. Later, they found out that she had developed blood clots in her lungs, which may have resulted in a tragedy if not treated. Despite her wealth and status, Serena experienced injustice during her pregnancy. Unfortunately, Serena's experience is all too familiar to many Black women in the United States.

Common Health Conditions During Pregnancy

Although every pregnancy is different, there are common health conditions pregnant women may experience. As discussed previously, regular, quality prenatal visits can help identify potential health problems early so that steps can be taken to treat them and protect the health of the mother and developing fetus. Figure 3.6 includes common health conditions that can be experienced in pregnancy.

Health Condition	Definition
Iron deficiency	Anemia occurs when your red blood cell count (hemoglobin or hematocrit) is low. Iron deficiency anemia is the most common type of anemia. Iron is part of the hemoglobin that allows blood to carry oxygen. Pregnant women need more iron than normal due to the increased amount of blood in their bodies and for their developing child. Symptoms of iron deficiency include feeling tired or weak, looking pale, feeling faint, and experiencing shortness of breath. A health care provider may recommend iron and folic acid supplements.
Gestational diabetes	Gestational diabetes occurs when blood sugar levels are found to be too high during pregnancy. The exact number of women affected by gestational diabetes is unknown because of different diagnostic criteria and risk profiles. Most often, the condition is discovered using a two-step procedure: screening with the glucose challenge screening test at around 24 to 28 weeks of pregnancy, followed by a diagnostic test called the oral glucose tolerance test. Gestational diabetes increases the risk of a baby that is too large (macrosomia). Treatment includes controlling blood sugar levels through a healthy diet and exercise or through medication if blood sugar values remain high.
Preeclampsia	Pregnant women who develop high blood pressure will need to be monitored closely for preeclampsia. This is a condition marked by a sudden increase in a pregnant woman's blood pressure along with the presence of protein in the urine after the 20th week of pregnancy. Treatment involves frequent monitoring, certain medications, and sometimes preterm delivery is discussed (after 37 weeks of gestation).
Infections	Infections, including some sexually transmitted infections (STIs), may occur during pregnancy and/or delivery and may lead to complications for the pregnant woman, the pregnancy, and the baby after delivery.
Hyperemesis gravidarum	Some women experience severe, persistent nausea and vomiting during pregnancy beyond the typical "morning sickness." Medication may be prescribed to help with the nausea. Women with hyperemesis gravidarum may need hospitalization to get the fluids and nutrients they need through a tube in their veins. Often, the condition lessens by the 20th week of pregnancy.
Miscarriage	Pregnancy loss from natural causes before the 20th week is considered a miscarriage. It is hard to estimate exactly how many pregnancies end in miscarriage because they may occur before a woman even knows she is pregnant. The most common cause of first-trimester miscarriage is chromosomal problems. Symptoms can include cramping or bleeding. Spotting early in pregnancy is common and does not mean that a miscarriage will occur.
Placenta previa	This condition occurs when the placenta covers part of the opening of the cervix inside the uterus. It can cause painless bleeding during the second and third trimesters. The health care provider may recommend bed rest. Hospitalization may be required if bleeding is heavy or if it continues. Placental problems may affect how the baby is delivered.
Placental abruption	In some women, the placenta separates from the inner uterine wall. This separation, or abruption, can be mild, moderate, or severe. If severe, the fetus cannot get the oxygen and nutrients needed to survive. Placental abruption can cause bleeding, cramping, or uterine tenderness. Treatment depends on the severity of the abruption and how far along the pregnancy is. Severe cases may require early delivery.

Figure 3.6. Health Conditions During Pregnancy.

Health Condition	Definition
Preterm labor	Infants do best if they are born after 39 or 40 weeks of pregnancy (full term). The fetus's lungs, liver, and brain go through a crucial period of growth between 37 weeks and 39 weeks of pregnancy. Going into labor before 37 weeks of pregnancy is a major risk factor for complications for the infant and for future preterm births for the mother. Sometimes, when there is a health risk to the mother or baby, planned deliveries before 39 weeks are necessary. However, in a healthy pregnancy, it's best to wait until at least 39 weeks.

Figure 3.6. Health Conditions During Pregnancy.

Mental Health During Pregnancy

In addition to the medical conditions listed above, women can experience changes in mental health, resulting in positive and negative feelings related to pregnancy. To a degree, experiencing mood swings and being worried, anxious, depressed, and stressed during pregnancy can be normal. However, women can also develop depression and anxiety during pregnancy and postpartum depression after birth.

Depression is defined as feeling sad, down, or irritable for weeks or months at a time. Some women may have depression before getting pregnant, and it may worsen during pregnancy. However, depression can also start during pregnancy for many reasons. For example, a woman may develop depression if she isn't happy about being pregnant due to the pregnancy being unplanned.

Anxiety is a feeling of worry, fear, dread, and uneasiness over things that may happen. Although many of these feelings are common during pregnancy, if these feelings become excessive, all-consuming, and interfere with daily activities, it might be an indicator of an underlying condition, such as anxiety.

Postpartum depression (PPD) is the most common mental health illness observed after birth. Commonly, it is difficult to distinguish PPD from depression occurring at any other time in a woman's life. However, negative thoughts are mainly related to the newborn with PPD. This condition is seen in 10–15 percent of women after birth (Rai et al., 2015).

Furthermore, it is common for new mothers to experience feelings of guilt or inadequacy about their ability to care for the infant and all-consuming worry about the infant's well-being or safety severe enough to be considered obsessive (Kendall et al., 1981). The onset of PPD ranges from a few days to a few weeks after delivery, but it occurs most commonly in the first 2–3 months post childbirth. Women who have a history of major depression have a 25 percent increased risk for PPD. Additionally, past history of PPD increases the risk of recurrence to 50 percent (Henshaw, 2003).

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Figure 3.5. Variables for Quality Health Care adapted from **Tuncalp et al., 2015** under fair use.

Figure 3.6. Health Conditions During Pregnancy adapted from (CDC, 2015).

3.6 Pregnancy and Social Context

Pregnancy is a major life event that involves dramatic changes to a pregnant person's body and brain. These changes are well documented but researchers often ignore the role that pregnancy plays in a mother's social life and cultural world. While pregnancy is often celebrated and even revered across the globe, it is experienced differently depending on the social factors surrounding the pregnant mother. Factors such as age, social class, race/ethnicity, and gender identity all intersect with the pregnancy experience. One phenomenon that is universally shared amongst pregnant women is navigating the social expectations and cultural influences during the 40 weeks of gestation. These pressures have a direct impact on the mother's physical and mental well-being, as well as on the developing child. In this section, we will take a closer look into social and cultural factors that influence pregnancy experiences and outcomes.

Systemic Issues and Social Inequalities

In Chapter 1, we learned that our society has been structured in a way that creates social inequalities. These are caused by biases and practices embedded within systems such as the school system, housing, health care, and government. The pervasive presence of bias creates unnecessary barriers for people and can impact many facets of one's life. Social and group identities play a crucial role in the opportunities people are afforded and the barriers they face. Pregnant people are a vulnerable group that are uniquely impacted by social issues. This is further compacted by facets of their identity such as race, social class, and gender.

Gender is a social construct based on biological sex. Our society has different roles and norms assigned to people depending on whether they are born a male or female. This type of binary system does not allow for much diversity or acceptance for people, especially those born as intersex or whose gender identity differs from the standard male or female. **Cisgender** means that a person's gender identity coincides with the sex they were assigned at birth. **Transgender** means that a person's gender identity does not match the sex they were assigned at birth. In pregnancy, transgender men face unique challenges navigating the healthcare system and stigmas related to their identity. We will discuss this later in this section.

Racism is a system of disadvantage based on race or perceived race. Pregnant women from racial minority groups such as Native American/Indigenous, African American/Black, and Latinx/Hispanic experience race differently than White women due to the power structures that advantage White people over others. Women of color experience maternal mortality, complications during pregnancy and labor, and adverse impacts to their developing fetus at much higher rates than their White counterparts (Kozhimannil et al., 2011).

In a report published by the CDC, it is noted that there are multiple factors that contribute to racial disparities in pregnancy-related mortality (Peterson et al., 2019). **Implicit bias**, or the unconscious beliefs and attitudes that influence our judgments and actions, exists in the health care system. This bias, along with structural racism, impacts the way providers interact with their patients, the level of care provided to an expecting mother, and treatment decisions. Mistreatment in medical settings is experienced more frequently by women of color, resulting in unnecessary medical interventions and impacting the safety and quality of the pregnancy experience (Vedam et al., 2019).

Classism is a system of advantage based on socioeconomic status. Pregnant women from a higher social class have access to quality health care, nutrition, and resources before, during, and after their pregnancy. Pregnant women from lower socioeconomic groups often have limited or no access to preventative or prenatal care or nutritious foods to support their changing bodies. They also often live in neighborhoods that contain higher levels of environmental toxins, many of which are known to cause disruption or defects in fetal development.

It is important to note that gender, race, and class are not the only social categories that impact expecting mothers. Prejudice and discrimination based on traits such as ability (ableism), sex (sexism), language, and citizenship status, also occurs. A pregnant person may have several intersecting identity labels that can result in compounded **oppression** and increased risks during pregnancy and throughout parenthood.

CASE STUDY: CONSUELO AND GABRIELA

How do social inequalities impact the birth experience and access to services?

Consuelo was born and raised in Mexico and moved to California with her husband and two children. They had a relatively easy transition and settled among family and friends in California. After a few months, Consuelo found out she was pregnant with Gabriela.

At this point, Consuelo had learned some important English phrases, but she had trouble communicating with medical staff during her prenatal visits. She requested an interpreter several times, but sometimes there wasn't one available. Consuelo often felt like her concerns were not treated with urgency or care.

As she approached the final weeks of her pregnancy, Consuelo was overcome with chest pain and dizziness. This often resulted in vision disturbances or nausea. She communicated her concerns with the translator, who then reported to the doctor. Consuelo was given an antacid and told to rest. The issues persisted, and again Consuelo relayed her concerns to medical staff, who advised her to rest.

Consuelo's husband rushed her to the emergency room a few days later due to severe bleeding and abdominal pain. Upon examination, medical staff realized that Consuelo had preeclampsia, a serious medical complication, which can slow down the passage of oxygen and nutrients from the mother to the baby. Since the preeclampsia was not diagnosed properly during prenatal visits, Consuelo suffered an abruption of the placenta, which is when the placenta separates from the uterine wall. Both she and the baby were at high risk for complications and even death.

Medical staff performed an emergency C-section as well as treated Consuelo, who needed a blood transfusion. Gabriela suffered some stress and was weak as a result. Consuelo's recov-

ery was difficult, but she was fortunate to have some family support during her aftercare. She was hesitant to go back to the hospital for her postpartum visits due to her prenatal and birth experiences.

Gender and Pregnancy

Gender is a very powerful social construct that impacts a person's development. Society has constructed gender as a binary system (male/female) and assigned specific norms, rules, and expectations to what each gender should and should not be. Behaviors and practices that do not fit standard gender norms are often met with criticism, discrimination, and even hostility. People experience pregnancy differently depending on their gender identity. Gender impacts the way we treat the developing fetus and the cultural and social rituals associated with parenthood. It also impacts how we raise and socialize children. These experiences will be described in the following sections.

Gendering the Unborn Child

The role gender plays in a child's life begins before they are born. In the past, many expecting parents would engage in cultural rituals or superstitions to determine the sex of the child. This might include the ring test, which requires a ring attached to a string. The way it moves determines whether the baby will be a boy or a girl. With the advancement of technology, expecting parents no longer need to guess their baby's sex. They can know it relatively early in the pregnancy through ultrasound and genetic testing. Many parents do this and then host gender reveal parties and post the resulting videos on social media. Why are we so obsessed with gender?

As mentioned earlier, gender is a powerful social construct that influences the way we interact with the world. Knowing the sex of the baby early on helps parents and family determine the gender path for that child. Expecting parents are often pressured by their families and friends to reveal the sex of the baby so they can prepare for the baby's arrival. Gender influences what clothes people will buy, the kind of toys they will purchase, and how they might decorate the nursery. On the surface, these types of distinctions may seem harmless, but it is important to connect gender to larger societal issues.

When we look deeper into gender construction, we see that biological sex is tied to assumptions about behavior, abilities, and genetics. We expect boys and girls to be and do certain things. Think about the messages we give girls when we decorate their rooms in "feminine" colors and give them dolls and a dollhouse to play with. Or about the messages we convey to boys when we decorate their rooms in "masculine" colors and give them a construction set and sports toys to play with. As a society, we may be enforcing narrow and often troublesome social stereotypes early on in a child's development. We are telling girls that they are delicate, passive, and should sit and play with household items so that they can grow up and care for their homes. We tell boys that they are tough, active, and should learn skills so they can grow up and have careers. Moreover, we tell ourselves gender norms are essentially true because things "have always been this way" even though 100 years ago, boys were dressed in pink and girls in blue (Maglaty, 2011).

Gender socialization teaches children how to behave, how to dress, what types of jobs they can have, and how they should act towards individuals of the opposite gender. This puts undue limits and pressures on children rather than allowing them to determine their own paths in life. Children who do not conform to gender expectations are often bullied or ridiculed. They may develop issues related to gender identity and expression that

impact them well into adulthood. It is important to think about the role of gender during pregnancy and throughout the development of the child.

Transgender Men

Transgender people account for 0.6 percent of the U.S. population (Williams Institute, 2022). Transgender pregnant men belong to an even smaller minority group, and they face specific challenges due to their gender identity. Many transgender men retain their female reproductive organs, which means they are able to get pregnant. Once pregnant, the level of care they need to maintain a healthy pregnancy and delivery is similar to cisgender pregnant women. Some transgender men choose to "transition" using hormone therapy. The use of testosterone may impact fertility as well as pregnancy (Gorton et al., 2005).

The stigmas and cultural pressures surrounding transgender pregnancy lead to misunderstanding and lack of care or empathy for this group. Some transgender pregnant men report not being taken seriously by medical staff or having to educate staff about their gender identity. These types of negative experiences can lead to behaviors that prevent transgender men from seeking prenatal and postpartum care. For example, a study concluded that 30.8 percent of transgender men delayed or did not seek support from health-care providers due to the prejudice and discrimination they experienced (Jafee et al., 2016).

Along with stigma in the medical world, transgender men also face scrutiny socially due to misconceptions and beliefs about gender. It is important to think about how social context and cultural norms impact this group. Transgender men deserve to have a healthy pregnancy and can have a positive experience given the appropriate support. The health-care system can educate providers about understanding the unique needs of diverse populations. Social norms and expectations can shift if we focus our attention on creating environments in which all children, and their caregivers, can thrive.

Cultural Perceptions and Age

In most societies worldwide, pregnancy elevates one's social status. A pregnant woman is celebrated and becomes the ultimate symbol of womanhood and femininity. An expecting father is congratulated for his virility and masculinity. It is important to note that pregnancy is viewed differently depending on the context and time in history. Expectant mothers must navigate through all of these messages during one of the most important transitions of their lives. Age is one of the factors that plays a role in the perceptions and beliefs around motherhood.

Teenage Pregnancy

As authors we have heard many stories by our own friends and family members who have experienced abuse and lack of support by the professionals in charge of caring for them. Below, we will share a personal story to open the discussion around teenage pregnancy.

This young mother arrived at the hospital without family support. She experienced an intense amount of pain due to the child being breeched. When she asked for help, the nurse did not offer any relief. Finally, when the doctor arrived, he was visibly upset that the nurse had not offered pain medication or alerted him of the mother's condition.

This mother ended up having an emergency C-section and was needlessly traumatized by the experience.

An important question that you might be wondering the answer to here is "why?" Why did this happen?

Cultural perceptions around pregnancy and pregnant mothers are demonstrated within social and familial interactions, the media, the work world, and in the medical field. These perceptions influence what we think mothers should be like, look like, and what they should do when they are pregnant. They also influence our thoughts and beliefs about who should be a mother and how they should mother. For example, modern Western society may view teenage pregnancy unfavorably because we believe that a teenager is unfit to parent.

A teenage mother or father may not be celebrated in the same way as an older person might be and will not earn any special social status, or support, as a result. On the contrary, as the story above showed, the expectant mother and father may encounter discrimination. Compare this to a teenage pregnancy 100 years ago. Not only would pregnancy during adolescence be considered normal, assuming the mother was married, but it would also be expected given the context of that period in time.

The mother in the scenario was young, but she was also Latina and the nurse was White. While racialized interactions are not a specific focus in this section, race plays a role in the way pregnant people are treated. Age further compounds these experiences. Teenage pregnancy is associated with a variety of stigmas and stereotypes that can be harmful to the pregnant mother and developing child (figure 3.7). They may be deemed irresponsible, financially and emotionally unstable or "bad." They may face scrutiny by their families, peers, school staff, and medical professionals. This type of treatment can lead to negative coping behaviors such as avoiding prenatal care, missing school, or withdrawing from their friends and family.

Figure 3.7. A pregnant teen worries about social stigmas and the responsibility of caring for their child. **Image description.**

There have been several studies that look into the connection between stigmatized teenage mothers and pregnancy outcomes. One such study shows that stigmatized pregnant mothers are at increased risk of abuse and social isolation (Weimann et al., 2005). Researchers who study stigmatized groups argue that these negative asso-

ciations may be one of the underlying causes of health disparities. Stigmatized groups face increased stress, internalization of negative perceptions, lack of resources, and more (Hatzenbuelher et al., 2013). This impact is even more pronounced when teenage mothers have adverse experiences based on their race and social class.

It is important to understand the risk factors associated with teenage pregnancy, but it is more important to treat all expecting mothers and their partners with respect and dignity. Teenage mothers who receive adequate prenatal care and support from their family, friends, and community have positive outcomes during pregnancy, labor, and parenthood. Regardless of age, social class, or race, pregnant mothers of any age should get the level of health care they deserve.

Pregnancy in Advanced Maternal Age

Older pregnant women also face pressures associated with their age, although this differs from expecting teens. Despite the fact that women in today's society delay pregnancy longer than ever before, stigmas exist for older women. Women are often questioned for their choice either not to have children at all or to have children after they have established careers, achieved financial stability, or satisfied some other personal requirement. Men who become fathers at older ages face little to no commentary regarding their choice to raise children later in life. The discrepancy between these perceptions is closely tied to gender norms and the expectations placed on women.

The term **geriatric pregnancy** has been used to describe the pregnancy of a woman over 35 years old. The term geriatric is also used to describe older adults, often aged 65 or older. The medical field now uses the term **advanced maternal age** to describe older expecting mothers. The associations between being an older mother and being a senior adult are clear and have negative associations. The age of 35 is used as a distinct marker for advanced maternal age, although there is no distinct age when a pregnancy suddenly becomes high risk. Rather, risk is associated with the gradual aging process.

Older women are often bombarded with messages that pregnancy in advanced age is dangerous or selfish, creating stigma around delayed pregnancy (Cardin, 2020). Risks associated with age are often exaggerated and do not take into account one's individual choices, environmental and social circumstances, or genetics. Data does show that there are certain risks that increase with age, but most older women are able to have a healthy pregnancy without major complications (Chervenak, 1991). Modern medical advancements allow all pregnant people to access tests and procedures to measure risk or health issues, regardless of age.

There are many positive outcomes associated with delaying pregnancy and motherhood. A study concluded that older maternal age results in fewer behavioral and emotional issues in children, regardless of demographic and socioeconomic factors (Trillingsgaard & Sommer, 2018). Older parents are generally financially and emotionally stable, which leads to positive protective factors for children.

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Figure 3.7. **Pregnancy Prevention Poster Design** by **Amanda** on Flickr is licensed under **CC BY-NC-SA 2.0**.

3.7 Conclusion

There are a variety of factors that impact us before we are born. Biology and genetics play a role in conception, fetal development, and pregnancy experiences. The environment and social issues we live and grow in impact pregnancy outcomes, prenatal development, and the support available to expecting parents. The dynamics between nature and nurture can create disparities that have a lifelong impact on people's lives. In the next chapter, we will discuss what happens during childbirth and the postpartum period. This period sets the tone for parenthood and is a crucial time in the development of a child.

Review of Learning Objectives

1. Identify the biological, social, and environmental factors influencing conception and pregnancy.
2. Identify the stages of fetal development.
3. Analyze the relationship between access to services and life outcomes.
4. Compare and contrast the cultural and social influences on pregnancy and prenatal care and how they result in diverse pregnancy experiences.

Review of Key Terms

- **Advanced maternal age**: a term used to describe older expecting mothers, generally 35 years of age or older.
- **Biological sex**: the biological differences between males and females, such as differences in reproductive organs, hormones, and chromosomes; not the same thing as gender.
- **Chemoattractant**: a chemical signal that attracts cells or organisms to its source. Chemoattractants can be produced by cells or tissues in the body, and they can be found in the external environment.
- **Chromosomes**: the strands of proteins and genetic material, made up of DNA, that live within our cells.
- **Chromosomal abnormality**: occurs when a child inherits too many or too few chromosomes.
- **Cisgender**: a term used to describe people whose gender identity matches the sex they were assigned at birth.
- **Classism**: prejudice or discrimination based on social class or economic status, including factors such as wealth, income, education, and occupation.
- **Differential susceptibility**: the degree to which a person is sensitive to negative environmental influences, such as adverse childhood experiences, or resilient and able to cope with such experiences.
- **Dominant gene**: a gene that expresses itself in the phenotype even when paired with a different version of the gene.
- **Epigenetics**: the study of how our behaviors and environment can change the way our genes work.
- **Gender**: is a social construct based on biological sex that determines gender roles, behaviors, and expectations associated with being male or female.
- **Genes:** the basic building blocks of heredity, which are made up of DNA.
- **Genotype**: the total number of genes we inherit from our parents.
- **Geriatric pregnancy**: an outdated term that refers to a pregnancy in which the mother is 35 years of age or older. The term is used because there are certain increased risks associated with pregnancy at this age.

- **Heterozygous genotype**: when a person receives a different version of a gene from each parent.
- **Homozygous genotype**: when a person receives the same version of a gene from each parent.
- **Implicit bias**: the unconscious beliefs and attitudes that influence our judgments and actions.
- **Mitosis**: the process by which a cell's nucleus makes an exact copy of all the chromosomes and splits into two new cells.
- **Meiosis**: the process by which gametes (sperm and egg cells) are formed.
- **Nature**: the biological, genetic, and hereditary factors that are passed on to us from our parents and ancestors.
- **Nurture**: the environmental and social factors that influence development.
- **Phenotype**: the observable traits or characteristics of an organism that are expressed in its development.
- **Plasticity**: the ability of an organism or system to adapt to changes in its environment or experiences.
- **Polygenic**: a trait or characteristic that is influenced by multiple genes, rather than being controlled by a single gene.
- **Racism**: is a system of disadvantage based on race or perceived race.
- **Recessive gene**: a type of gene that is only expressed or observed in an individual's phenotype when two copies of the gene are present, one inherited from each parent.
- **Social determinants of health**: the conditions in the places where people live, learn, work, and play that affect a wide range of health risks and outcomes.
- **Teratogens**: environmental factors that can contribute to birth defects.
- **Transgender**: a term used to describe people whose gender identity differs from the sex they were assigned at birth.

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CHAPTER

4

Birth, the Newborn, and Postnatal Experiences

4.1 Chapter Overview and Learning Objectives

In Chapter 3, we learned that our unique developmental experience is influenced by genetic and hereditary factors (nature), as well as environment and social factors (nurture). In this chapter, we will explore this further by reviewing the birthing process, the care and needs of the newborn, and the postnatal experiences of parents, especially birth mothers, as they navigate the transition from pregnancy to parenthood.

For many, pregnancy is a time of challenges and excitement. Each person's pregnancy story is distinct, and each has their own individual birth narrative. It is important to avoid making assumptions about the experiences of expectant parents. Cultural and social influences, like birth practices or racism in the health-care system, can lead to a wide range of outcomes for newborns and their caregivers.

This chapter reflects what typically occurs during the birthing, postnatal, and newborn care phase of development, and the most common reasons for variations in those experiences. It is not, however, a fully exhaustive picture of all possibilities. We have deliberately tried to refrain from language that imposes an idea about how parents, especially mothers, ought to feel. Instead, we recognize that pregnancy and giving birth may mean very different things to different people.

Learning Objectives

After reading this chapter, you will be able to do the following:

1. Identify the stages of childbirth, and examine diverse birthing practices.
2. Compare and contrast the cultural and social influences in the birth and postnatal experience.

3. Analyze the relationship between access to services and life outcomes.

Key Terms

Throughout this chapter, you will be introduced to important key terms that will help deepen your understanding of human development.

- **Apgar test**: an assessment that is performed on a newborn baby to evaluate the newborn's heart rate, respiratory effort, muscle tone, reflexes, and skin color.
- **Attachment**: the emotional bonding between child and caregiver, which is a foundational component for a child's sense of safety and well-being.
- **Cervix**: the lower part of the uterus, located at the top of the vagina. It is a cylindrical-shaped structure that connects the uterus to the vagina.
- **Contractions**: a natural process of childbirth in which the muscles of the uterus contract and relax to help move the baby through the birth canal.
- **C-section delivery**: a surgical procedure in which a baby is delivered through an incision made in the mother's abdomen and uterus; also known as a cesarean section.
- **Dilation**: the widening or opening of the cervix during childbirth to allow the baby to pass through the birth canal.
- **Doula**: a trained professional who provides emotional, physical, and informational support to a woman before, during, and after childbirth.
- **Epidural**: a pain relief technique commonly used during labor and childbirth that involves the injection of a local anesthetic into the spinal cord.
- **Fourth trimester**: the 12 weeks of adjustment a newborn undergoes once they are born; also known as the postnatal period.
- **Jaundice**: a medical condition characterized by yellowing of the skin and whites of the eyes that occurs when there is a buildup of bilirubin, a yellow pigment, in the blood.
- **Labor and delivery**: the process by which a baby is born that typically involves three stages: the first stage, dilation of the cervix; the second stage, pushing the baby through the birth canal; the third stage, delivering the placenta.
- **Midwife**: a health-care professional who provides safe and supportive care to women during pregnancy, childbirth, and the postpartum period, prioritizing the natural processes of childbirth.
- **Paternal depression**: postpartum depression experienced by fathers due to hormone changes, home and societal shifts, and lack of rest.
- **Postpartum period**: the time after childbirth when a woman's body undergoes a series of physical and emotional changes as it begins to recover from pregnancy and delivery.
- **Premature labor**: when contractions open up the cervix before the 37th week of pregnancy.
- **Stages of childbirth**: the three-stage process by which a baby is born vaginally, involving dilation of the cervix, pushing the baby through the birth canal, and delivery of the placenta.
- **Unmedicated delivery**: the process of giving birth without the use of pain medications or epidurals; commonly referred to as natural childbirth.
- **Vaginal delivery**: the process of delivering a baby through the vagina, also known as the birth canal.

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4.2 Stages of Childbirth

Giving birth is a unique and personal experience. Nearly everyone who has gone through the physical experience of delivering a child has their own story. Yet, the **stages of childbirth**, or the process by which a baby is born, generally occur in a consistent order. One of the amazing things about pregnancy and delivery is how unique and individual this very common experience can be. In this section we will learn about the stages of childbirth and delivery. We will cover vaginal delivery, cesarean section, as well as premature labor and stillbirths. Though we begin with the stages of vaginal delivery, it is important to consider that two of every five live birth deliveries result in a C-section. Some of the information in this section will not align with the experiences of live birth for approximately 40 percent of the population.

Preparing for and Onset of Labor

In a typically developing pregnancy, an expectant mother carries a baby for 37 to 40 weeks. Most of the time, labor will begin within a week of the due date. However, if a woman is pregnant with more than one fetus, or if a health issue prevents a full term pregnancy for the safety of mother or child, labor may begin early on its own or be induced. However, there are some things women can do to increase the chances of a healthy, on time delivery. For example, maintaining good physical condition reduces risks of premature labor.

Premature labor occurs when contractions open up the cervix before 37 weeks of pregnancy. There are social and environmental factors that can impact the onset of labor. For example, studies show that non-Hispanic Black mothers have an increased risk of premature labor compared to White mothers (Kitska et al., 2007). Rates of preterm birth prior to 34 weeks' gestation are significantly higher among African-American women (Goldenberg et al., 2008). The reasons for these disparities involve a complex interaction between genetics, environment, and social issues such as racism within the healthcare system or lack of access to quality care.

Hormonal changes prepare the body to begin labor as the due date approaches. Changes to the **cervix**, the lower part of the uterus, help prepare for a **vaginal delivery**. The "bloody show" is a term used to describe the discharge of a small amount of blood-tinged mucus from the cervix during labor. It usually occurs as the cervix begins to soften, thin out, and dilate in preparation for childbirth. The mucus plug that forms in the cervix during pregnancy is released, which can cause a small amount of bleeding. The bloody show is often considered to be a sign that labor is imminent, although it can occur several days before labor begins. **Contractions**, the process of muscle stimulation in the uterus, are common in the early labor process and get more frequent and intense as the delivery approaches.

As labor nears, the mother's pituitary gland produces oxytocin. This begins to stimulate stronger, more painful uterine contractions, which—in a positive feedback loop—stimulate the secretion of prostaglandins from fetal membranes. Like oxytocin, prostaglandins also enhance uterine contractile strength. The fetal pituitary gland also secretes oxytocin, which increases prostaglandins even further.

For those that are able to access childbirth classes, these classes can help parents prepare for the experience of **labor and delivery**, such as by guiding them in creating a childbirth plan. They can also inform parents about what to expect once they are home from the hospital. See the breakout box below, titled "Birth Classes and Education," for more information on the variety of ways to prepare for childbirth.

BIRTH CLASSES AND EDUCATION

There are several types of childbirth classes available, and the content of each class may vary depending on the instructor or organization offering the course. However, here are some of the most common types of childbirth classes:

- Lamaze classes: Lamaze is a well-known childbirth education method that teaches breathing and relaxation techniques to manage pain during labor. Lamaze classes also provide information on labor and delivery, including medical interventions and pain relief options.
- Bradley method classes: The Bradley method emphasizes natural childbirth and encourages active participation by the partner. The classes cover nutrition, relaxation techniques, exercise, and informed decision-making during labor and delivery.
- Hypnobirthing classes: Hypnobirthing classes teach self-hypnosis techniques to help women achieve a more comfortable and relaxed labor and delivery. The classes also cover information on the physiology of birth, medical interventions, and informed consent.
- Childbirth preparation classes: These classes cover a range of topics related to labor and delivery, including pain management, medical interventions, breathing and relaxation techniques, and breastfeeding.
- Online childbirth classes: Online classes are becoming more popular. This was especially during the COVID-19 pandemic. They may cover the same topics as traditional in-person classes, but they offer the convenience of being able to complete the course from home.

There are many factors to consider in choosing a childbirth education class. As described, each class has a slightly different approach to preparing for birth and transition into parenthood. It's a good idea to find a class that aligns with the priorities of an expecting mother's birth plan.

The First Stage

The first stage of labor is the longest stage and begins with the onset of regular contractions and ends when the cervix is fully dilated to 10 centimeters. This stage is further divided into three phases: early, active, and transition (Hutchinson et al., 2022).

Early labor is characterized by mild, irregular contractions that may be spaced 10 to 20 minutes apart and last for about 30 to 45 seconds. The cervix begins to thin out and open up, known as **dilation**, to about 3 to 4 cm (figure 4.1). This phase can last for several hours or even days, and the contractions may become more frequent and intense over time.

During active labor, contractions become stronger, more regular, and closer together, typically occurring every 3 to 5 minutes and lasting for about 45 to 60 seconds. The cervix continues to dilate rapidly, reaching 7 to 8 cm. The mother may experience increased discomfort and require more support from her birth team during this phase.

Transition is the final and most intense phase of the first stage of labor, during which the cervix dilates from 8 to 10 cm. Contractions become very strong, lasting for up to 90 seconds and occurring every 2 to 3 minutes. The mother may feel overwhelmed and exhausted during this phase, but it is also a sign that she is nearing the end of the first stage of labor and getting closer to pushing the baby out.

Throughout the first stage of labor, the mother's health-care provider will monitor her progress and the baby's well-being through frequent pelvic exams and fetal heart rate monitoring. Pain management options may also be offered to the mother, including breathing and relaxation techniques, hydrotherapy, and medication.

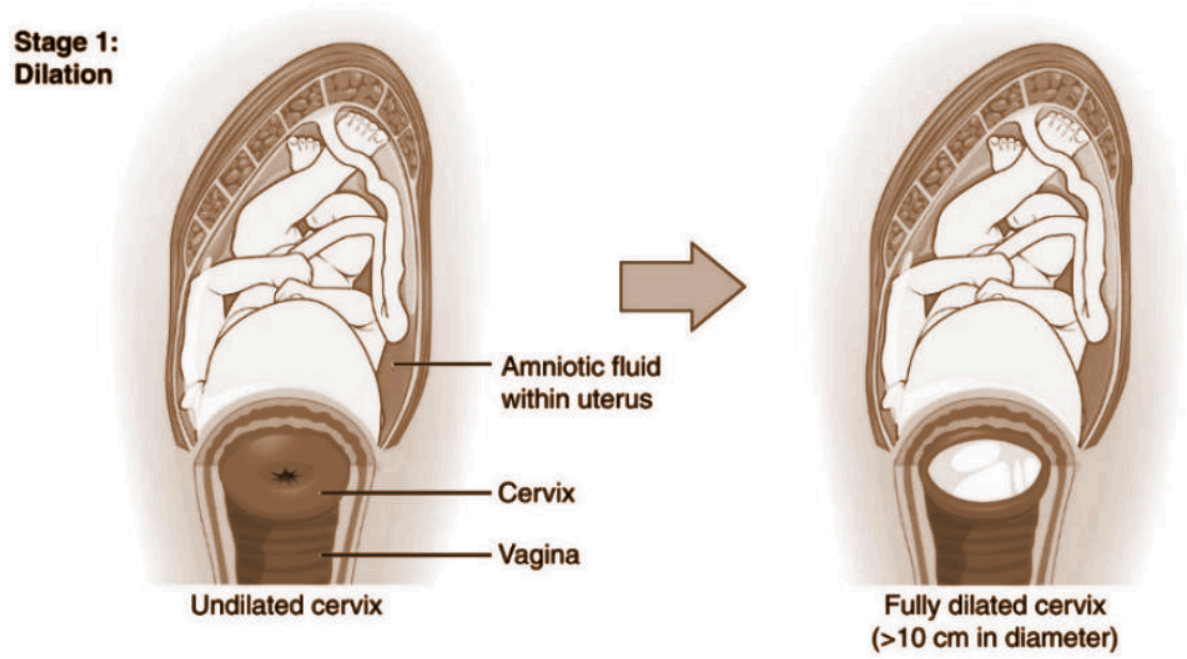

Figure 4.1 This image shows the fetus preparing for labor during cervical dilation. Race, healthcare access, and other social and environmental factors can impact the rates of early cervical dilation and premature birth in pregnancy. Image description.

The Second Stage

The second phase of labor is also known as the "pushing" stage and typically begins when the cervix is fully dilated (10 cm) and ends with the birth of the baby (figure 4.2). This phase can last anywhere from a few minutes to a few hours, and it is marked by strong contractions and the active pushing of the baby through the birth canal.

During this phase, the mother will be coached by healthcare providers to push during contractions, bearing down as if having a bowel movement, while holding her breath. The mother may also be encouraged to change positions to help facilitate the baby's descent and minimize tearing.

As the baby's head crowns, the healthcare provider may perform an episiotomy, which is a surgical cut to widen the vaginal opening, or use perineal massage to help prevent tearing. Once the baby's head is delivered, the healthcare provider will suction the baby's mouth and nose to clear any mucus or amniotic fluid and will guide the baby's shoulders and body out of the birth canal.

Once the baby is born, the healthcare provider will clamp and cut the umbilical cord, and the baby will be placed on the mother's chest for skin-to-skin contact. The healthcare provider will then assess the baby's breathing and overall health before delivering the placenta, which marks the end of the second stage of labor. Babies born early or prematurely may receive additional monitoring due to health risks.

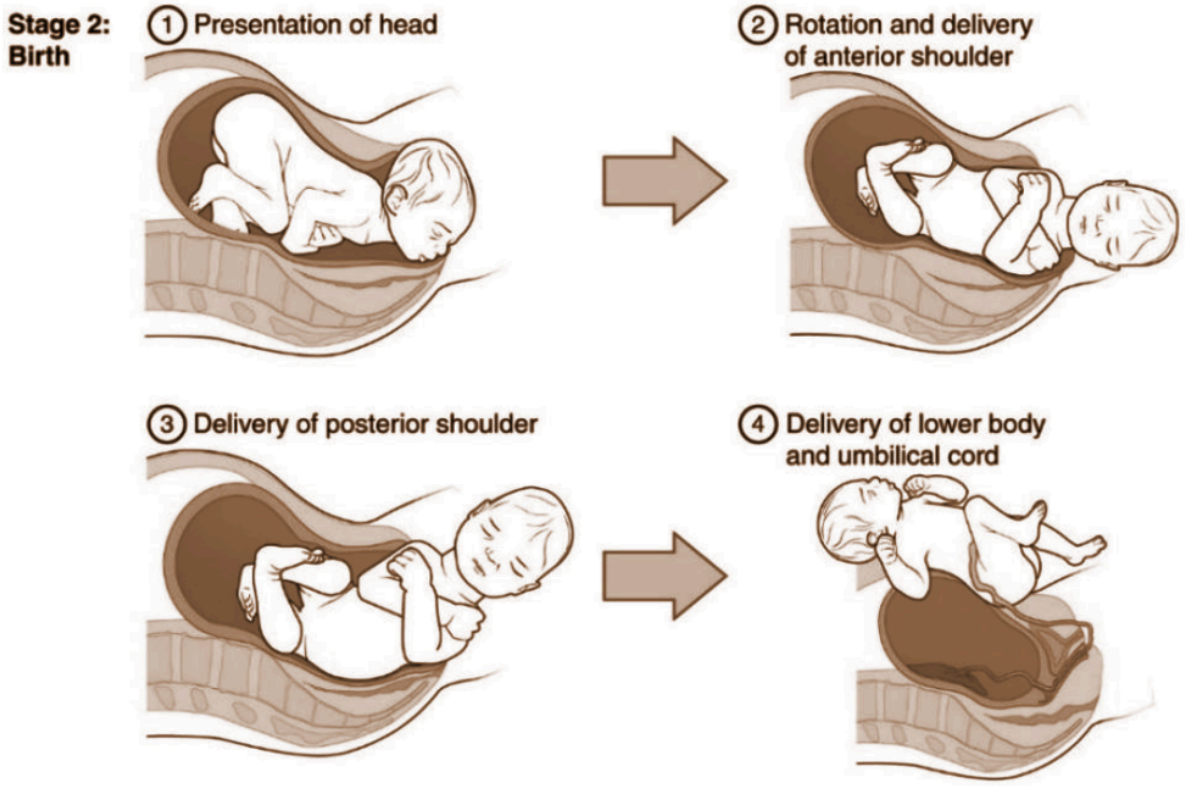

Figure 4.2. This image shows a fetus being born during full dilation of the cervix. Babies receive a quick assessment after birth to assess overall health, although babies born prematurely may receive additional monitoring or assessments. **Image description**.

The Third Stage

The third stage of labor is the final stage of childbirth, which occurs after the delivery of the baby. This stage is marked by the delivery of the placenta, which is the organ that provides oxygen and nutrients to the developing baby in the womb (figure 4.3).

During the third stage of labor, the uterus continues to contract, which helps to detach the placenta from the uterine wall. The mother may feel mild to strong contractions during this time, and there may be some discomfort or pressure.

Once the placenta has detached from the uterus, the birthing parent will need to push to deliver it. The doctor or midwife may gently tug on the umbilical cord to help the placenta come out. The placenta is examined to ensure that it is complete and healthy.

It is important to note that the third stage of labor can be associated with some risks, such as heavy bleeding or retained placenta. Therefore, healthcare providers monitor the mother closely during this stage to ensure that any potential complications are identified and treated promptly. Maternal deaths after birth are surprisingly high in the United States, with Black mothers experiencing higher maternal mortality rates than other racial groups (Hoyert, 2021). Maternal mortality represents a major **equity** issue in the healthcare system, especially when accounting for racial differences. This issue will be discussed in more detail later in the chapter.

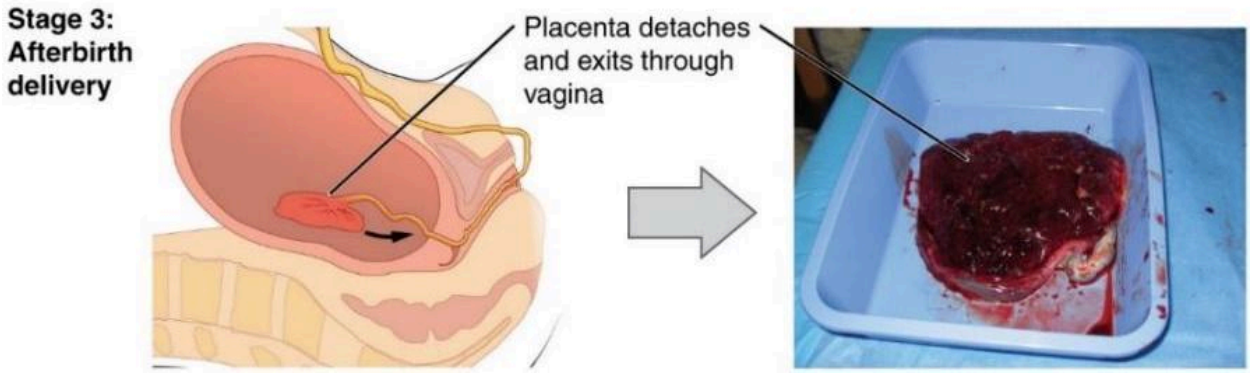

Figure 4.3. The third stage of labor involves the delivery of the placenta and associated fetal membranes. Mothers, especially Black mothers, must be monitored closely due to increased risk of maternal death.Image description.

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Figure 4.1. Early cervical dilation Image by OpenStax is licensed under CC BY 3.0.

Figure 4.2. Full dilation and expulsion of fetus Image by OpenStax is licensed under CC BY 3.0.

Figure 4.3. Delivery of placenta Image by OpenStax is licensed under CC BY 3.0.

4.3 Approaches to Childbirth

The birthing experience is influenced by many aspects of society. Practices such as who is present for the birth, what medical or holistic approaches are used to aid in the delivery, and what steps expecting parents follow to prepare for parenthood may be shaped by the social context of which the family is a part.

The Settings for Labor and Delivery

People can give birth in a variety of settings, depending on their preferences, medical needs, and availability of resources. Some of the most common settings for giving birth include hospitals, birth centers, maternity clinics, and home.

Hospitals are the most common place for childbirth in many countries. They provide access to medical interventions and emergency care if needed. Hospitals may have different options for labor and delivery, such as water births, epidurals, and cesarean sections. An **epidural** is a pain relief technique used during labor and delivery.

Birth centers are facilities designed specifically for childbirth. They are typically run by midwives and offer a more home-like environment than hospitals. Birth centers may offer options for natural childbirth, such as water births, and may have fewer medical interventions available than hospitals.

In some countries, maternity clinics provide prenatal care and childbirth services. They may be run by midwives or obstetricians and may be located within a hospital or in the community.

Giving birth at home typically occurs with the assistance of a midwife or other trained professional. Home births can offer a more comfortable, familiar environment for some people, but they may not be suitable for those with high-risk pregnancies.

Ultimately, the choice of setting for giving birth is a personal decision that should be based on individual needs and preferences, as well as consultation with healthcare providers.

Doulas and Midwives

A **midwife** is a health-care professional who provides care to women during pregnancy, childbirth, and the postpartum period. Midwives are trained to provide a range of services, from routine prenatal care to assisting with labor and delivery. Midwives may work in hospitals, birth centers, or attend home births.

Midwives may provide a more holistic approach to care than other healthcare providers, focusing on the physical, emotional, and social needs of their clients. They may also provide education and support for breastfeeding, newborn care, and contraception. Midwives may work collaboratively with other healthcare providers, such as obstetricians, to provide comprehensive care to their clients. Midwives may be trained in different ways depending on their location and the type of care they provide. Some midwives are trained nurses who have specialized in midwifery, while others may have completed a midwifery education program. In some countries, midwives are the primary providers of maternity care, while in others they work alongside obstetricians and other healthcare providers.

A **doula** is a trained professional who provides emotional, physical, and informational support to a woman and her partner during pregnancy, childbirth, and the immediate postpartum period. The word "doula" comes from ancient Greek and means "a woman who serves." Birth doulas do not provide medical care, but they can offer a variety of non-medical techniques to help a woman cope

with labor, such as breathing exercises, massage, position changes, and relaxation techniques.

Doulas also provide continuous emotional support, helping to reduce anxiety and stress during labor and birth. In addition, birth doulas can help a woman and her partner understand the choices and options available to them during labor and birth, and can advocate for their preferences with healthcare providers. Research has shown that women who receive support from a birth doula are more likely to have a positive childbirth experience, have shorter labors, and are less likely to need interventions like pain medication or a cesarean section (Bohren et al., 2017).

Methods of Labor and Delivery

Unmedicated Delivery

An **unmedicated delivery**, commonly referred to as natural delivery, is the process of giving birth without the use of pain medication or other medical interventions (figure 4.4). Unmedicated delivery is considered a safe and healthy option for many women who are low-risk and have a low-risk pregnancy. During natural delivery, the mother uses breathing techniques, relaxation, and other coping mechanisms to manage pain and discomfort during labor. Women who choose to deliver without medication may also opt for alternative therapies such as acupuncture, massage, or water birth to help them manage pain and discomfort.

Unmedicated delivery can have many benefits for both mother and baby. For example, it can reduce the risk of complications associated with medical interventions such as epidurals or induction, and it can promote bonding between mother and baby. For many mothers, a critical element of having a successful delivery without the aid of medication is a social support system, including involved partners, family members and kin networks to help coach and encourage a woman through labor and delivery. In fact, it is common in many places around the world for women to lead and encourage one another through this process.

However, there are also risks and complications associated with unmedicated delivery, including prolonged labor, perineal tears, and hemorrhage. It is important for women to discuss their options for delivery with their healthcare provider and to make an informed decision based on their individual circumstances and preferences.

Figure 4.4. While unmedicated childbirth can have positive outcomes for both mother and baby, there is a risk of complications. Making an informed decision with healthcare providers is essential.

The term "natural delivery" is more commonly used to describe an unmedicated delivery. However, this term creates some issues with supporting an inclusive culture of labor and delivery. By referring to one way of delivering a child as "natural," the implication is that other ways of delivering are somehow not natural, or less than. We introduce the term in this chapter because it is standard terminology, and it is therefore important to have an accurate understanding of its meaning. It is equally important to call out when language that is used frequently (referred to as *normative*) overlooks or devalues another's equally important experience, however unintentional.

The idea of a drug-free delivery may be held in a higher regard or as an aspiration for expectant mothers. Some women have reported feeling shame or embarrassment that they were unable to deliver without the aid of medication (Happel-Parkins & Azim, 2016). There are many factors contributing to how a woman progresses through labor, only some of which are about personal choices. Therefore, it is important to remember that every labor and delivery is a unique story, and each woman must navigate through the experience, able to focus on her own vision of what defines a successful delivery.

C-Section Delivery

A **C-section delivery**, or cesarean section, is a surgical procedure in which a baby is delivered through an incision made in the mother's abdomen and uterus. A cesarean procedure is typically performed when a vaginal birth is not possible, involves complications, or would be unsafe for either the mother or the baby. Some of the common reasons for a C-section include:

- The baby is in a breech position (feet first) or in another abnormal position that would make vaginal delivery difficult or dangerous.
- The mother has a health condition that makes vaginal delivery risky, such as high blood pressure or heart disease.
- The mother has had a previous C-section, and vaginal delivery is not recommended due to the risk of uterine rupture.
- The baby is too large to be safely delivered vaginally.
- Labor is not progressing normally, or there are concerns about the baby's health during labor.

A C-section is performed under anesthesia, and the incision is typically made horizontally just above the pubic hairline. The baby is then delivered through the incision, and the uterus and incision are closed with stitches. Recovery from a C-section typically takes longer than recovery from a vaginal birth, but the procedure can be lifesaving in certain situations. Later in this chapter, we discuss postnatal care and include information on how postnatal needs differ when recovering from a cesarean delivery.

The United States has one of the highest rates of C-sections in the world, with approximately one in three births being delivered by C-section (Osterman et al., 2023).

There are several factors that contribute to this high rate:

- Medicalization of childbirth: In the United States, childbirth is often treated as a medical event that requires medical intervention. Obstetricians may be more likely to recommend a C-section to avoid potential complications, even if a vaginal birth may be possible.
- Defensive medicine: In some cases, obstetricians may be concerned about the possibility of a lawsuit if a vaginal birth leads to complications for the mother or baby. As a result, they may be more likely to recommend a C-section as a way to minimize the risk of complications and potential legal liability.
- Maternal age and health: The United States has a higher rate of older mothers and mothers with pre-existing health conditions, both of which can increase the likelihood of a C-section.
- Elective C-sections: Some women may choose to have a C-section for personal or scheduling reasons, such as wanting to have a planned delivery date or avoiding the pain of labor.
- Fertility treatments resulting in multiple fetuses: Treatment for fertility issues frequently results in pregnancies with multiple fetuses, dramatically increasing the likelihood of a C-section to optimize the health of the mother and babies.
- Risks associated with a VBAC delivery: Once a mother has given birth through C-section, a vaginal birth is considered risky. Therefore, vaginal birth after cesarean, or VBAC, is not an option for every woman. Higher first-birth instances of C-sections will lead to greater numbers of overall C-sections because of concerns regarding VBACs.
- Lack of access to midwifery care: Midwives are often trained to support natural childbirth and can help reduce the likelihood of unnecessary interventions like C-sections. However, many women in the United States do not have access to midwifery care.

C-sections are generally safe for both the mother and baby, but they do involve some risks and a longer recovery time compared to vaginal delivery. The decision to have a C-section should be made in consultation with a healthcare provider and based on individual medical circumstances.

Figure 4.5. While C-sections are generally considered safe, they do involve risks and are considered a medical intervention.

Other Medical Interventions in Childbirth

There are various medical interventions that may be used during childbirth to ensure the safety and well-being of both the mother and the baby. Some of these interventions may be necessary due to medical complications or risks, while others may be used to manage pain or expedite delivery.

Induction of labor: Induced labor is the process of starting labor artificially using medications or other methods. This is typically done when there are concerns about the health of the mother or baby, or if the pregnancy has gone past the due date and there are no signs of spontaneous labor. Induction may also be recommended if the mother has certain medical conditions, such as high blood pressure or gestational diabetes (Cheng et al., 2017). The most common method of inducing labor is by administering medications such as prostaglandins or oxytocin. Prostaglandins are hormones that can help to ripen the cervix, which is the opening of the uterus, making it easier for the baby to pass through. Oxytocin is a hormone that causes contractions of the uterus, which can help to initiate labor. Other methods of inducing labor include stripping the membranes, which involves separating the amniotic sac from the cervix to stimulate contractions, or rupturing the

amniotic sac, which can help to release hormones that trigger labor.

Epidural anesthesia: This is a pain relief medication that is administered through a catheter placed into the space surrounding the spinal cord. It can provide effective pain relief during labor and delivery.

Forceps or vacuum delivery: Sometimes labor may take longer than expected, which can increase the risk of complications such as infection, fetal distress, or the need for interventions such as forceps or a vacuum extraction. These instruments may be used to assist in the delivery of the baby, particularly if there is a risk of complications or if the mother is too exhausted to push effectively.

Fetal monitoring: Fetal monitoring is the process of using electronic devices to track the baby's heartbeat and the mother's contractions during labor. The purpose of fetal monitoring is to detect any signs of distress or changes in the baby's heart rate that may indicate potential complications.

There are two types of fetal monitoring:

- External monitoring involves placing two belts around the mother's abdomen to measure the frequency and strength of contractions, as well as the baby's heart rate. The belts are connected to a machine that records the information and allows healthcare providers to monitor the baby's well-being during labor.
- Internal fetal monitoring involves inserting a small electrode through the cervix and into the baby's scalp to directly measure the baby's heart rate. This method provides more accurate and continuous monitoring of the baby's heart rate than external monitoring.

Fetal monitoring is an important tool for healthcare providers during labor and delivery. It can help detect potential problems such as fetal distress, which may require intervention to ensure the safety of the mother and baby. If any signs of distress are detected, healthcare providers may recommend interventions such as changing the mother's position, administering oxygen to the mother, or even delivering the baby via cesarean section.

Breaking the water, also known as amniotomy, is a medical procedure that involves rupturing the amniotic sac that surrounds the baby during pregnancy. This procedure is usually performed during labor to help speed up the delivery process or to induce labor.

Breaking the water can be done in a few different ways, depending on the healthcare provider's preference and the mother's individual circumstances. It is typically done using a special tool called an amnihook, which is a thin, plastic rod with a hook on the end that is used to puncture the amniotic sac. Some reasons why a healthcare provider may recommend breaking the water include:

- To speed up labor: If the mother's cervix has already begun to dilate, breaking the water can help to speed up the labor process by increasing the strength and frequency of contractions.
- To induce labor: If the mother's cervix has not yet begun to dilate, breaking the water can help to stimulate contractions and induce labor.
- To monitor the baby: Breaking the water enables healthcare providers to collect amniotic fluid for testing or to better monitor the baby's condition during labor.

Breaking the water can have both benefits and risks. Some of the potential benefits include shorter labor, a reduced need for medication to induce labor, and a decreased risk of certain complications. However, there are also some potential risks, such as infection, prolapsed umbilical cord, and an increased risk of needing a cesarean section.

Rates and Data

As of 2021, the birth rate in the United States was approximately 11.5 births per 1,000 people, according to the U.S. Centers for Disease Control and Prevention (CDC; Osterman et al., 2023). This represents a continued decline in the birth rate, which has been steadily decreasing over the past several years. There are many factors that can impact the birth rate in the United States. Some of the most important include:

- Economic conditions: The state of the economy can have a significant impact on birth rates. During times of economic uncertainty or recession, people may delay having children or have fewer children because of financial concerns.
- Cultural and social norms: Cultural and social norms can also influence birth rates. For example, in some cultures, having a large family is valued and expected, while in others, having fewer children or delaying childbearing is more common.
- Access to contraception and family planning: Access to contraception and family planning services can also impact birth rates. When individuals have easy access to effective contraception, they may choose to delay childbearing or have fewer children.
- Education and career opportunities for women: As women have gained greater access to education and career opportunities, many have chosen to delay childbearing or have fewer children in favor of focusing on their careers.
- Immigration: Immigration can also impact birth rates in the United States. For example, immigrants may have higher birth rates than native-born Americans, which can contribute to an overall increase in the birth rate.
- Health and fertility trends: Advances in medical technology and changes in fertility trends, such as delayed childbearing and increased use of assisted reproductive technologies, can also impact the birth rate.

These are just some of the factors that can influence birth rates in the United States. The interplay of these factors can be complex and can vary depending on a variety of social, economic, and cultural factors. For more information on the current trends in birth rates in the United States, you can view data from the **Center for Disease Control National Center for Health Statistics [Website]**.

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Figure 4.5. **Caesarian Baby** by **Bobjgalindo** is licensed under **CC BY-SA 4.0**.

4.4 The Newborn

After much anticipation, a new human is born. There is no scientific consensus on what age range constitutes the newborn stage, but it is generally viewed as being the first 3 months of life. According to Harvard Health, this period of development is known as the **fourth trimester** which starts at birth and continues to the first 12 weeks after birth (Harvard Health, 2021). Newborns will transition from their warm home within the womb to an expansive world full of noises, smells, and people.

Within the first few minutes after birth, newborns will receive their first of many medical procedures. Medical staff will perform an **Apgar test** to assess a newborn's heart rate, breathing, muscle tone, reflex response, and color. Within the first 24 hours, newborn babies may receive vaccines or medications, such as vitamin K, an antibiotic eye ointment, or a hepatitis B shot. Most newborns will stay under medical supervision for the first 24 hours to 3 days after birth, but some will remain longer if they are born prematurely, have complications due to delivery, or have special medical needs. Medical staff will monitor breathing patterns, feeding, temperature, urine and bowel movements, and weight. They will also screen for treatable diseases and conduct a hearing test before the child goes home.

Newborn Characteristics

When we picture a newborn in our minds, we may think of a sweet smelling baby with perfect, soft skin. The reality is that after birth, newborns are covered in wet and sticky substances from the womb, including amniotic fluid and blood. Amniotic fluid has a distinct smell and varies from person to person. Babies may also be covered in a white, creamy-like substance known as **vernix**. Vernix is a natural skin protectant and has antibacterial properties. It is recommended that babies do not get bathed right after birth.

Newborn babies share some common physical characteristics. When they are born, their skin will appear wrinkled and may have a bluish or grayish tint to it from living in amniotic fluid. The skin will start to flake once it dries, which will be noticeable in the hands and feet. Babies may be born with **lanugo,** which is fine body hair that covers the body. This hair offers warmth and protection in the womb. It falls off on its own shortly after birth. Lanugo helps the vernix stick to the fetus' skin, which helps insulate the body and protect it from the amniotic fluid. Babies may also have **Mongolian spots** or bluish-black marks on their backs and buttocks. Sometimes these may be confused for bruises. Newborns may have other types of birthmarks on their bodies as well.

Newborn heads can appear in a variety of shapes after birth. This depends on the type of delivery or the baby's position in the womb. Some babies may be born with misshapen heads that are cone shaped or flat in some areas. The head shape will usually even out as they develop. A newborn's skull has several **fontanelles**, or soft spots, which allow the baby to pass through the birth canal.

Growth charts from the CDC show that the average weight of a baby born at 37–40 weeks ranges from 5 lb., 8 oz. (2.5 kg) to 8 lb., 13 oz. (4 kg) (CDC, 2010). Babies can lose 5 to 10 percent of their body weight after birth, but this can vary depending on whether a baby is fed breast milk or formula (American Pregnancy Association, 2023). After this, babies will experience a period of rapid growth and can double their weight by the time they reach 4 months old.

Sensory Development and Reflexes

Newborns are born with certain sensory capabilities that help them survive in their environment. Immediately after birth, a newborn is sensitive to touch and temperature and is also highly sensitive to pain. They respond to these stimuli with crying and cardiovascular changes (Balaban & Reisenauer, 2013).

Newborns can distinguish between sour, bitter, sweet, and salty flavors and show a preference for sweet flavors. This makes sense considering that breast milk is sweet. Newborns also prefer the smell of their mothers. An infant that is only 6 days old is significantly more likely to turn toward its own mother's breast than to the breast of another baby's mother (Porter et al., 1992). Within hours of birth, an infant also shows a preference for the face of its own mother (Bushnell, 2001; Bushnell et al., 1989).

Vision is the most poorly developed sense at birth, and time is needed to build those neural pathways between the eye and the brain. Newborns typically cannot see further than 8 to 16 in. (20.3–40.6 cm) away from their faces. This is about the distance from the newborn's face to the mother/caregiver when an infant is breastfeeding, chestfeeding, or bottlefeeding.

The newborn's sense of hearing is very keen at birth, and the ability to hear is evidenced as soon as the 7th month of prenatal development. They are sensitive to their mother's voices in the womb. A newborn can distinguish between very similar sounds as early as 1 month after birth and can distinguish between a familiar and unfamiliar voice even earlier.

Infants are born with many **reflexes**, which are involuntary movements in response to stimulation (figures 4.8–4.15). These include a sucking reflex (infants suck on objects that touch their lips automatically), the rooting reflex (this involves turning toward any object that touches the cheek), the palmar grasp (infants tightly grasp any object that is placed in their palm), and the dancing reflex (when the infant is held in a standing position and moves their feet up and down alternately, resembling dancing).

Reflex	Description	Image
1. Sucking	Infants will suck on anything that touches their lips.	
2. Moro	A sudden noise or loss of support to the head and neck will cause infants to spread out their arms and legs, then quickly contract their limbs inward.	

Figure 4.6. Some Common Newborn Reflexes.

Reflex	Description	Image
3. Rooting	Infants will turn their heads when their cheek is touched.	
4. Tonic Neck	When lying on the back with the head to one side, infants will extend the arm and leg on that side while flexing the limbs on the opposite side (looks like a fencer's pose).	

Figure 4.6. Some Common Newborn Reflexes.

Reflex	Description	Image
5. Grasp	The fingers automatically grip anything that touches the palm of the hand.	
6. Stepping	The legs move in a stepping-like motion when the feet touch a smooth surface.	

Figure 4.6. Some Common Newborn Reflexes.

Reflex	Description	Image
7. Babinski	The infant's toes will fan out and curl when the sole of the foot is stroked from heel to toe.	

Figure 4.6. Some Common Newborn Reflexes.

Common Newborn Issues

Babies can develop issues in the womb, during labor and delivery, or after birth. One of the most common medical conditions that newborn babies experience is jaundice. **Jaundice** refers to elevated bilirubin levels that can lead to yellowing of the skin or eyes. When red blood cells break down and are processed by the body, they leave a product called bilirubin. Bilirubin is processed by the liver, and since a newborn's liver is still immature, this leads to slower metabolism and a buildup of bilirubin. Jaundice usually resolves itself within the first few weeks of life, but some babies may require interventions.

According to **the most recent CDC data on childbirth [Website]**, 1 in 10 babies is born premature in the United States (CDC, 2021). **Premature birth**, or preterm birth, describes babies that are born before 37 weeks of gestation. There are many reasons why a baby can be born too early, but there are certain factors that can increase the risks, such as maternal health, lack of prenatal care, and environmental toxins. The final weeks of pregnancy are important for the developing fetus because its central nervous system, kidneys, and liver are maturing to prepare for life outside of the womb. Babies are also gaining weight each day, which helps insulate them and keep their bodies warm. The lungs and brain are the last things to develop and continue to form until the fetus reaches full term or 40 weeks of gestation.

People who are pregnant with multiple children may deliver their babies early. This can also occur if pregnancies are not spaced apart and the uterus has not had time to heal. The use of tobacco, drugs, or certain medications can also increase the chances of having a baby preterm. Sometimes, there are other pregnancy complications that require early delivery, such as having low amniotic fluid, placenta issues, or a traumatic event that leads to a severe stress response within the body.

Many babies who are born early will live their lives with little to no complications. Others may experience short-term consequences due to premature birth, such as breathing issues, heart problems, or compromised immune systems. Some babies may develop long-term problems, such as impaired learning, cerebral palsy, or chronic medical conditions, such as asthma. Premature babies

are also at increased risk for sudden infant death syndrome or SIDS.

Unfortunately, not all babies will survive after birth. In **Chapter 3**, we learned that some fetuses develop birth defects or chromosomal abnormalities in the womb. Sometimes this results in a miscarriage or early loss of a baby. The CDC reports that in 2020, there were 20,000 total documented infant deaths in the United States (CDC, 2021). Babies born prematurely or with a low birth weight accounted for 16 percent of all infant deaths, or deaths within the first year of life (CDC, 2021).

The **National Vital Statistics Report [Website]** shows death trends by race, highlighting the fact that babies of color, especially Black, Latino, and Indigenous babies, die at much higher rates than other groups (Ely & Driscoll, 2021). These disturbing trends highlight societal inequalities, such as racism, and the need to adjust the way we approach health care for all mothers and their children. While many risks can be associated with genetic or biological factors, it is important to consider the quality and accessibility of care that pregnant women receive and the potential long-term effects of mistreatment or misdiagnosis.

CASE STUDY: AMIRA AND ANTHONY

How does race influence birth experiences and health outcomes?

Amira found out that she was pregnant with her first child when she was 28 years old. While this was a joyous moment for her and her family, she was also scared about what could happen. This fear is typical for many pregnant women, but Amira also experienced fear around race-based issues. She had heard many sad stories about Black women's experiences in the healthcare system. Birth stories were particularly negative, and sometimes they resulted in serious outcomes for the mothers and children.

Amira was lucky to have high-quality insurance through her job. She was able to choose her doctor and had access to a premium healthcare facility. The first few months of pregnancy passed without any complications, but as she approached 8 months, she experienced recurring stomach pains and shortness of breath. She brought these concerns up to her healthcare team and was told that these were common symptoms of a growing belly. Amira did not feel right, so she called her provider once again and was advised to rest and get off her feet. Amira felt dismissed but also worried that, as a first-time mom, she might be too anxious or stressed, so she decided not to pursue her concerns.

A few days later, Amira experienced debilitating pain throughout her body and started hemorrhaging. Her husband rushed her to the hospital, where Amira lost consciousness due to blood loss. She had an emergency C-section, and her son, Anthony, was born 6 weeks premature. Amira was not able to hold her baby after birth. Anthony spent several months in the hospital before he was able to come home.

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4.5 Postnatal and Postpartum Experiences

Bringing a newborn home is both an exciting and nerve-wracking experience for parents. There is excitement in starting or expanding one's family. There can also be feelings of worry or anxiety about the ability to care for a child. These range of experiences are completely healthy and normal. Sometimes, these feelings can lead to more intense emotions that can be overwhelming, especially to new parents.

In this section, we will focus on the postnatal and postpartum periods. These periods are a time of important bonding and learning, but they are also a time of great vulnerability. Cultural and social factors play a major role in what happens to a child and mother after birth. They determine the environment a child will come home to, the type of support the mother and child will receive, and the level and quality of medical care the mother and child will receive. Let's begin by examining what happens during the first 12 weeks after a child is born.

Understanding the Fourth Trimester

The fourth trimester, or the first 12 weeks of life, represents an important time of bonding and adjustment. This time is also known as the postnatal period. Not only is this a crucial time for the newborn to adapt to a new environment, it is also a time for the birth mother to adjust to postpartum life. Many of the patterns and interactions that occur during this time are associated with later patterns of sleep, feeding, and connection. Mothers or primary caregivers who are able to focus on their babies and attune to their needs have a much easier time adjusting during the fourth trimester.

According to Dr. Harvey Karp, the pediatrician who coined the term "fourth trimester," we should view babies in the fourth trimester as fetuses existing outside of the womb (Karp, n.d.). Prior to birth, babies lived in a warm and cozy place for many months. Post birth, they can get overwhelmed with stimulation. They need a lot of love and support to manage the environmental changes. Dr. Karp suggests that caregivers try to mimic the

environment in the womb as much as possible to ease the transition. This includes a lot of skin-to-skin contact time between the newborn and mother.

Caring for a newborn can be a wonderful yet stressful experience due to lack of sleep, individual needs, and family structures. Having a baby changes the brain structure of the mother and has a significant impact on their body. The newborn child also goes through various changes during and after birth. Postpartum women may find that they receive lots of attention during their pregnancy but very little support or care once the baby is born. This gap in service can lead to unintended outcomes, such as anxiety and depression or undue stress on the child.

Modern societal expectations and the economic demands of American culture have changed the time mothers spend with their babies after birth. In the past, it was common for mothers to stay at home with their children well into their school-aged years. Families could afford to have one financial provider in the home, and the cost of living was lower. Today, we hear stories of mothers returning to work a few weeks or even a few days postpartum. The separation between a mother and newborn during the fourth trimester can have long-lasting effects.

The United States is an outlier when looking at paid parental leave among developed nations. The benefits of paid leave are numerous. The economic benefits for the parents is one obvious advantage, but the benefits to the child are more pronounced. Research shows that babies who spend quality time with their caregivers after birth have "increased regularity of well-baby check-ups, greater rates of immunization, increased likelihood and duration of breastfeeding, and increased parental care and engagement" (American Action Forum, 2020).

Figure 4.7. Separation of the birthing parent and the baby after birth can have negative consequences. Paid parental leave allows caregivers to have increased quality time with the baby, among many other benefits.

The fourth trimester is just as important to the well-being of the mother as it is to the newborn. Birth mothers also experience many changes during the **postpartum period**. They are healing from delivery and may have wounds from tears or a C-section to attend to, along with bleeding and cramping. They may experience breast tenderness and pain, pelvic or urinary discomfort, and surging hormones. They may also have other children in the home to take care of, or they may need to return to work before they are ready to. All of this, combined with the stress and exhaustion associated with caring for a newborn, marks the first 12 weeks after birth as a very challenging time.

Feeding and Bonding

Mothers will spend some time caring for themselves and their needs after labor and delivery. However, the majority of their energy will be spent caring for their newborn. Newborns spend much of their early lives sleeping or eating. These two activities serve important functions within the developing child, such as providing essential nutrients and allowing time for growth. It is also during these times that newborns form attachments to their mothers or primary caregivers.

The process of **attachment**, or emotional bonding, starts in the womb. Babies receive a rush of oxytocin when they hear their mother's voice. There is also a release of hormones, including oxytocin, during the birthing process (Karakas & Dagli, 2019). Once they are born, a newborn's skin-to-skin contact with their mother or primary caregiver further solidifies this bond. This initial bonding contributes to a child's sense of safety and belonging, which is identified in Maslow's framework as essential to the foundation of well-being. Close physical contact, and the hormones associated with it, are also beneficial for the mother or primary caregiver. Oxytocin and other hormones prompt the caregiver to respond to the baby's needs and care for the child by triggering nurturing feelings (Palmer, 2013).

Oxytocin is a vital hormone that also protects the birth mother from depression and anxiety. The release of oxytocin can be disrupted through certain medical interventions or environmental factors within the birthing process. Some people feel a sudden rush of love and bonding toward their newborns, while others may take more time. Variation is common, but if a mother is having a difficult time bonding with their newborn, there could be other issues that need to be addressed. Postpartum visits with medical professionals provide mothers with the opportunity to discuss these concerns and to receive the support they need to ensure a healthy bond with their child.

The hormones and endorphins associated with birth and delivery also play a role in preparing the mother for breastfeeding (Medela, n.d.). Prolactin is a hormone that is released during pregnancy and birth, and is necessary for breast milk production. Unfortunately, not all birth mothers are able to produce milk once their child is born. There are many reasons why this may happen, including the impact of medical interventions during delivery, medication use, maternal health, and certain medical conditions. Some families may choose to supplement with donor breast milk or formula if breastfeeding becomes a challenge.

Chestfeeding, also known as bodyfeeding, is an inclusive term that refers to feeding a child milk from your chest. Anyone can chestfeed, but the term is commonly used by transgender men, transgender women, nonbinary individuals, or cisgender women who prefer the term "chest" over "breast." Breastfeeding and chestfeeding are essential to the bonding experience between infant and mother because they promote skin-to-skin contact, eye contact, and the production of hormones and endorphins. Affectionate bonding during the first weeks of life helps caregivers identify their newborn's cues and helps a newborn learn to trust their caregiver.

Additionally, breastfeeding and chestfeeding are known to lessen social and behavioral problems in children and adults, therefore shaping early behavior. Research shows that children who were breastfed and whose mothers actively engaged with them displayed the lowest risk of internalizing problems, like anxiety or withdrawal, compared to those children who were not exclusively breastfed or exposed to active bonding (Liu et al., 2014). This suggests that the positive effects of breastfeeding are much more than nutritional. Breastfeeding and chestfeeding promote positive child and caregiver bonding as well as positive psychosocial behaviors (Liu et al., 2014).

Feeding a newborn is a round-the-clock process. Most newborns need to feed every two to

three hours (Mayo Clinic, 2023). We know that the act of chest or breastfeeding promotes bonding, but what about breast milk itself? Research has shown that the components in breast milk provide all of the nutrients babies need to grow. Breast milk is easily digested and provides long-term health benefits for the child. We also know that oxytocin is the bonding hormone. Babies are able to produce their own oxytocin in response to feeding, but mothers also transfer oxytocin within their breast milk. This creates a calming effect for both the mother and baby, thereby solidifying the bonding experience.

Formula is a good substitute for breast milk when the mother or primary caregiver is unable to produce breast milk or chooses to bottle-feed. The formula may be harder for babies to digest, but they are able to get much of their nutritional needs met through it. Newborns who are getting their physical needs met, who remain close to their caregivers, and who are fed when needed (whether through bottle, chest, or breast) are provided with a healthy start to their lives.

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4.6 Social and Cultural Considerations

There are a variety of cultural and social norms associated with the postnatal and postpartum periods. "Most cultures have special postnatal customs, including special diet, isolation, rest, and assistance for the mother. The uniformity of customs across different cultures is striking" (Eberhard-Gran et al., 2010). Despite the variation in cultural roots, the goal of these practices is to allow the birth mother time to rest and to ensure healthy bonding between mother and child. Giving birth can be an empowering experience for a woman, given the right amount of support. If support is missing, we might see a mother experience "confusion, anxiety, depression, and trauma that can stay with her throughout her life, which can affect how she parents her baby and in turn impact her child's growth and development" (Bowen et al., 2014; Kornelsen, Kostaka, Waterfall, Willie & Wilson, 2011).

In the next section, we will explore rituals of American groups including Latino peoples, Indigenous peoples, and Asian peoples. We will discuss how social norms impact birth mothers and babies, as well as describe the experience they have within the U.S. healthcare system.

La Cuarentena or the Quarantine

There are approximately 62.5 million Latino people residing in the United States, accounting for approximately 19 percent of the total population (Pew Research Center, 2022). Latino families bring with them a rich cultural history, as well as many customs and rituals associated with birth and the postpartum period. One of the most common practices is known as *la cuarentena*, or "the quarantine." It is typically observed by those of Mexican origin, but versions of this practice are

common among other Latino groups. During this time, the postpartum mother and child are confined to their home to recover from childbirth for 40 days. Family members, mostly women, help with household tasks such as cooking and cleaning. Familial support plays a vital role in the recovery process for Latina mothers.

A research study on the beliefs associated with la cuarentena explains that after childbirth a woman's body is open and vulnerable to bad drafts or energy (Waugh, 2011). La cuarentena serves to close the body. This is ensured by keeping the windows in the home closed and the woman's head and neck covered. During this time, women also wear a *faja*, or a girdle, to reshape the abdomen back into place along with following a special diet of bland foods meant to nourish the body (Academic Mami, 2017). The mother's only job during the 40 days is to take care of her baby and rest.

Figure 4.8. A Latina mother practices la cuarentena after the birth of her child to promote bonding and to rest and recover from childbirth.

The practices and customs followed in la cuarentena allow for important bonding time for the mother and child. The mother, free of other obligations, is able to adjust to their new (or expanding) role as a caregiver. They can focus on breastfeeding, tuning into their baby, and healing. The newborn also benefits from this time of isolation, during which they learn to adjust to their new environment and spend quality time with their mother. Modern demands have changed the way Latina mothers practice la cuarentena. Many women pick and choose aspects of this practice that fit their lifestyle. For example, Dr. Mari, a Latina mother and academic professional, reports that she was out of the house within a few weeks after giving birth and that familial support was present, but not fully, during the 40 days because

of work and life obligations (Academic Mami, 2017).

It is important to note that Latina mothers living in the United States who observe la cuarentena face cultural conflicts with postpartum medical care. They may want to follow American standards of postpartum and postnatal care, which involve doctors' visits out of the home during the 40 days of quarantine. Or, they may not follow up on doctor's visits during this time because they are adhering to the strict cultural expectations of la cuarentena. A research study reports that Mexican immigrant women may hide their traditions from medical providers because their beliefs may be trivialized due to a lack of awareness (Waugh, 2011). These experiences may lead to unnecessary barriers or delays in necessary medical care.

Birth as a Sacred Ceremony

Indigenous peoples, or the original inhabitants of North America, once numbered anywhere from 50 to 100 million people prior to European colonization (Alan, 2002). They now comprise around 9.7 million people within the United States (Jones et al., 2021), 1.8 million people in Canada (Statistics Canada, 2023), and 16.9 million people in Mexico (IWGIA, n.d.). The Indigenous perspective on birth and postpartum care is important to consider, not only because they are the original inhabitants of our land, but also because of the wisdom that has been passed down from generation to generation. While Indigenous people across North America are diverse in their beliefs and practices, there exist many commonalities among practices that aim to support the child and mother after birth.

American Indigenous cultures believe that birth signals the passing from the spiritual world into the physical world (Hayward & Cidro, 2021). Pregnant women were gifted the opportunity, by the Creator, to carry this spirit within their bodies. This type of cultural thinking promotes a unified front within the community where all are involved in the well-being of the mother and child. In the article "Indigenous Birth as Ceremony and a Human Right," the authors note that "cultural practices around birth, including ceremonies for welcoming and celebrating the new life and the sharing of traditional knowledge and teachings, helped establish strong community roots for the mother and newborn by encouraging healthy lifestyles and a sense of belonging for the family" (Hayward & Cidro, 2021).

Figure 4.9. A commonality among North American Indigenous cultures is the practice of surrounding a baby with a strong community.

Unfortunately, many of the vital ceremonies and cultural practices of Indigenous peoples have been disrupted by colonization and modern practices. Groups have worked hard to reconnect with their ancient beliefs, particularly those related to birth and life. A grassroots group in Alaska, known as the Alaska Native Birthworkers Community, is composed of several tribal nations that are seeking to reclaim ancestral practices that have been around for millennia. Their vision is to ensure that "every Alaska Native birthing person feels supported, well cared for, and full of the information they need to make confident choices around reproductive health, birthing, and parenthood…to reclaim as well as create new ceremony and heal our ancestors and future generations who may have been harmed through the colonization of our bodies, healthcare, and birthing practices" (Carraher-Kang, 2020).

Zuo Yue Zi or Sitting the Month

The United States has a wealth of diversity among Asian groups, who have brought many of their traditions and cultural rituals with them. *Zuo yue zi*, or "sitting the month," is a postpartum ritual rooted in traditional Chinese medicine and is also practiced (with some variation) by other groups, such as those from Vietnam and Taiwan (Nguyen et al., 2021). The goal of this practice is to reset the mother's energy or the balance of yin and yang, which changes after birth. It is expected that mothers who engage in this practice will not only reset their bodies but also achieve long-term health benefits as a result (Gillespie, 2021).

Figure 4.10. An Asian mother practices sitting the month by resting in her bed and bonding with her newborn baby.

Similar to la cuarentena, zuo yue zi is a postpartum practice that involves isolating the mother and child for about 30 days with the goal of rest, recovery, and bonding (Gillespie, 2021). Sometimes the recovery can last longer, depending on the mother's needs. During this time, mothers are advised to avoid drinking cold items or eating raw fruits and vegetables. Bath waters are prepared with herbs (known as warming elements) to expel the cold that has entered the body through birth (Gillespie, 2021). Care is provided by one's mother, extended family, or medical staff.

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Figure 4.8. Photo by Raul Angel on Unsplash.

Figure 4.9. Photo by Isaac Quesada on Unsplash.

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4.7 Health and Wellness

The postpartum period is a stressful time for birth mothers and the immediate family into which a child is born. On top of the common stressors surrounding the postpartum period, such as sleep deprivation, body and hormonal changes, and the many demands of caring for a newborn, mothers have to adapt to their new parenting role (Osman et al., 2014). First-time mothers might feel insecure, inadequate, or unable to care for their infant and may often feel overwhelmed, isolated, and exhausted.

Many stressors during the postpartum period have been identified, including overload, working mother concerns, isolated motherhood, limited supportive resources, exhaustion, parenting demands, and changes in the body and sexuality (Osman et al., 2014). Although most of the attention is focused on the 6-week postpartum period, sources of stress from overload were also present at 9 to 12 months postpartum. It is important to examine the societal frameworks around birth and aftercare to determine deficits and areas for improvement. Community resources and public health policy are crucial for preparing and supporting women throughout the first challenging postpartum year.

In this section, we will address health and wellness by identifying some of the challenges birth mothers face within the healthcare system. We will also take a look at sleep deprivation and nutrition and how this impacts recovery and life with a newborn. Lastly, we will also explore common mental health issues, risk factors, and associated protective factors.

Postpartum Health Care

In Chapter 3, we discussed the importance of prenatal care and the implications for caregivers and children. We know that consistent prenatal care helps identify potential concerns for the mother and child. Postpartum care addresses similar concerns, but more specifically, it serves as a time to monitor and support the transition from pregnancy to motherhood. During postpartum care visits, potential problems, such as persistent bleeding, inadequate levels of iron, blood pressure issues, emotional changes, and infections, can be identified and addressed.

Pregnant women receive various levels of care and support during their pregnancy, but this support may diminish once the baby is born. According to the World Health Organization, in the 42 days after the birth of a child, "the burden of maternal and neonatal mortality and morbidity remains unacceptably high, and opportunities to increase maternal well-being and to support nurturing newborn care have not been fully utilized" (WHO, 2022). The postnatal period is a critical yet neglected period of quality health care for mothers and their babies.

Social inequalities further burden the mother and child and can have a lifelong impact on their well-being. The healthcare system is zoning in on providing positive postnatal experiences by recognizing the link between postnatal care and long-term outcomes. The World Health Organization defines a positive postnatal experience as a time when "women, newborns, partners, parents, caregivers and families receive information, reassurance and support in a consistent manner from motivated health workers; where a resourced and flexible health system recognizes the needs of women and babies, and respects their cultural context" (WHO, 2022).

Like prenatal care, access and quality of postpartum care vary greatly depending on socioeconomic status, access to health insurance, race and ethnicity, and geographic location, among many other **social determinants**. Yet, nothing stresses the importance of postpartum care better than realizing that 50 percent of maternal deaths occur during the postpartum year. Not surprisingly, Black and Indigenous people of color (BIPOC) and rural residents experience greater risks post birth (Kozhimannil, et al., 2011). It is important to note that most of these deaths are preventable and that there has been an increase in deaths for BIPOC women each year, despite medical advancements (CDC, 2019).

Sleep

Most of us have heard the phrase "say goodbye to sleep, once the baby comes" (or some variation of this) recited to expecting parents. Although having a newborn brings many joys and warm feelings, we must also discuss the sleep deprivation that is unavoidable after birth. Sleep deprivation has been studied at length with medical residents, shift workers, and commercial drivers. However, recently, researchers have become interested in studying sleep disruption related to new mothers. The mother's sleep is interrupted by many things after having a baby, including nighttime feedings and other challenges related to infant care. Unsurprisingly, the greatest sleep disruption occurs 1 week postpartum.

One of the most common pieces of advice that postpartum mothers receive is to "sleep when the baby sleeps." Although this might seem like a no-brainer, many mothers or primary caregivers might be inclined to catch up with other responsibilities while the newborn sleeps. Getting adequate rest during the fourth trimester is important for both the newborn and their caregiver. Yet, over 50 percent of women still experience excessive daytime sleepiness at week 18 (Creti et al., 2017), and sleep disruption can last for months. Many factors contribute to sleep deprivation, including a

change in hormone levels, responding to newborn needs such as feeding and diapering, and attending to one's own needs.

Postpartum sleep deprivation has been linked to an increased risk of depression. According to the article "Sleep Deprivation and Postpartum Depression," postpartum women will experience "a sudden drop in levels of estrogen, progesterone, and thyroid hormones. This change affects the sleep cycle and lays the groundwork for depression. Over time, if sleep doesn't improve, this raises the likelihood of developing postpartum depression" (Pacheco, 2023).

Nutrition

Throughout the pregnancy, expecting mothers are frequently told to drink lots of fluids. Hydration is very important during the postpartum period, as is a nutrient dense diet. Having a healthy, balanced diet full of vegetables and fruits will ensure the healthy growth and recovery of the infant and mother. Mothers who breastfeed should ensure that they increase their caloric intake. It is estimated that a breastfeeding mother burns an extra 500–700 calories daily (AAP, 2017). These calories are used by the body to produce milk, which contains valuable nutrients and antibodies.

Breastfeeding provides many benefits to both the mother and child. Research demonstrates that mothers who breastfeed experience lower risks of breast and ovarian cancer, high blood pressure, and type 2 diabetes (CDC, 2021). As noted earlier, breastfeeding also aids in the bonding between a mother and child. Newborns benefit greatly from breast milk because it is easy to digest and supplies valuable nutrients to the growing brain and body. The antibodies present in breast milk help babies develop a stronger immune system, which is necessary to protect them from sickness and disease (CDC, 2021).

Unfortunately, there are many factors that impact a mother's ability to breastfeed or provide breast milk to their child. Poverty, inadequate health care, and lack of access to support services such as lactation counseling can impact a mother's ability to breastfeed. Many working mothers are also pressured to return to work shortly after birth, which impacts their ability to breastfeed on demand, or to pump enough breast milk to keep up their supply. These factors, combined with "aggressive marketing by the breastmilk substitutes industry" impact a mother's confidence and ability to feed their child (Global Breastfeeding Collective, 2018).

The intersection of racial identity and poverty also impacts rates of breastfeeding. Black mothers experience more barriers to breastfeeding than White mothers. For example, they may have less education about breastfeeding practices, and health-care agencies provide less support for evidence based practices in neighborhoods with a majority Black population (Beauregard et al., 2019). Additionally, Black mothers who are classified as low income will often have to return to work sooner than mothers from other racial groups. This impacts not only the intention of breastfeeding, but also the logistics of feeding or pumping, which may not always be feasible during work hours (Beauregard et al., 2019).

Mental Health

As we discussed previously, the birth of an infant brings many positive and negative feelings and emotions. Postpartum depression is depression that occurs after delivering a baby. Although many people refer to postpartum depression as the "baby blues," the feelings surrounding postpartum depression are more intense and longer lasting (CDC, 2022). Postpartum depression is the most common psychiatric disorder observed during the postpartum period (Rai et al., 2015). Similarly to a

major depressive episode, postpartum depression is characterized by a pervasive depressed mood, disturbances of appetite and sleep, low energy, anxiety, and suicidal ideation (Rai, 2015).

Additionally, new mothers may have feelings of guilt or inadequacy related to their ability to care for the infant and a preoccupation with the infant's well-being or safety strong enough to be considered obsessional (Rai, 2015). The number of women affected by postpartum depression varies by age, race/ethnicity, history of depression, and state. Recent data shows that one in eight women experience symptoms of postpartum depression post delivery. In the state of Oregon, 15.7 percent of pregnant women self-reported postpartum depressive symptoms in 2020 (CDC, 2022).

Research shows that social support, especially for racial/ethnic minority women, can provide a buffer against postpartum depression (Pao et al., 2019). Furthermore, as the level of social support increases, the severity of postpartum depression symptoms decreases. This suggests that social support is a protective factor against postpartum depression.

Postpartum anxiety disorders are underdiagnosed and potentially more common than postpartum depression (Rai et al., 2015). One of the most common characteristics is nocturnal vigilance, which entails the mother lying awake while listening to the infant's breathing and engaging in constant checking. This results in further sleep deprivation. Mothers may excessively worry and preoccupy about the health and safety of their infant.

Paternal depression, or the postpartum depression experienced by fathers, is something that also must be considered. While the father may not experience the same body changes as the birth mother, they are still subject to hormonal changes, lack of rest and sleep, and societal and familial pressures. It is estimated that up to 10 percent of fathers experience postpartum depression (Paulson & Bazemore, 2010). Paternal depression may look similar to maternal depression, but it can be distinct. Some common symptoms include experiencing anger or irritability, losing interest in activities, distancing oneself from family and friends, feeling discouraged or frustrated, and experiencing sadness or hopelessness (Cleveland Clinic, 2019).

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4.8 Conclusion

The transition to parenthood is an exciting, yet challenging time for many, especially for the birth mother. Each birthing experience is unique, and many factors must be considered, such as the mother's health, fetal health, and access to services. Birth mothers experience many biological and emotional changes during and after birth that may influence their ability to bond with their child. Additionally, there are social factors that can support or hinder attachment. Culture and social factors play a role in the birth process as well as in the postpartum experience. Birth mothers and primary caregivers need support to ensure that their needs are met and that they are able to ade-

quately care for their newborn child. These needs can be met with familial support and with comprehensive health care and social policy.

Review of Learning Objectives

1. Identify the stages of childbirth, and examine diverse birthing practices.
2. Compare and contrast the cultural and social influences in the birth and postnatal experience.
3. Analyze the relationship between access to services and life outcomes.

Review of Key Terms

- **Apgar test**: an assessment that is performed on a newborn baby to evaluate the newborn's heart rate, respiratory effort, muscle tone, reflexes, and skin color.
- **Attachment**: the emotional bonding between child and caregiver, which is a foundational component for a child's sense of safety and well-being.
- **Cervix**: the lower part of the uterus, located at the top of the vagina. It is a cylindrical-shaped structure that connects the uterus to the vagina.
- **Contractions**: a natural process of childbirth in which the muscles of the uterus contract and relax to help move the baby through the birth canal.
- **C-section delivery**: a surgical procedure in which a baby is delivered through an incision made in the mother's abdomen and uterus; also known as a cesarean section.
- **Dilation**: the widening or opening of the cervix during childbirth to allow the baby to pass through the birth canal.
- **Doula**: a trained professional who provides emotional, physical, and informational support to a woman before, during, and after childbirth.
- **Epidural**: a pain relief technique commonly used during labor and childbirth that involves the injection of a local anesthetic into the spinal cord.
- **Fourth trimester:** the 12 weeks of adjustment a newborn undergoes once they are born; also known as the postnatal period.
- **Jaundice:** a medical condition characterized by yellowing of the skin and whites of the eyes that occurs when there is a buildup of bilirubin, a yellow pigment, in the blood.
- **Labor and delivery**: the process by which a baby is born that typically involves three stages: the first stage, dilation of the cervix; the second stage, pushing the baby through the birth canal; the third stage, delivering the placenta.
- **Midwife**: a health-care professional who provides safe and supportive care to women during pregnancy, childbirth, and the postpartum period, prioritizing the natural processes of childbirth.
- **Paternal depression**: postpartum depression experienced by fathers due to hormone changes, home and societal shifts, and lack of rest.
- **Postpartum period**: the time after childbirth when a woman's body undergoes a series of physical and emotional changes as it begins to recover from pregnancy and delivery.
- **Premature birth**: the delivery of a baby before the 37th week of pregnancy; also known as preterm birth.
- **Stages of childbirth**: the three-stage process by which a baby is born vaginally, involving dilation of the cervix, pushing the baby through the birth canal, and delivery of the placenta.
- **Unmedicated delivery**: the process of giving birth without the use of pain medications or

epidurals; commonly referred to as natural childbirth.
- **Vaginal delivery**: the process of delivering a baby through the vagina, also known as the birth canal.

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CHAPTER

5

Cognitive, Language, and Physical Development in Infancy and Toddlerhood

5.1 Chapter Overview and Learning Objectives

This chapter will focus on the rapid and amazing development that happens during infancy and toddlerhood. The first 3 years of life are marked by intense growth and skill-building. Children are hardwired to learn, beginning in the womb and expanding after birth. During this developmental period, their brains experience one million neural connections per second (Zero to Three, 2023). This is an amazing feat!

Children work through several important cognitive, language, and physical milestones during these 3 years. While newborns may appear passive in their early interactions, they are born with the instinct to gather and process information from their caregivers and environments. We start to see this blossoming during infancy and toddlerhood, when the child begins to demonstrate their knowledge through communication and movement.

Primary caregivers are of utmost importance during this developmental period. They not only care for the basic needs of their child, but also work to enrich their child's lives through connection and play. Children also need access to healthy environments and communities that provide opportunities for education, healthcare, and positive social interactions.

We will explore the expanding brain and body and discuss the factors that support growth. We will also look at the diverse cultural approaches to caring for infants and toddlers. There is no "right" way to raise children, but we can agree that all children deserve healthy caregivers, nurturing interactions, and enriching opportunities.

Learning Objectives

After reading this chapter, you will be able to do the following:

1. Identify the stages of infant and toddler cognitive and **physical development**.
2. Identify communication milestones in infancy and toddlerhood.
3. Recognize healthy **sexual development** in infancy and toddlerhood.
4. Analyze the impact of caregivers, social context, and cultural influences on a child's development.

Key Terms

Throughout this chapter, you will be introduced to important key terms that will help deepen your understanding of human development.

- **Accommodation**: a cognitive process that occurs when an existing schema is updated or a new schema is created.
- **Animism**: the belief that inanimate objects have lifelike abilities.
- **Assimilation**: a cognitive process that occurs when a current schema is applied to understand something new.
- **Child-directed speech**: a type of speech characterized by slower delivery of words, higher tones, and pronounced facial expressions.
- **Egocentrism**: the inability to see the world through other people's perspectives.
- **Experience-dependent plasticity**: the remodeling of the brain due to unique or unexpected experiences within and outside sensitive periods of development.
- **Experience-expectant plasticity**: the guidance of normal brain development by environmental stimuli, especially during sensitive periods.
- **Fine motor skills**: motor development that focuses on the muscles in our fingers, toes, and eyes, which enable coordination of small actions.
- **Gross motor skills**: motor development that focuses on the large muscle groups that control our head, torso, arms, and legs, which enable the coordination of larger body movements.
- **Holophrastic speech**: young children's use of one-word phrases or expressions to convey thoughts.
- **Magical thinking**: children's belief that their thoughts or actions influence things that happen in their environment.
- **Mental representations**: the ability to think about things that are not currently present or to think about something in the past.
- **Neurons**: a type of brain cell that sends signals to the nervous system.
- **Neuroplasticity**: a process that involves adaptive structural and functional changes to the brain.
- **Object permanence**: the understanding that even though something is out of their sight, it still exists.
- **Overextension**: the application of a label to all objects that are similar to the original object.
- **Palmar grasp:** the ability to grasp an object using the fingers and palm without the thumb.
- **Pincer grasp:** the ability to grasp an object using the forefinger and thumb.

- **Preoperational stage**: the second stage of Piaget's theory of cognitive development, during which children learn through symbolic and intuitive thought.
- **Receptive language**: children's ability to understand language before they produce speech.
- **Schemas**: categories of knowledge within the brain that help make sense of and process information.
- **Sensitive periods of development**: periods when brain connections reach their peak for certain functions and skills.
- **Sensorimotor stage**: the first stage of Piaget's theory of cognitive development, during which children develop an understanding of the world through their senses.
- **Symbolic function substage**: a substage of preoperational development that is characterized by gains in symbolic thinking, which allows for advances in language development, problem solving, and memory.
- **Synapses**: connections between neurons that help relay information.
- **Synaptic pruning**: the process by which the brain eliminates certain neural connections and strengthens others.
- **Telegraphic speech**: a practice in which children leave out unnecessary words and use two to three-word phrases to communicate.
- **Toxic stress**: stress that results in excessive or prolonged activation of stress response systems in the body and brain.
- **Tummy time**: the practice of placing an infant on a flat surface on their stomach during awake times.
- **Underextension**: the application of a word to a specific object but not to others that are similar.
- **Zone of proximal development**: the period when a child is close to performing a task independently but needs assistance to complete it.

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5.2 Cognitive Development

It was once believed that infants were born as blank slates and relied only on their senses to learn about the world. As we saw in the last chapter, newborns already have many capabilities and use both inherited information and environmental information to form thoughts, beliefs, and understanding. Every experience they encounter, such as cuddling with a caregiver, listening to conversations, or tasting new foods, provides an opportunity to learn. Due to this innate drive, children's brains go through rapid changes during the first 3 years of life.

Cognitive development refers to the way children take in and process information, acquire knowledge and skills, and use information to problem solve. These processes and skills gradually become more complex as the child grows. As referenced in Chapter 1, children were once viewed as mini-adults, and there was very little knowledge about the unique ways in which they learn. Researchers now understand that children

do not process information like adults, nor do they think in the same way as adults. They also understand that young children's cognitive development relies heavily on interactions with their caregivers and the experiences they are exposed to in the first 3 years of life.

Infants and toddlers are constantly confronted with new stimuli. To make sense of their worlds, their brains are designed to organize this information in meaningful ways. Children use **schemas**, or categories of knowledge, to make sense of and process information efficiently. For example, a child may form a schema about what a dog is based on the dog they have at home. Because their dog is brown and has a tail, they believe that all dogs are brown and have tails. When they visit a family member, they see a brown cat with a tail and call it a dog. Eventually, the child will learn the differences between dogs and cats. They will alter their schema about dogs and form a new schema about cats.

Schemas are modified based on the type of information a child encounters. **Assimilation** occurs when a current schema is applied to understand something new. In the example above, this is when the child thinks that the cat is a dog. **Accommodation** occurs when an existing schema is updated or when the child has to create a different schema because the new information does not fit into the current schema. This is when the child forms a schema about what cats are. Schemas are fantastic tools for learning, but they also help us with other cognitive functions, such as attention and memory.

Let's take a look at the foundational structure used for cognitive learning—the brain.

The Growing Brain

The brain is a complex structure that allows us to do all of the wonderful things humans do. Around 3 weeks after conception, we start to form our brain and nervous system. Children are born with billions of brain cells that transmit information to their bodies. **Neurons** are brain cells that send signals to the nervous system. Genetics and epigenetics play a big role in early brain formation and determine how many neurons a child starts off with and their arrangement within the brain (Graham & Forstadt, 2011). The experiences and interactions a child has determines whether the connections between neurons, or **synapses**, are strengthened or weakened. If neurons are like wires, then we can think of synapses as electrical signals that connect the wires and help relay information.

At least one million new neural connections are made every second, more than at any other time in life (Zero to Three, 2023). The brain goes through a rapid development during the first 3 years of life, and certain brain connections reach their peak. At birth, the number of synapses per neuron is 2,500, but by age 2 or 3, it's about 15,000 per neuron (Graham & Forstadt, 2011). These peaks are known as **sensitive periods of development**. Vision, for example, exists when a child is born, but the neuron connections peak at around 8 months. Early visual stimulation causes the neurons and synapses associated with vision to grow and get stronger during this age. This is around the time when we notice infants becoming more aware of the world around them.

Synaptic pruning refers to the process by which the brain eliminates certain neural connections and strengthens others. This process helps the brain become more efficient and helps the child thrive in their respective environments. Once our brain has completed its overall growth in adulthood, we will lose around 40 percent of these connections due to synaptic pruning (Webb

et al., 2001). The phrase "use it or lose it" is applicable when it comes to how the brain is wired. Connections that are used often will become permanent within the brain, while connections that are not used will not fully develop.

It is important to note that although there are sensitive periods of brain development, scientists have learned that the brain is highly plastic throughout our lives. Brain plasticity, or **neuroplasticity**, "is a process that involves adaptive structural and functional changes to the brain" (Puderbaugh & Emmady, 2022). This process means that the brain can continue to grow and rewire itself, even when exposed to adverse experiences or trauma. This is especially true during childhood when the brain is more plastic.

The brain experiences two types of neuroplasticity. The first is called **experience-expectant plasticity**, which is when stimuli from the environment guide normal brain development, especially during sensitive periods. This type of plasticity occurs mostly during early postnatal development. An infant who experiences being held by their caregivers, seeing different faces or objects, or hearing spoken language will generate experience-expectant plasticity.

The second type of neuroplasticity is **experience-dependent plasticity**, which is when the brain is remodeled due to unique or unexpected experiences. This type of plasticity can occur during or outside of sensitive periods of development, in childhood or adulthood. Learning a new skill, such as how to play an instrument or a specific sport, would guide experience-dependent learning. This is also the type of plasticity that responds to stress or trauma within a child's environment.

All young children experience stress to some degree, such as when they're hungry, get hurt, or attempt something new. This type of stress is considered normal and healthy when combined with adequate parental response. In contrast, chronic or toxic stress is damaging to the developing brain. **Toxic stress** is stress that results in "excessive or prolonged activation of stress response systems in the body and brain" (Center on the Developing Child, 2015). For example, children may experience toxic stress if there is no response to their distress, if they experience child abuse or neglect, or if they lack survival basics, such as food, water, and safety. Toxic stress damages neural connections in the prefrontal cortex and hippocampus regions (figure 5.1). These regions are responsible for a variety of processes, such as problem solving, attention, and memory.

Chronic stress causes the brain to produce cortisol, known as the stress hormone. Babies who are exposed to high levels of cortisol can experience disruptions in their learning and may exhibit behavior problems and even health issues later in life. Luckily, there are protective factors that can mediate the impact of stress on the brain and body. For example, researchers note that responsive parenting can protect young children from the negative impact of stress (Asok et al., 2013).

In figure 5.1, we can see how brain architecture changes based on experience. Studies demonstrate that brains that are subjected to toxic stress have underdeveloped neural connections in the prefrontal cortex and hippocampus. These structures are important for learning, memory, and behavior. Brains that are not subjected to toxic stress show many healthy functioning neural connections.

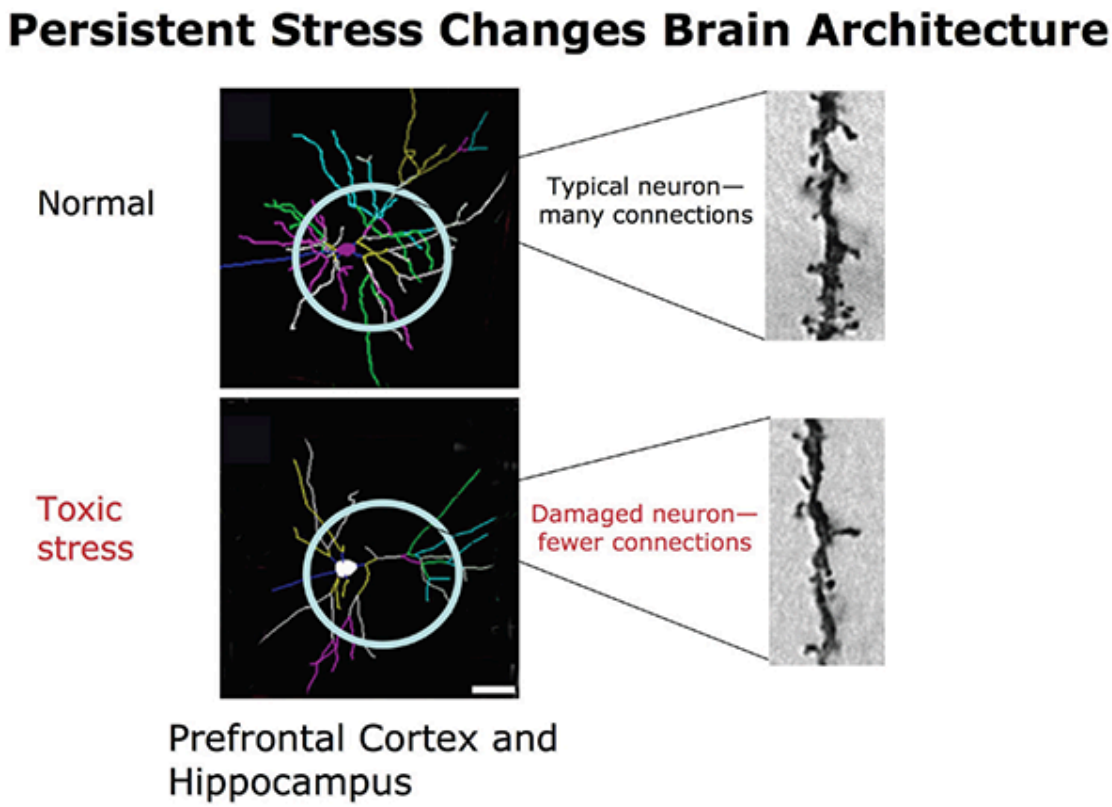

Figure 5.1. Persistent stress changes brain architecture. **Image description.**

We know that genes, experiences, and environmental stressors impact a child's growing brain, but what about exposure to technology? The use of technology in everyday life is a relatively recent development within the span of human existence. Screen time, or a person's use of electronic devices with a screen such as a phone, laptop, or television, has become a regular part of American society. Many of the educators we work with have expressed concern over the use of screen time, especially in the aftermath of the COVID-19 pandemic and the associated social restrictions and increases in remote learning. A report by Common Sense Media states that infants and toddlers spend an average of 49 minutes to 2 hours and 30 minutes on screen media daily, and that usage increases for boys and lower-income children (Rideout & Robb, 2020).

The World Health Organization recommends that children under the age of 1 year get zero sedentary screen time and that children ages 1–3 get 1 hour or less of sedentary screen time per day (WHO, 2019). As we can see, young children are getting much more than the recommended amount of screen time. How does this impact a child's brain development? A recent study of 47 children showed that increased screen time was associated with underdeveloped or disorganized white brain matter (Hutton et al, 2019). This is a significant finding given that white matter supports the formation of executive functions, language, and literacy skills within the brain. While the sample size of this study was small, it suggests

the importance of studying how screen time impacts a child's brain, especially during infancy and toddlerhood.

Moral Development

As infants and toddlers grow, they will develop a sense of what is acceptable in their world. The development of morality is dependent on a child's cognitive functions and growth. Children engage in a thinking process when they encounter a moral situation, which helps them determine right from wrong. **Moral development** also occurs through children's interaction with their social and environmental contexts. Theorist Uri Bronfenbrenner (1992) describes five interrelated systems, which include:

- microsystem (family, peers)
- mesosystem (interaction between child, family, community)
- exosystem (neighborhood, media)
- macrosystem (wealth, poverty, race)
- chronosystem (major life changes, history)

A child's core beliefs, temperament, and life experiences can all influence their sense of morality. Every day, children are surrounded by people and situations that guide their moral development. These situations could involve interactions with siblings or peers, or watching scenes from a show or movie. Caregivers play a major role in the early moral development of infants and toddlers. Children will observe the actions and intentions of the adults around them to gain an understanding of how to respond to situations. Young children are rapidly developing cognitive skills, but their logical and reasoning abilities are still immature.

Theorist Lawrence Kohlberg believed that young children learn what is acceptable or not acceptable based on the punishments or rewards that occur after a behavior or situation (Kohlberg & Hersh, 1977). For example, a child might learn that it is not okay to hit their sibling because they are sent to time-out each time they do. Around 2 years old, children start to feel moral emotions and understand, at least somewhat, the difference between right and wrong. Part of this immaturity involves the way that empathy is developed. Young children are motivated by the threat of consequences. Therefore, early on in their moral development, you might see that they are more concerned with being punished rather than the feelings of another person. A young child might also show signs of empathy if they see another child who is upset, but generally, empathy does not develop until the preschool years.

Moral development is gradual and adaptive. Patient caregivers use opportunities to teach children about expectations and right from wrong. For example, if a child behaves or communicates in a way that is not socially acceptable, the caregiver can use this time to help the child learn. Infants and toddlers make small moral choices daily, such as when they decide whether to share a toy or think about taking an extra candy when their parent is not looking. It is important for caregivers to avoid shaming a child when they do something wrong. With proper care and guidance, young children will eventually be able to regulate their own sense of morality.

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Figure 5.1. Credit: Center on the Developing Child.

5.3 Piaget's Theory of Cognitive Development

There are several **cognitive development** theories that are used to explain children's growth, but the most widely known is Jean Piaget's theory of cognitive development. Piaget's work was revolutionary because he believed that children actively construct knowledge about the world around them and that they are not passive in their learning. He also popularized the notion that children do not think the way adults do. Based on Piaget's work, we have a better understanding of children's thought processes and how these processes influence the way in which they interact with the world.

Piaget's theory of cognitive development includes four distinct stages: sensorimotor, preoperational, concrete operational, and formal operational (Piaget, 1929). Each stage builds upon the next and results in changes in thinking. According to Piaget, every child will progress through each stage in the same order, but brain maturity combined with life experience will determine when a child moves onto the next stage. Infants and toddlers will move through the first two stages of Piaget's theory.

It is important to note that although Piaget's theory is used widely, one of the major criticisms of his work is that he often underestimated children's abilities. Children may be capable of more at an earlier age than Piaget originally suggested. For example, some researchers have seen that young children obtain object permanence as early as 4 months old. Another major limitation to Piaget's research is that it is not culturally or socially inclusive since he mainly used White, middle-class subjects to form his theory. These limitations should be taken into consideration when observing children's behavior and skills.

Sensorimotor Stage

The first stage of Piagets' cognitive development theory is the **sensorimotor stage**. This stage coincides with children ages 0–2 years old. During this period, infants and young toddlers will develop an understanding of the world through their senses via things that they can see, hear, touch, and smell. Their brain will connect sensory experiences (seeing, hearing) with motor actions (reaching, touching) (figure 5.2). As we learned in Chapter 4, newborns are born with instinctual reflex movements, and they are wired to learn through their senses. If you have been around young children, you have likely noticed the amount of time and effort they put forth into touching everything or putting objects in their mouths. They are working hard to refine skills and are doing exactly what they need to be doing during this stage of their lives.

Object permanence is a critical milestone in Piaget's theory and the major achievement of the sensorimotor stage. **Object permanence** refers to a child's understanding that even though something is out of their sight, it still exists. It is also around this time that children show signs of stranger and separation anxiety.

Figure 5.2. A criticism of the research that led to Piaget's theory of cognitive development is that it was not culturally or socially inclusive.

The sensorimotor stage is marked by several substages associated with increased cognitive understanding and motor skills. These are described in Figure 5.3. Attaining object permanence generally signals the transition to the next stage of development, the preoperational stage.

Stage	What Most Children Do by This Age
Reflexes (0–1 month old):	The first part of a child's sensorimotor learning occurs through reflexes. Reflexes are the way that infants respond to their environment. Reflexive responses include rooting, sucking, and startling. Babies will start the rooting reflex if something brushes up against their cheek or near their mouth.
Primary circular reactions (1–4 months old):	Infants transition from reflexive reactions to intentional reactions. They may accidentally engage in a behavior and repeat it again. For example, if a baby produces a sound that they find interesting, they will often try to make the sound again. This interest leads to learned behaviors and the formation of new schemas.
Secondary circular reactions (4–8 months old):	Infants begin paying more attention to the environment around them. They enjoy manipulating objects to make things happen. For example, they might collect a few toys and bang them together. The repeated action (banging) and reaction (noise) helps reinforce intentional behaviors.
Coordination of circular reactions (8–12 months old):	Infants continue to engage in intentional actions to produce reactions. Their bodies become more coordinated, and they are actively exploring their environment. The brain is maturing, and the child can carry out a thought process or a goal. For example, they might try to find a toy that has rolled under the bed. They understand that the toy exists even though they cannot see it.
Tertiary circular reactions (12–18 months old):	Children continue to explore their physical world. They began to experiment through trial and error and seek attention from others. For example, a child may repeatedly throw objects to see their caregivers pick them up. They delight in their caregivers' reactions and in their ability to create those reactions.
Internalization of schemas and early representational thought (18–24 months old):	Children have reached the ability to form mental representations of objects and understand object permanence. They use their memories and knowledge gained through trial and error to solve problems.

Figure 5.3 Sensorimotor Stage.

Preoperational Stage

The second of Piaget's four stages of cognitive development is the **preoperational stage**. This stage coincides with children ages 2 to 7 years. The preoperational stage is divided into two substages known as the symbolic function substage (ages 2 to 4 years) and the intuitive thought substage (ages 4 to 7 years). The **symbolic function substage** is characterized by gains in symbolic thinking, which allows for advances in **language development**, problem solving, and memory. We will discuss the intuitive thought substage in Chapter 7.

During the symbolic function substage, children use **mental representations,** which is the ability to think about things that are not currently present or to think about something in the past. Children can also imagine and use symbols to represent things in their environments. One way that we can witness this growth is through the way children play. Children who are operating in the preoperational stage love to play pretend. A box can become a house or a car. A stick may become a sword or a wand. The possibilities are endless! Cognitive advances allow children to use play as a medium for solidifying learned schemas or to

integrate new information through accommodation.

During the early stage of preoperational development, Piaget believed that children experience **egocentrism**, which refers to the inability to see the world through other people's perspective. While egocentrism is experienced throughout the lifespan, young children in particular experience egocentrism because they are still learning to separate themselves from other people. In other words, young children believe that others feel and think the way they do. Children can develop perspective-taking and empathy in their early years, provided that they have opportunities to interact meaningfully with others.

Egocentrism allows for a toddler's thinking to be illogical or incomplete. For example, they may engage in a thought process called **magical thinking** in which children believe that their thoughts or actions influence things that happen in their environment. This often leads children to connect unrelated events together simply because the two events may have occurred simultaneously. For example, a child is angry at their caregiver and yells at them. Suddenly, the caregiver falls on the floor and hurts their ankle. Even though the caregiver simply tripped, the child may believe that their anger and yelling caused the fall. More broadly speaking, magical thinking can also refer to beliefs about supernatural phenomena, such as the Tooth Fairy or Santa Claus.

Animism is another type of cognitive process that preoperational children demonstrate. **Animism** refers to the belief that inanimate objects have lifelike abilities. For example, they may see their teddy bear as having feelings or believe that their favorite doll has to take a nap because it is very tired from playing all day. Piaget believed that children viewed the world, nature, and objects as alive and with purpose. Children tend to grow out of this type of thinking by the time they are 3 years old.

The other two stages of Piaget's theory are the concrete and formal operational stages. These occur during middle childhood, adolescence, and adulthood. According to Piaget, thinking becomes more logical as the child's brain matures, enabling them to build on their early learning. Children also become less egocentric and can better understand how others think and feel. They can use logical rules in their everyday lives, but children ages 7–11 may still struggle with abstract thinking (Piaget, 1929). Once they reach adolescence, individuals' cognitive development becomes more scientific, and they can imagine hypothetical situations (Piaget, 1929).

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Figure 5.2. Photo by Hazwan Hashim on Unsplash.

5.4 Vygotsky's Sociocultural Theory of Cognitive Development

Lev Vygotsky (1929) was a Russian psychologist who argued that culture has a major impact on a child's **cognitive development**. While Piaget believed development stemmed directly from within the child, Vygotsky argued that it is the language, writings, and concepts arising from the culture that elicit the highest level of cognitive thinking (Crain, 2005). He believed that social interactions with adults and more experienced peers can facilitate a child's potential for learning.

Without this interpersonal instruction, he believed children's minds would not advance very far as their knowledge would be based only on their own discoveries.

Vygotsky's best known concept is the **zone of proximal development** (ZPD) which is the period when a child is close to performing a task independently but needs assistance to complete it. Vygotsky stated that children should be taught in the zone of proximal development with the right kind of teaching. A good teacher identifies a child's ZPD and helps the child stretch beyond it. The teacher then gradually withdraws support until the child can perform the task unaided. Researchers have applied the metaphor of scaffolds (the temporary platforms on which construction workers stand) to this way of teaching. Scaffolding is the temporary support that parents or teachers give a child to do a task.

In contrast to Vygotsky, Piaget was highly critical of teacher-directed instruction, believing that teachers who take control of the child's learning place the child into a passive role (Crain, 2005). Furthermore, teachers may present abstract ideas without the child's true understanding, and the child then just repeats back what they heard. Piaget believed children must be given opportunities to discover concepts on their own. As previously stated, Vygotsky did not believe children could reach a higher cognitive level without instruction from more learned individuals. Who is correct? Both theories certainly contribute to our understanding of how children learn.

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5.5 Cognitive Milestones

Cognitive milestones provide guidance on what children can and should be doing by a certain age. **Developmental milestones** are important indicators of a child's growth and help caregivers, early childhood educators, and healthcare providers identify any potential concerns or delays. It is important to note that milestones are often based on specific cultural and social assumptions (Ertem et al., 2019). Expected skills and behaviors may vary depending on the community or country a child resides in. Figure 5.4 shows a list of common cognitive skills and abilities for children in the United States, according to the Center for Disease Control (CDC, 2022).

Typical Age	What Most Children Do by This Age
0–6 months	• watch you as you move • look at a toy for several seconds • open mouth when breast or bottle present, if hungry • look at hands with interest • put things in mouth to explore them • reach to grab a toy they want • close lips to show they don't want more food
6–12 months	• look for objects when dropped out of sight • bang two things together • put something in a container, like a block in a cup • look for things they see you hide, like a toy under a blanket
1–2 years	• try to say one or two words besides "mama" or "dada," like "ba" for ball or "da" for dog • look at a familiar object when you name it • follow directions given with both a gesture and words • point to ask for something or to get help • copy chores, like sweeping with a broom • play with toys in a simple way, like pushing a toy car • hold something in one hand while using the other hand • try to use switches, knobs, or buttons on a toy • play with more than one toy at the same time
2–3 years	• use things to pretend play • demonstrate simple problem-solving skills • follow two-step instructions • know at least one color • draw a circle when you show them how • avoid touching hot objects when warned

Figure 5.4. Infant and Toddler Cognitive Milestones.

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Figure 5.4. Developmental Milestones, 2022 by the CDC is in the public domain.

5.6 Early Language Development

Humans have a vast range of intelligences, one of which allows us to have language, or a system of communication that uses symbols in a way to create meaning. Language gives us the ability to communicate to others by talking, reading, and writing. Although other species have some ability to communicate, none of them have language as we do.

In Chapter 4, we learned that babies have a keen sense of hearing, which they begin to use when they are still in the womb during prenatal development. This sense allows babies to listen to their mother's voices as well as overhear conversations and environmental noises. Listening and hearing language is the first step in the long journey toward **language development**. Once born, babies recognize their mother's voices and can even distinguish between their mother's language and other languages (Blossom & Morgan, 2006). In fact, babies prefer the sounds of their mothers voice over others and even show a preference for the native language used (Byers-Heinlein et al., 2010).

There are several theories that have been used to explain how young children develop language. Nativism, for example, assumes that children are hardwired to learn language and that there are universal grammar structures that underlie all human languages. While theory is important in helping us understand patterns of behavior and learning, it can be limiting in understanding how culture and society influence the way children learn language and how language is used to communicate. Let's begin our understanding of language development by reviewing typical American language progression and communication.

Language Progression and Communication

Children's ability to understand language develops before they produce speech. Infants can understand more than they can say, which is referred to as **receptive language**. You may have experienced this phenomenon as well if you have ever tried to learn a second language. You may have been able to follow a conversation more easily than verbally contribute to it.

Long before they speak, young children communicate information through gesturing, and there is some evidence that gesture usage predicts subsequent language development (Iverson & Goldin-Meadow, 2005). Babies who are deaf also use gestures to communicate wants, reactions, and feelings. Because gesturing seems to be easier than vocalization for some toddlers, sign language is sometimes taught to enhance their ability to communicate. The rhythm and pattern of language is used when babies sign, just as it is when babies verbally communicate.

Figure 5.5. Sign language is sometimes taught to babies, even those who are not deaf, to enhance their ability to communicate.

The earliest form of language communication used by babies is cooing, which they do almost immediately. Cooing is a one-syllable combination of a consonant and a vowel sound (e.g., "coo" or "ba"). Infants begin to learn the pace and pause of conversation as they alternate their vocalization with that of someone else and then take their turn again when the other person's vocalization has stopped. Interestingly, babies replicate sounds from their own language. A baby whose parents speak French will coo in a different tone than a baby whose parents speak Spanish or Urdu.

At about 7 months, infants begin babbling, engaging in intentional vocalizations that lack specific meaning and comprise a consonant-vowel repeated sequence, such as "ma-ma-ma" or "da-da-da." Children babble as practice in creating specific sounds, and by the time they are 1 year old, the babbling primarily uses the sounds of the language that they are learning (de Boysson-Bardies, Sagart, & Durand, 1984). These vocalizations have a conversational tone that sounds meaningful even though it is not. Babbling also helps children understand the social, communicative function of language. Children who are exposed to sign language babble in sign by making hand movements that represent real language (Petitto & Marentette, 1991).

Children begin using their first words at about 12 or 13 months of age and may use partial words to convey thoughts at even younger ages. The use of one-word expressions is referred to as **holophrastic speech**. For example, the child may say "ju" for the word "juice" and use this sound when referring to a bottle. The listener must interpret the meaning of the holophrase. When the listener is someone who has spent time with the child, interpretation is not too difficult. However, someone unfamiliar with the child may struggle to understand what is meant.

By the time they become toddlers, children have a vocabulary of about 50–200 words and begin putting those words together in **telegraphic speech**, such as "baby bye-bye" or "doggie pretty." Words needed to convey messages are used, but the articles and other parts of speech necessary for grammatical correctness are not yet used. These expressions sound like a telegraph or read like a text message.

Children's pronunciations become increasingly accurate between 1 and 3 years old, but some pronunciation and grammar errors persist and are expected for this stage of development. For example, a child knows their family dog as "doggie," but they do not use the word "doggie" for other dogs. The child may think that the word "doggie" can only apply to their own pet, rather than all dogs that exist, known as an **underextension**. Similarly, when children overapply a word for a specific object to other similar objects, this is known

as an **overextension**. For example, all animals become "doggies."

Social and Cultural Influences in Language

Language is an important part of one's social and cultural experience. We not only learn words and how to articulate them, but we also learn how to make meaning of language in culturally specific ways. Humans are wired to learn language, yet there is variability in the way a language is used within a culture, how it is taught, and how it is learned (Fitneva & Matsui, 2015). Referring back to Bronfenbrenner's systems theory, we can see that a child will develop language through the various interactions they have with their caregivers, extended family, and cultural groups. As children get older, the influence of peers and the school system increases (Kaderavek, 2011).

Social and cultural norms are powerful forces that impact the way that caregivers communicate with their young children. Cross-cultural studies show that caregivers from different cultures talk to their children in distinct ways. For example, in the United States and the United Kingdom, parents make direct eye contact and talk to children face-to-face (Ochs & Schieffelin, 1984, as seen in Rowe & Weisleder, 2020). Caregivers from these cultural groups often use "baby talk" or **child-directed speech**, a type of speech characterized by slower delivery of words, higher tones, and pronounced facial expressions (Clark, 2009). Infants may be more attuned to the intonation of speech rather than the words themselves.

One study estimated that young American children raised in urban environments may hear up to three times more child-directed speech than rural American children, or children from other rural-based countries (Cristia et al., 2019). Rural parents may attend to their child's needs with physical touch or closeness, rather than directly talking to them (Fitneva & Matsui, 2015). In cultures where young children are not directly talked to often, children rely on overhearing as well as adult visual and facial cues to attend to the language around them. This demonstrates that young children can learn language, vocabulary, and communication rules by simply listening and paying attention rather than being talked to directly (Akhtar, 2005).

Language development is further impacted by region and specific language components. For example, children who learn in the English language tend to have first words that center around nouns, such as "ball" or "mama." These children tend to follow the course of language development most present in American literature, where first words appear by 12–18 months old (Fitneva & Matsui, 2015). Children who learn in Mandarin tend to focus more on verbs, perhaps because the relationships between objects or persons is emphasized (Imai et al., 2008). These children tend to produce more holistic language, rather than going through distinct stages of development (Fitneva & Matsui, 2015).

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Figure 5.5. Photo by Jonathan Borba on Unsplash.

5.7 Language and Communication Milestones

Infants and toddlers experience major transformations in their ability to communicate and express themselves through language. Figure 5.6 shows common language milestones for American children 0–3 years old. It is important to note that each child develops language skills in their own way and may not follow the progression stated below. Cultural differences also account for variance in language and communication milestones.

Typical Age	What Most Children Do at This Age
2 months	• make sounds other than crying • react to loud sounds
4 months	• make sounds like “oooo” and “aahh” (cooing) • make sounds back when you talk to him • turn their head toward the sound of your voice
6 months	• take turns making sounds with you • blow “raspberries” (sticks tongue out and blows) • make squealing noises
9 months	• make a lot of different sounds like “mamamama” and “babababababa” • lift their arms to be picked up
1 year	• wave “bye-bye” • call a parent “mama,” “dada,” or another special name • understand “no” (pauses briefly or stops when you say it)
15 months	• try to say one or two words besides “mama” or “dada,” such as “ba” for ball or “da” for dog • looks at a familiar object when you name it • follow directions given with both a gesture and words. For example, they give you a toy when you hold out your hand and say, “Give me the toy.” • point to ask for something or to get help
18 months	• try to say three or more words besides “mama” or “dada” • follow one-step directions without any gestures, like giving you the toy when you say, “Give it to me.”

Figure 5.6. Language and Communication Milestones.

Typical Age	What Most Children Do at This Age
2 years	• point to things in a book when you ask them to locate something, such as "Where is the bear?" • say at least two words together, like "More milk." • point to at least two body parts when you ask him to show you • use more gestures than just waving and pointing, like blowing a kiss or nodding yes
30 months	• say about 50 words • say two or more words together, including one action word, like "Doggie run" • name things in a book when you point and ask, "What is this?" • say words like "I," "me," or "we"
3 years	• talk with you in conversation using at least two back-and-forth exchanges • ask "who," "what," "where," or "why" questions, like "Where is mommy/daddy?" • say what action is happening in a picture or book when asked, like "running," "eating," or "playing" • say first name when asked • talk well enough for others to understand most of the time

Figure 5.6. Language and Communication Milestones.

Theories of Language Development

There are several schools of thought around how young children learn language and communication skills. Common or more traditional theoretical frameworks, such as nativism, learning theory, and social pragmatics, place varying importance on nature, or biological factors, and nurture, or social and environmental factors. We now understand that language acquisition is a combination of all of these things and that children display a range of language and communication skills in their early years. As mentioned earlier, cultural and social factors play a vital role in **language development** and how language is used to communicate.

The linguist Noam Chomsky is a believer in nativism, or the nature approach to language, arguing that human brains contain a language acquisition device (LAD) that includes a universal grammar that underlies all human language (Chomsky, 1965, 1972). Chomsky's account proposes that children are born with a knowledge of general rules of syntax that determine how sentences are constructed. Language develops as long as the child is exposed to it. No teaching, training, or reinforcement is required for language to develop. Although there is general agreement that babies are genetically programmed to learn language, studies show that language rules are not universal. Evans and Levinson (2009) surveyed the world's languages and found some that did not have noun or verb phrases, some that did not have

tenses (e.g., past, present, future), and some that did not have nouns or verbs at all.

Learning theory proposes that language development occurs through the principles of association and reinforcement (Skinner, 1953) and observation and imitation (Bandura 1977). Children learn the language that they hear spoken around them, and they modify their language through imitation and reinforcement, such as parental praise. However, language cannot be entirely learned by reinforcement. First, children learn words too quickly. Between the ages of 18 months and 5 years, children learn up to 10 new words every day (Anglin, 1993). Secondly, language is not finite. One can create an infinite number of statements, thoughts, and ideas, including those that have never previously occurred. When a child says that they "swimmed" in the pool, for instance, they are showing generativity. No adult speaker of English would ever say "swimmed," yet it is easily generated from the normal system of producing language.

Social pragmatics emphasizes the social nature of language. Language is a tool humans use to communicate, influence, and inform. Most of all, language comes out of a need to cooperate. The social nature of language has been demonstrated by a number of studies that have shown that children use several pre-linguistic skills (such as pointing and other gestures) to communicate not only their own needs, but also what others may need. Grosse et al. (2010) found that young children would make linguistic repairs to get their point across when communicating. This would suggest that children are using language not only as a means of achieving some material goal, such as getting a desired object, but also as a way to make themselves understood in the mind of another person.

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Figure 5.6. Developmental Milestones 2022 by the CDC is in the public domain.

5.8 Physical Development

Now that we have looked at the ways in which infants and toddlers develop cognitively and linguistically, let's take a look at how the body changes during the first 3 years of life. **Physical development** includes brain growth, skeletal growth, muscle development, coordination development, and development of gross and fine motor skills. There are many physical changes that take place during this time. For example, newborn babies, who are relatively immobile, will begin to roll over in just a few months and eventually start moving about the world.

We can witness the physical changes of the body by observing how the child fits into their clothing or the way the child is able to move independently. Other changes occur within the complex structures of the brain. While we cannot see this transformation happen, we certainly notice it when babies start to engage in increasingly advanced tasks, such as crawling and walking. Let's take a

look at what's happening in a child's early physical development by examining the growing body.

The Growing Body

The body goes through dramatic physical changes in the first several years of life, starting first with the brain and head. A young child's head is relatively big compared to the rest of their body. The head initially makes up about 50 percent of the body's length when we are developing in the womb. At birth, the brain is 25 percent of its adult size, 75 percent by age 1, and 80 percent by age 3 (Graber, 2023).

Infants have a difficult time holding their head up due to immature neck muscles and their large heads. As they start to explore their bodies and attempt to move around, the neck muscles eventually become strong enough to support other movements. Infants can usually hold their heads up at around two months old, especially if they are given **tummy time,** which is the practice of placing an infant on a flat surface on their stomachs during awake times. The World Health Organization recommends that infants get at least 30 minutes of tummy time daily (WHO, 2022).

Newborn reflexes will switch from automatic responses to those of intention. Infants develop strong sensory responses, which then prompt physical responses to stimuli within the environment. For example, a caregiver may place a baby on a play mat with several small objects hanging over it. At first, the infant may only be able to observe the objects. Eventually, they will be able to grab or swat at them. These seemingly simple actions are important in the overall development of a child's physical skills.

Infants experience quick body growth in the first year of life. For example, they will see an increase in body length of 30 percent by 5 months old and more than 50 percent by a year old (Graber, 2023). Children's bodies will continue to be characterized by big heads, curved backs, and a protruding belly. They have short arms and legs and may appear bow-legged (Lee, 2023; Graber, 2023). By 3 years of age, children will have more proportionate bodies as they gain more muscle and grow taller.

A big change that is occurring within a child's body is the ability to control the muscles associated with potty training. "Most children develop control over their bowel and bladder by 18 months" (Zero to Three, 2010). A child's physical capabilities are important in potty training, but a child may not be emotionally ready to handle potty training. Toddlers are becoming increasingly independent and demonstrate the need for control over their bodies. Making potty training a natural part of their learning process will help caregivers avoid the infamous toddler power struggles. Children may decide to exert control over their bodies by not going to the potty when needed, which can lead to physical issues such as constipation (Zero to Three, 2010).

There are many factors that impact a child's physical development. Genetic and heritable traits are passed from parents to children and can influence the way a body is constructed and developed. Environmental factors, such as toxins or teratogens, can also impact whether a child's brain and body develop as expected. A child's access to healthy and consistent nutrition influences whether a child acquires the vitamins and nutrients needed to support their brain and body growth. Most importantly, the types of interactions that infants and toddlers have with their primary caregivers serve as a foundation for healthy physical development.

Motor Development

Motor development occurs in an orderly sequence as infants move from reflexive reactions (e.g., sucking and rooting) to more advanced motor functioning in toddlerhood. As mentioned during the prenatal section, development occurs according to the cephalocaudal (from head to tail) and proximodistal (from the midline outward) principles. For instance, babies first learn to hold their heads up, then to sit with assistance, then to sit unassisted, followed later by crawling, pulling up, cruising or walking while holding on to something, and then unassisted walking (Eisenberg, Murkoff, & Hathaway, 1989).

As motor skills develop, there are certain **developmental milestones** that young children should achieve. An example of a developmental milestone is a baby holding up its head. Babies, on average, are able to hold up their heads at 6 weeks old, and 90 percent of babies achieve this between 3 weeks and 4 months old. On average, most babies can sit alone at 7 months old. Sitting involves both coordination and muscle strength, and 90 percent of babies achieve this milestone between 5 and 9 months old. If the child is displaying delays in reaching multiple milestones, that is a reason for concern, and the parent or caregiver should discuss this with the child's pediatrician. Developmental delays can be identified and addressed through early intervention.

Motor skills refer to our ability to move our bodies and manipulate objects. **Fine motor skills** focus on the muscles in our fingers, toes, and eyes, and enable coordination of small actions (e.g., grasping a toy, writing with a pencil, and using a spoon). Newborns cannot grasp objects voluntarily, but they do wave their arms toward objects of interest. At about 4 months of age, the infant is able to reach for an object. They first reach with both arms, but within a few weeks, they are reaching with only one arm. At this age, grasping an object involves the use of the fingers and palm, but no thumbs. This is known as the **Palmar grasp**.

The use of the thumb begins at about 9 months of age. Now the infant uses a **pincer grasp**, grasping an object using the forefinger and thumb. This ability greatly enhances infants' ability to control and manipulate objects, and they take great delight in this newfound ability. They may spend hours picking up small objects from the floor and placing them in containers. By 9 months, an infant can also watch a moving object, reach for it as it approaches, and grab it.

Gross motor skills utilize the large muscle groups that control our head, torso, arms, and legs and involve larger movements (e.g., balancing, running, and jumping). These skills begin to develop first. Examples include moving to bring the chin up when lying on the stomach, moving the chest up, and rocking back and forth on hands and knees. But it also includes exploring an object with one's feet, which many babies do as early as 8 weeks of age if they are seated in a carrier or other device that frees the hips. This may be easier than reaching for an object with the hands, which requires much more practice (Berk, 2007). Sometimes an infant will try to move toward an object while crawling and, surprisingly, move backward because of the greater amount of strength in the arms than in the legs.

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5.9 Motor Skill Milestones

While fine motor skills are slower to develop (in accordance with proximodistal development), pretty remarkable progress is made in fine motor development during the first few years. Children go from having no intentional fine motor control to being able to manipulate objects to play and learn, as well as beginning to care for themselves. The following is a table of the major milestones in fine motor development (figure 5.7).

Typical Age	What Most Children Do by This Age
2 months	• grasp reflexively • do not reach for objects • hold hands in fists
4 months	• bring hands to mouth • use hands and eyes together, such as seeing a toy and reaching for it • follow moving things with eyes from side to side • can hold a toy with whole hand (palmar grasp) and shake it and swing at dangling toys
6 months	• reach with both arms • bring things to mouth • begin to pass things from one hand to the other
9 months	• put things in mouth • move things smoothly from one hand to the other • pick up things between thumb and index finger (pincer grip)
1 year	• reach with one hand • bang two things together • put things in a container, take things out of a container • let things go without help • poke with index (pointer) finger
18 months	• scribble on their own • can help undress themselves • drink from a cup • eat with a spoon with some accuracy • stack two to four objects

Figure 5.7. Fine Motor Milestones.

Typical Age	What Most Children Do by This Age
2 years	• build towers of four or more blocks • might use one hand more than the other • make copies of straight lines and circles • enjoy pouring and filling • unbutton large buttons • unzip large zippers • drink and feed themselves with more accuracy
3 years	• use hands to twist things, such as doorknobs or lids • turn book pages one at a time when you read to them • string items together, such as large beads or macaroni • use a fork

Figure 5.7. Fine Motor Milestones.

Children grow very quickly and meet physical milestones rapidly in the first few years of life. Figure 5.8 lists the major gross motor milestones that typically occur within the first 3 years.

Typical Age	What Most Children Do by This Age
2 months	• can hold head up and begin to push up when lying on tummy • make smoother movements with arms and legs
4 months	• hold head steady without support • push down on their legs when their feet are on a hard surface • may be able to roll over from their tummy to back • bring hands to mouth • push up to elbows when lying on stomach
6 months	• roll over in both directions (front to back, back to front) • begin to sit without support • when standing, support weight on legs and might bounce • rock back and forth, sometimes crawling backward before moving forward
9 months	• stand while holding on • can get into sitting position • sit without support • pull to stand • crawl
1 year	• get to a sitting position without help • pull up to stand, walk holding on to furniture (“cruising”) • may take a few steps without holding on • may stand alone
18 months	• walk alone • may walk up steps and run • pull toys while walking • can help undress self

Figure 5.8. Gross Motor Milestones.

Typical Age	What Most Children Do by This Age
2 years	• stand on tiptoe • kick a ball • begin to run • climb onto and down from furniture without help • walk up and down stairs while holding on • throw ball overhand
3 years	• take some clothes off, such as pants or an open jacket • jump off the ground with both feet • put on some clothes by themselves, such as loose pants or a jacket

Figure 5.8. Gross Motor Milestones.

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5.10 Sexual Development

Much of **human development** literature omits or provides limited information on **sexual development** in the early years. Infants and toddlers are often not seen as sexual beings or as having abilities related to sexuality. These misconceptions create an incomplete understanding of human sexuality. More importantly, we miss the opportunity to build the foundation for many other important concepts, such as attachment, gender identity, romantic relationships, body image, and self-esteem.

Scientists, philosophers, and medical experts have established human sexuality as an essential aspect of human experience at all ages. Sexual development is a lifelong process that begins in utero with the development of the sexual organs and hormone activity. Development during infancy and toddlerhood is mainly focused on body awareness and exploration. Caregivers play an important role in how a child perceives themselves, the child's awareness and knowledge of their sexual organs, and the development of body safety and consent.

Body Development

The sexual organs play an important role in determining biological sex and gender assignment at birth. Medical professionals rely on the identification of external genitalia to label a child as female, male, or intersex. The external genitalia for female children is known as the vulva and includes the mons pubis and labia majora. Inside the vulva, you will find the labia minora, the clitoris, and the vaginal opening. The external genitalia of male children includes the penis and scrotum. Within the penis, you will find the urethral opening (used for urination), and within the scrotum, you will find the testicles.

When babies are born, their sexual organs, or genitals, often appear swollen and enlarged. This is due to the hormones and birthing process. Female babies may produce vaginal lubrication, and male babies may have penile erections randomly or in response to touch. We are far more acquainted with male baby erections than vaginal lubrication because they are easier to detect. In fact, ultrasounds have shown developing male fetuses with erections before birth.

During the early years, many cultures engage in rituals or practices such as circumcision and female genital surgery. These practices can impact the way the sexual organs grow and the sensations associated with them.

Body Awareness and Exploration

In infancy, sexual development involves a child's awareness of their physical bodies and responding positively or negatively to touch. They begin to understand that certain body parts cause pleasurable sensations. Pleasure-seeking and self-soothing through physical touch helps infants strengthen important cognitive connections in their brains. For example, physical contact between infants and their caregivers reinforces bonding and attachment. While there is nothing inherently "sexual" about a caregiver and infant engaging in healthy touch and bonding, these types of interactions lay the foundation for future sexual behavior.

Infants and toddlers are not aware of pleasurable touch as a source of erotism or sexual behavior, but they are aware of the connection between physical contact and pleasure or pain. As infants develop motor skills and move their bodies with intention, they will learn the location and feel of their genitals. Toddlers are more aware of their bodies, and they may be more intentional with touching their sexual organs. Toddlers may also show interest in other's bodies and ask questions such as "why does my brother have a penis, and I don't?"

Figure 5.9. Toddlers become curious about their body parts and may ask questions out of curiosity. Guiding children through this stage with positivity can have a lasting impact on their development by avoiding stigma.

Various parts of the human body, such as the genitals, have a lot of nerve endings that make them particularly sensitive to touch. Infants and

toddlers often begin to explore their bodies during dressing, bathing, and diaper changing. They become curious about their body parts and the sensations associated with them. It is completely normal and healthy for young children to touch their own genitals. As children's cognitive capacities grow, the caregivers can begin to have conversations about safety, sanitary practices, and privacy.

A caregiver's positive response to body exploration is crucial for healthy sexual development. It is important for adults to use the appropriate names for body parts, as this helps reduce the stigma around sexuality. Adults must also be aware of their own attitudes and beliefs around sexuality. If we were taught that touching one's sexual organs is bad, we may project those negative messages onto our children. Our confidence as parents in guiding our children through this stage of sexual development can lead to positive acceptance of one's genitals, the ability to share our feelings, and the ability to make healthy decisions about our sexual actions. It can also normalize both giving and asking for consent in the future during sexual encounters.

Body Safety and Consent

Even though children may not completely understand how to protect themselves from harm, learning about inappropriate touch and consent is a process that should start early. We may discuss with children why it is not safe to run into the street long before they are able to follow this instruction. Similarly, we can communicate the message that while it is okay for them to touch their own genitals, the only other person who should be doing so is their caretaker, and only for cleaning purposes.

When changing a diaper, a caregiver can explain each step of the process and provide a reason for what they are doing. For example, "I am removing your diaper, so I can clean your vulva or penis." It is very important to use appropriate body part names from a young age. This will avoid misunderstandings in the future. For example, if a child's vagina is referred to as a "cookie" at home, the preschool teacher at school may not know what the child means when they say, "someone is touching their 'cookie.'" When parents practice respect toward their child and teach them about their body and body safety, it empowers them to stand up to others when something doesn't feel right.

Modesty for toddlers can be inconsistent. Sometimes, they may choose to take off all of their clothes and run naked around the house. Other times, they may refuse to change in front of a parent or a sibling. When we respect their wishes, children learn that what they say, think, and feel matters. They also learn to say "no" if they do not want to do something. Do not force children to undress in front of a sibling or anyone else if they do not want to. Instead, provide a private place for them to change, to go to the bathroom, or to bathe.

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Figure 5.9. **Photo** by **Melbin Jacob** on **Unsplash**.

5.11 Health and Wellness

To this point, we have discussed the importance of mental health in pregnancy and during the postpartum period for the mother and infant. However, we have not discussed the potential direct effects on the child. In this section, we will discuss the effects of maternal mental health on cognitive, language, and **physical development** during infancy and toddlerhood. Then, we will introduce the topic of child abuse. Following this section, we will continue our discussion on the importance of nutrition and access to healthy foods. Finally, we will end our health and wellness section by discussing immunization recommendations and healthcare, followed by a safety section, and a discussion of strategies to encourage a healthy cognitive, physical, and **language development**.

Effects of Maternal Mental Health

Maternal mental health is a very important factor that can influence children in positive and negative ways. As mentioned in Chapter 4, research shows that stress, anxiety, and depression during pregnancy may affect the neurodevelopment of the fetus, specifically cognitive and socioemotional outcomes (Wu et al., 2022). Furthermore, many studies have linked maternal mental health to language development. For example, a study by Bendini and Dinarte in 2020 found that maternal depression is detrimental to a child's vocabulary at age 5, although the effects do fade out by age 8 (Bendini & Dinarte, 2020).

Research also suggests that maternal depression has an effect on an infant's growth, particularly during the first year of life (Farias-Atunez et al., 2017. Children of depressed mothers not only had a higher chance of being underweight and stunted in the first year of life, but also their linear growth was affected.

CASE STUDY: ASHLEY AND JESSE

How can caregiver mental health impact a young child's development?

Jesse's start to life was a bit rough due to his mom's postpartum depression. While she was able to meet Jesse's basic needs of food, shelter, and safety, Ashley struggled with engaging and did not play much with Jesse or sing songs as often as she imagined she would. She was still recovering from her C-section and certain positions were painful or uncomfortable. Sometimes Ashley would set Jesse down in the bassinet for extended periods of time while she rested or maintained the household.

There were very few resources to support new mothers in Ashley's small town, and those that were available were completely booked or managed by someone she knew. Ashley kept her postpartum symptoms a secret from her family and friends. Because she was a young mother, it was important to her to maintain an image of someone who had it all together.

Jesse's temperament was fairly easy and agreeable, which made it easier for Ashley to manage.

When Jesse was 3 months old, one of Ashley's friends moved back into town. She also had a young child, and she spent much of her time at Ashley's house during the day while her husband was at work. This arrangement became a saving grace for Ashley, who now had some support and a person she could trust with her feelings. Ashley learned a lot from watching her friend and the ease with which she played with the children. This was a time full of laughter, music, and growth.

Depression and other mental health conditions can affect a range of behavioral and physical symptoms in children and mothers, including changes in sleep, energy level, appetite, daily behavior, concentration, and self-esteem. Therefore, maternal depression can interfere with a mother's or caregiver's ability to bond with their infant, the ability to pick up on cues related to the needs of their infant, the ability to play with their infant, the ability to nurture their infant, and so on and so forth. All these factors influence cognitive, language, and physical development and other developmental domains, as we will learn in other chapters. Therefore, it is crucial that healthcare professionals closely examine not only the infant, but also the mother during the postpartum period for at least the first year.

Child Maltreatment

Child maltreatment, an umbrella term for various types of abuse and neglect, is a major public health concern. Examples of different types of abuse include physical, emotional, and sexual abuse, as well as neglect of any kind. Although experiencing abuse at any age can be detrimental, this is especially harmful during early childhood. Child abuse has serious and often nonreversible effects that can last a lifetime. In this section, we will explore the effects of child abuse on cognitive, language, and physical development. However, as you will learn in other chapters, these long-lasting effects influence every domain of development.

An abundance of research shows that child abuse impacts the developing brain, body, and mind. Regarding **cognitive development**, it is well known that abuse and neglect are associated with lower cognitive abilities in infancy and negative long-term educational and employment outcomes in young adulthood regardless of race, sex, birthweight, family income, maternal education, and many other important factors (Strathearn et al., 2020). As you can imagine, child abuse and neglect also have an impact on language development. For example, young adults who experienced prolonged child abuse had lower scores on a vocabulary test at age 21 (Strathearn et al., 2020).

Finally, physical development and physical health are also hindered by child abuse, and the quality of life of those who experience child abuse is lower overall. For example, a longitudinal cohort study found that children who experienced child abuse had a reduced adult height at age 21, even when adjusting for parental height. Additionally, child abuse was associated with high fat intake, a risk factor for obesity, poor sleep quality in men, and asthma at age 21.

Nutritional and Social Factors

Have you ever heard someone use the term "brain food"? In fact, these two words hold much truth, as the developing human brain and body require certain essential nutrients to develop appropriately and function efficiently. Infant and toddler development depends on adequate nutrition. Children

need fruits and vegetables to access important nutrients for growth and immune support. Unfortunately, a report shows that one in two children under 5 years old did not eat a daily vegetable and one in three children did not eat a daily fruit (Hamner et al., 2023).

Poverty is a social problem that impacts millions of people. It can be extremely difficult as a parent to provide the nutrition required when you live in a low-income household or do not have access to healthy foods. According to the U.S. Census Bureau, over 10.5 million children live below the federal poverty line in the United States, which is one in five children (U.S Census Bureau, 2020). This means that a high number of children are growing up without access to the most basic necessities, such as food, shelter, and healthcare. Research shows that children who are not given sufficient nutrition have an increased risk of developing impaired cognitive skills (Roberts et al., 2022).

Children experience poverty at high rates (U.S. Census Bureau, 2023). These rates are further compounded by race and structural racism. Children of color, especially those from BIPOC communities, are overrepresented in poverty statistics. This means that they experience higher rates of poverty than their White peers, even though they make up less of the overall U.S. population. For example:

> 35.5% of Black people living in poverty in the U.S. are below the age of 18. In addition, 40.7% of Hispanic people living below the poverty line in the U.S. are younger than age 18, and 29.1% of American Indian and Native American children lived in poverty in 2018. In contrast, approximately 21% of White people living in poverty in the U.S. are less than 18 years old (APA, 2022).

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5.12 Encouraging Healthy Development

As we learned previously, having continued access to healthcare is crucial for an optimal pregnancy, the birth of a baby, and the postpartum period. Furthermore, having access to healthcare in infancy and throughout childhood is essential for healthy development. Well-child visits are an important part of a child's health. Additionally, the recommended vaccinations are essential to a child's health and help make sure children stay healthy. Children who are not vaccinated are not protected and are more likely to get diseases such as measles and whooping cough (CDC, 2022). Vaccination against these diseases is very important as they are extremely contagious and can be very

serious, especially for babies and young children. Lately, there have been outbreaks of these highly contagious diseases, especially in communities with low vaccination rates.

Well-child visits are essential for many reasons. It is during these visits that a healthcare provider, usually a pediatrician, tracks growth and **developmental milestones**, discusses any concerns or symptoms that might impact a child's health, and discusses many other important topics related to a child's health and well-being (CDC, 2022). Typically, the first well-child visit is scheduled right after the baby is born, and the second takes place 2 weeks postpartum to identify potential concerns related to the birth. After these initial two newborn visits, well-child checks are scheduled at 2 months, 4 months, 6 months, 9 months, 12 months, 15 months, 18 months, 2 years, 2.5 years, and 3 years. Additionally, it is during these well-child visits that the majority of scheduled vaccinations will be administered to prevent a wide range of illnesses, including measles, whooping cough (pertussis), and other serious diseases.

"On-time vaccination throughout childhood is essential because it helps provide immunity before children are exposed to potentially life-threatening diseases" (CDC, 2022). Vaccines have been tested as part of a process to ensure that they are safe and effective for children to receive at the recommended ages. Below, you will find a list of vaccinations recommended by the CDC from birth to 3 years of age (figure 5.10). Keep in mind that, although on-time vaccination is best, there are also other options if a child falls behind schedule. A parent or caregiver can always discuss a vaccination plan that fits their child.

Vaccine	Birth	1 Mo	2 Mos	4 Mos	6 Mos	9 Mos	12 Mos	15 Mos	18 Mos	19–23 Mos	2–3 yrs
Hepatitis B	1st	2nd	2nd		3rd	3rd	3rd	3rd	3rd		
Rotavirus			1st	2nd	3rd						
Diphtheria, tetanus, and pertussis			1st	2nd	3rd			4th	4th		
Haemophilus influenzae type b			1st	2nd			3rd	4th			
Pneumococcal conjugate			1st	2nd	3rd		4th	4th			
Inactivated poliovirus			1st	2nd	3rd	3rd	3rd	3rd	3rd		
Measles, mumps, & rubella							1st	1st			
Varicella							1st	1st			
Hepatitis A							1st	1st		2nd	2nd

Figure 5.10. Vaccine Schedule for Infants and Toddlers.

Along with keeping up with vaccines and regular health checks, there are many important ways that caregivers can support a child's cognitive, linguistic, and physical growth. The CDC (2021) suggests the following interactions:

- Bonding with young children is very important, so talk to infants, as they will find your voice calming, and hold them often.
- Pay attention to the child's cues and respond by repeating the sounds and adding words. This will help them learn to use language.
- Read to young children. This will also help them develop and understand language and sounds.
- Sing and play music. This helps children develop a love for music and aids in brain development. Playing soothing music can help children relax and fall asleep. Young children need a lot of sleep.
- Praise children and give them lots of loving attention. Spend time cuddling and holding them. This will help them feel cared for and secure.
- Play with a child when they are alert and relaxed, and watch them closely for signs of being tired or fussy so that they can take a break from playing, if necessary. Distract a child with toys, and move them to designated safe areas when they start moving and touching things.

Finally, remember that the mother's, parents', or caregiver's physical, mental, and emotional health is very important, so it is critical that they also take care of themselves.

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Figure 5.10. Table created with data from the **Recommended Child and Adolescent Immunization Schedule for ages 18 years or younger United States 2021 Table 1**. CDC 2021.

5.13 Conclusion

During the first three years of life, children experience tremendous growth in their cognitive and physical abilities. Caregivers set the stage for a child's learning through meaningful interactions and by providing opportunities for a child to move and understand their bodies. The skills learned during this time play a crucial role in later development. In the next chapter, we will examine the ways in which children develop social and emotional skills and further develop their use of language. They will use all of their cognitive and physical abilities to explore their social worlds and do what they love most—play.

Review of Learning Objectives

After reading this chapter, you will be able to do the following:

1. Identity stages of infant and toddler cognitive and **physical development**.
2. Identity communication milestones in infancy and toddlerhood.
3. Recognize healthy **sexual development** in infancy and toddlerhood.
4. Analyze the impact of caregivers, social context, and cultural influences on a child's development.

Review of Key Terms

- **Accommodation**: a cognitive process that occurs when an existing schema is updated or a new schema is created.
- **Animism**: the belief that inanimate objects have lifelike abilities.
- **Assimilation:** a cognitive process that occurs when a current schema is applied to understand something new.
- **Child-directed speech**: a type of speech characterized by slower delivery of words, higher tones, and pronounced facial expressions.
- **Egocentrism**: the inability to see the world through other people's perspectives.
- **Experience-dependent plasticity**: the remodeling of the brain due to unique or unexpected experiences within and outside sensitive periods of development.
- **Experience-expectant plasticity**: the guidance of normal brain development by environmental stimuli, especially during sensitive periods.
- **Fine motor skills**: motor development that focuses on the muscles in our fingers, toes, and eyes, which enable coordination of small actions.
- **Gross motor skills**: motor development that focuses on the large muscle groups that control our head, torso, arms, and legs, which enable the coordination of larger body movements.
- **Holophrastic speech**: young children's use of one-word phrases or expressions to convey thoughts.
- **Magical thinking**: children's belief that their thoughts or actions influence things that happen in their environment.
- **Mental representations**: the ability to think about things that are not currently present or to think about something in the past.
- **Neurons**: a type of brain cell that sends signals to the nervous system.
- **Neuroplasticity**: a process that involves adaptive structural and functional changes to the brain.
- **Object permanence**: the understanding that even though something is out of their sight, it still exists.
- **Overextension**: the application of a label to all objects that are similar to the original object.
- **Palmar grasp**: the ability to grasp an object using the fingers and palm without the thumb.
- **Pincer grasp**: the ability to grasp an object using the forefinger and thumb.
- **Preoperational stage**: the second stage of Piaget's theory of cognitive development, during which children learn through symbolic and intuitive thought.
- **Receptive language**: children's ability to understand language before they produce speech.
- **Schemas**: categories of knowledge within the brain that help make sense of and process information.
- **Sensitive periods of development**: periods when brain connections reach their peak for certain functions and skills.
- **Sensorimotor stage**: the first stage of Piaget's theory of cognitive development, during which children develop an understanding of the world through their senses.
- **Symbolic function substage**: a substage of preoperational development that is characterized by gains in symbolic thinking, which allows for advances in language development, problem solving, and memory.
- **Synapses**: connections between neurons that help relay information.
- **Synaptic pruning**: the process by which the brain eliminates certain neural connections and strengthens others.
- **Telegraphic speech**: a practice in which children leave out unnecessary words and use two to three-word phrases to communicate.

- **Toxic stress:** stress that results in excessive or prolonged activation of stress response systems in the body and brain.
- **Tummy time**: the practice of placing an infant on a flat surface on their stomach during awake times.
- **Underextension**: the application of a word to a specific object but not to others that are similar.
- **Zone of proximal development**: the period when a child is close to performing a task independently but needs assistance to complete it.

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CHAPTER

6

Social, Emotional, Adaptive, and Identity Development in Infancy and Toddlerhood

6.1 Chapter Overview and Learning Objectives

In Chapter 5, we learned that infants and toddlers experience tremendous brain and body growth, all in a very short amount of time. As children build their cognitive and physical skills, they also develop social and emotional skills that help them connect with their caregivers and form social relationships. Social development and emotional development encompass many different skills and abilities that are interrelated. This is why we often see these two areas combined into one domain. A child develops emotional understanding and responses based on their interactions with their caregivers and other children they play with. These social interactions become more complex as the child grows.

The cognitive and physical skills learned during the first 3 years of life help children navigate their environments. They also help them engage in self-care tasks and learn life skills. In this chapter, we will learn about **adaptive development**, which

refers to the skills a young child builds that help them achieve independence. We can see how toddlers might want to do everything themselves, with minimal help from their caregivers. They strive for independence, although they still require assistance from more experienced people.

As children age, they start to see themselves as individual beings, and they begin to form a sense of who they are. This is known as identity development. Positive identity development is dependent on a child having healthy attachments to their caregivers, positive social interactions, and the ability to explore their world safely and without undue stress.

We will explore all of these domains in this chapter and discuss the complex social, cultural, and environmental factors that impact a child's development.

Learning Objectives

After reading this chapter, you will be able to do the following:

1. Identify the stages of social emotional development for infants and toddlers.
2. Explore the development of adaptive skills and identity formation.
3. Describe the role of play in relation to developmental importance.
4. Analyze the impact of caregivers and environmental influences on attachment and development.

Key Terms

Throughout this chapter, you will be introduced to important key terms that will help deepen your understanding of human development.

- **Adaptive skill development**: the ability of a child to engage in age-appropriate life skills
- **Ambivalent attachment**: a bond in which the child seeks closeness to their caregivers and is hesitant to explore the environment
- **Autonomy versus shame and doubt**: the second stage of Erikson's theory of psychosocial development in which a child establishes their independence and has a sense of control over decisions and abilities
- **Avoidant attachment**: a bond in which the child avoids or is dismissive of their caregivers and may not explore their environment
- **Attachment theory**: a term coined by researcher John Bowlby to refer to the affectional bond or tie that an infant forms with their mother
- **Bidirectionality**: the reciprocal relationship between two variables
- **Contact comfort**: an infant's need for physical closeness and touching
- **Disorganized attachment**: a bond in which a child demonstrates an inconsistent relationship to their caregiver and how they interact with the environment
- **Emotional self-regulation**: strategies we use to control our emotional states so that we can attain goals
- **Goodness-of-fit**: the degree to which a child's surrounding environment is a good match for their temperament and needs
- **Non-organic failure to thrive**: the diagnosis for an infant who does not grow, develop, or gain weight on schedule, and there is no known medical explanation for this failure
- **Reactive attachment disorder**: a diagnosable mental disorder characterized by inappropriate attachment behaviors such as being inhibited and withdrawn, demonstrating minimal social and emotional responsiveness to others, limited positive affect, and developmental delays

- **Resiliency**: the ability to overcome challenges and successfully adapt to negative experiences
- **Secure attachment**: a bond in which a child feels secure with their caregivers and uses them as a base from which to explore their environment
- **Separation anxiety**: the fear experienced by a child in the presence of a stranger or the departure of significant others
- **Social referencing**: the process whereby infants seek out information via facial cues from others to clarify and act in a situation
- **Social smiling**: a developmental milestone in which an infant responds with smiles to those who engage their positive attention
- **Temperament**: the innate characteristics of a child such as mood, activity level, and emotional reactivity
- **Trust versus mistrust**: the first stage of Erikson's theory of psychosocial development in which a child develops trust in their primary caregivers to feel secure

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6.2 Social and Emotional Development

Perhaps one of the most influential areas of development is the social and emotional domain. This involves processes by which children gain understanding of themselves, their emotions, and the connections between themselves and others. **Social and emotional development** is impacted by cognitive and language domains since the capacity for complex thinking and information integration is needed to develop and maintain relationships.

Social and emotional skills are built through everyday interactions. This means that there are many daily opportunities for children to learn about themselves and others. This also means that there are many opportunities for challenges as children learn how to regulate their emotions and build new skills. The interactions we have with our primary caregivers set the foundation for our social and emotional development. The role of caregivers during the first 3 years of a child's life is that of a role model. Children learn by what they see, and they imitate what they learn. This is why it is important for caregivers to model positive and prosocial behaviors and to be responsive to their child's individual needs.

While many biological and genetic factors influence our growth, we can all agree that the early interactions we have with the adults who care for us set the stage for lifelong social and emotional learning. In the following sections, we will examine how attachment and bonding form the foundation for future relationships and a child's sense of self. We will also examine temperament and emotional expression, discussing how they influence parent-child interactions. Lastly, we will discuss the importance of play and explore how various cultural and social factors impact parenting and behavior in infancy and toddlerhood.

Temperament

Temperament is an important area of social and emotional growth. **Temperament** refers to the innate characteristics of a child, such as mood, activity level, and emotional reactivity. One's tem-

perament is often a precursor to their future personality. Temperament characteristics are often noticeable soon after a child is born. While every child differs in their temperament, children want nothing more than to connect meaningfully to others.

According to the Harvard Center for the Developing Child, "young children naturally reach out for interaction through babbling, facial expressions, and gestures" (Center on the Developing Child, 2007). The primary caregiver should reciprocate this interaction by responding positively to the child, either with the same kind of vocalizing or gesturing. "In the absence of such responses—or if the responses are unreliable or inappropriate—the brain's architecture does not form as expected, which can lead to disparities in learning and behavior" (Center on the Developing Child, 2007). Adverse experiences, or those that are harmful or negative, can disrupt the formation of healthy skills, knowledge, and social interactions.

Healthy social and emotional development is dependent on a good match between the child's temperament, the caregivers' responses, and the presence of a safe environment. This is known as **goodness-of-fit**, or simply, the child's surrounding environment is a good match for their temperament and needs. For example, a highly active child will need space to move their bodies, as well as a caregiver who can move about with them and ensure their safety. A child who is more hesitant in new situations may need more time to adjust or more time being physically close to their primary caregiver before they feel comfortable interacting with others.

Bidirectionality refers to the reciprocal relationship between two variables. In the case of the parent-child relationship, this implies that not only does the adult have an impact on the child, but the child also has an impact on the adult. For example, a child's temperament can influence parenting practices. If they are an "easy" child, the parents may feel more effective in their caregiver role and show more positive attitudes toward the child. Conversely, a parent who is stressed or emotionally unavailable may elicit negative reactions, crying, or withdrawal from their child (Shafer et al., 2014).

A longitudinal study evaluated the temperament of 141 children in New York (figure 6.1). The children's temperament was measured using 10 dimensions of temperament: activity level, rhythmicity, approach/withdrawal, adaptability, intensity of reactions, threshold of responsiveness, quality of mood, distractibility, attention, and persistence (Thomas & Chess, 1957). Once evaluated, children were categorized into three types of temperament categories. About 65 percent of the children were easily classified into one of the three categories. The remaining 35 percent were a mixture of the temperaments.

Temperament Type	Percentage of Children	Temperament Descriptions
Easy	40%	• positive mood • regularity in bodily functions • adapts quickly to routine or change • remains calm with changes • easy to soothe
Slow-to-warm-up	15%	• negative mood • low activity level • withdrawal upon first exposure to new stimuli • adjusts slowly to new situations or routines
Difficult	10%	• negative mood • irregularity in bodily functions • difficulty with new situations or routines • cries frequently

Figure 6.1. Types of Temperament.

It is important to note that categorizations of temperament are socially and culturally specific. In the study noted above, American children from a specific region were used. While we may see similarities in how we classify and measure temperament across cultural groups, we must recognize that all children are unique in the way they process new stimuli and how they interact with their caregivers (figure 6.2).

Figure 6.2. This adventurous child's parents provide a good "fit" to her temperament by taking her out for a walk.

Early Emotional Development

At birth, infants exhibit two emotional responses: attraction and withdrawal. They show attraction to pleasant situations that bring comfort, stimulation, and pleasure, and they withdraw from unpleasant stimulation, such as bitter flavors or physical discomfort. At around 2 months, infants exhibit social engagement in the form of **social smiling** as they respond with smiles to those who engage their positive attention (Lavelli & Fogel, 2005).

Social smiling becomes more stable and organized as infants learn to use their smiles to engage their parents in interactions. Pleasure is expressed as laughter at 3–5 months of age, and displeasure becomes more specific as fear, sadness, or anger at 6–8 months. Anger is often the reaction to being prevented from obtaining a goal, such as a toy being removed (Braungart-Rieker et al., 2010). In contrast, sadness is typically the response when infants are deprived of a caregiver (Papousek, 2007). Fear is often associated with the presence of a stranger, known as stranger wariness, or the departure of significant others, known as **separation anxiety**. Both appear sometime between 6 and 15 months after object permanence has been acquired. Furthermore, there is some indication that infants may experience jealousy as young as 6 months of age (Hart & Carrington, 2002).

Figure 6.3. One reason an infant might make an angry facial expression is that they are being prevented from obtaining a goal.

Emotions are often divided into two general categories: basic emotions (primary emotions), such as interest, happiness, anger, fear, surprise, sadness, and disgust, which appear first, and self-conscious emotions (secondary emotions), such as envy, pride, shame, guilt, doubt, and embarrassment (figure 6.3). Unlike primary emotions, secondary emotions emerge as children develop a self-concept and require social instruction on when to feel such emotions. The situations in which children learn self-conscious emotions vary from culture to culture. Individualistic cultures teach us to feel pride in personal accomplishments, while in more collective cultures, children are taught not to call attention to themselves unless they wish to feel embarrassed for doing so (Akimoto & Sanbinmatsu, 1999).

Facial expressions of emotion are important regulators of social interaction. In the developmental literature, this concept has been investigated under the concept of **social referencing**, which is the process whereby infants seek out information via facial cues from others to clarify a situation and then use that information to act (Klinnert et al., 1983).

To date, the strongest demonstration of social referencing comes from work using a visual cliff, a special table that was created to see if children would cross the portion of the table with the clear glass, made to mimic a cliff or edge.

Figure 6.4. A visual cliff device is used to test children's willingness to cross the clear glass portion of the table. Their responses are heavily based on the facial social cues of their caregivers, who are waiting on the other side.

In the first study to investigate this concept, Campos and colleagues (Sorce et al., 1985) placed mothers on the far end of the "cliff" from the infant. Mothers first smiled at the infants and placed a toy on top of the safety glass to attract them; infants invariably began crawling to their mothers. When the infants were in the center of the table, however, the mother adopted an expression of fear, sadness, anger, interest, or joy. The results were clearly different for the different expressions. No infants crossed the table when the mother showed fear, only 6 percent did when the mother showed anger, 33 percent crossed when the mother showed sadness, and approximately 75 percent of the infants crossed when the mother showed joy or interest.

Other studies provide similar support for facial expressions as regulators of social interaction. Researchers showed babies neutral, angry, or disgusted facial expressions as they moved toward an object and measured the amount of inhibition the babies showed in touching the object (Bradshaw, 1986). For both 10– and 15-month-old babies, an angry expression produced the greatest inhibition, followed by a disgusted expression, with a neutral expression prompting the least inhibition. This study was later replicated using expressions of joy and disgust, altering the method so that the infants were not allowed to touch the toy (compared with a distractor object) until 1 hour after exposure to the expression (Hertenstein & Campos, 2004). At 14 months of age, significantly more infants touched the toy when they saw joyful expressions, but fewer touched the toy when they saw disgusted expressions.

A final emotional change is in self-regulation. **Emotional self-regulation** refers to strategies we use to control our emotional states so that we can attain goals (Thompson & Goodvin, 2007). This requires effortful control of emotions and initially requires assistance from caregivers (Rothbart et al., 2006). Young infants have a very limited capacity to adjust their emotional states and depend on their caregivers to help them soothe themselves. Caregivers can offer distractions to redirect the infant's attention and comfort to reduce emotional distress. As areas of the infant's prefrontal cortex continue to develop, they become able to tolerate more stimulation.

By 4–6 months, babies can begin to shift their attention away from upsetting stimuli (Rothbart et al., 2006). Older infants and toddlers can more effectively communicate their need for help and can crawl or walk toward or away from various situations (Cole et al., 2010). This aids in their abil-

ity to self-regulate. Temperament also plays a role in children's ability to control their emotional states, and individual differences have been noted in the emotional self-regulation of infants and toddlers (Rothbart & Bates, 2006).

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Figure 6.1. Thomas & Chess, 1957.

Figure 6.2. **Image** by Cecilia Beltran/**USFWS** is in the Public Domain.

Figure 6.3. **Image** by **Brytny.com** on **Unsplash**.

Figure 6.4. **Image** by **U.S. National Institute of Health** in **Wikimedia Commons**, licensed under **CC BY-SA 4.0**.

6.3 Attachment and Bonding

In Chapter 4, we learned that the attachment between babies and their caregivers begins in the womb and is strengthened through feeding and physical closeness after birth. Maslow's hierarchy of needs demonstrates that when these two needs (nutrition and security) are met, they become essential building blocks for a variety of future behaviors and skills, including **social and emotional development**. Infants are wired to seek closeness to their caregivers. According to Dr. Linda Palmer, "Babies are designed to be frequently fed in a fashion that requires skin-to-skin contact, holding, and available facial cues. Beneficial, permanent brain changes result in both parent and infant from just such actions" (Palmer, 2013).

Young children's brains are positively shaped when their caregivers respond to their needs and when caregivers maintain crucial physical and emotional closeness to them. Even short periods of separation can cause a stress response in a young child. This is why they cry when they are put down or when they are not close to their mothers or primary caregivers. Physical touch is a powerful and biological way for children to connect because it is necessary for their well-being and survival.

Birth mothers and primary caregivers often have an overwhelming desire to be near their children as newborns and well into their early childhood. Unfortunately, social and political factors play a role in the amount of time a primary caregiver spends with their child. The lack of a rigorous and extensive paid parental leave policy in the United States means many primary caregivers are forced to leave their young children in another person's care in order to go back to work. A review of research concludes that "babies of mothers with full-time jobs are more likely than other babies to have avoidant attachments" (Collin, 1991).

CASE STUDY: DYANI

What happens to a child's development when they can stay close to their primary caregivers in the early years?

Dyani is a cheerful and curious toddler who follows her mother and community members around while they work. Her mother works at the local community center where residents gather for classes, celebrations, and other important social events. Dyani is very active and is looked after by several of the "aunties" at the center, especially when her mother is busy with work tasks. It is common for young children in the village to accompany their parents during work hours since formalized childcare and preschool is scarce in rural Alaska. Dyani's mother, Uki, does not mind, as she prefers to have Dyani close to her and engaged in daily community life.

Since she is able to spend her day with community members who value Indigenous practices, Dyani is exposed to traditional foods and a positive sense of community. She eats many of the same cultural foods as her ancestors, such as moose stew, smoked salmon, caribou sausage, and her favorite, akutaq, or "eskimo ice cream" which is made with seal oil and fresh berries. Much of the Cup'ik traditional foods are high in nutrients and aid in the healthy development of the body and brain.

Unfortunately, community members of the newer generations often eat processed or "modern" foods, even during their pregnancies. However, Uki focused on eating traditional foods, and she was determined to utilize local resources as much as possible during pregnancy and delivery. Since Dyani was born, she has had regular visits with the midwife and tribal doctor. They are pleased at her growth and the strong attachment bond she has formed with her mother. Dyani rarely cries, sleeps for long periods of time, eats well, and is on the taller end of the growth scale for her age.

Cultural and societal trends can also impact the parent-child relationship. In the United States, the trend to let babies "cry it out" became popular as the economic and social landscape changed for families. Friends and family, even doctors, directed mothers to allow their children to cry to avoid raising whiney, dependent people. In a popular, early 20th-century manual, Dr. L. Emmet Holt advised parents to simply allow a child to cry it out for an hour or longer in extreme cases. He stated, "Such discipline is not to be carried out unless one is sure as to the cause of the habitual crying" (Holt, 1907).

It is important to note that much of the research and advice about responding to young children came from men. Their hypotheses and research countered the instincts and cultural knowledge passed along to mothers and families over generations. Practices that go against natural instincts and biological needs have proven to be unhealthy for children and their primary caregivers.

> In humans, routine mother-infant separation shortly after birth is unique to the 20th century. This practice diverges from evolutionary history, where neonatal sur-

> vival depended on close and virtually continuous maternal contact. Although from an evolutionary perspective skin-to-skin contact (SSC) is the norm, separating the newborn from its mother soon after birth has now become common practice in many industrialized societies (Moore et al., 2012).

Perhaps the most notable cases of neglectful attachment come from the Romanian orphanage studies. Orphanages in Romania were known to be overcrowded with children and severely understaffed, and abuse and neglect were common. These conditions were brought to the forefront of the media after political change in the 1990s. Young children laid in their cribs all day with little to no stimulation, even though they encountered several adults throughout the day. They were not held, rocked, or sang to. The only interaction they received was when they were being fed, bathed, or diapered, and this was done on a strict schedule.

Researchers from Harvard Medical School decided to study a group of 136 children from several Romanian orphanages to see how institutionalized conditions impacted their development. Their ages ranged from 6 months to 3 years old, and they were studied over several years. What the researchers found was a severe impact on brain development and subsequent skill development. These children had smaller brains, which meant that they had lower volume of neurons and nerve fibers (Sheridan et al., 2012). This type of neglect led to abnormal cognitive, language, and motor development, as well as abnormal personality development. Children displayed deficits in executive functioning and social functioning (Nelson, 2017).

Children who did not receive caring interactions within these institutions had impacted attachment styles. The Harvard researchers concluded that "children who were at one time institutionalized seem to display non-normative attachment and behaviors toward caregivers compared to the average child of the same age group" (Riddle, 2017). Some of the children were sent to foster homes during the study. Researchers noted that these children, especially the youngest ones, showed improvements in many areas of development. The children who remained in institutionalized care did not show any improvements.

As demonstrated by these studies and through generations of lived experience, children need loving and caring attachments to their caregivers. Caregivers also need the ability and time to attend to their child's needs, especially when they are very young. Positive attachments are cycled through to future generations. "The effects of infant attachment are long-term, influencing generations of families" (Colin, 1991). A child who forms a healthy attachment will likely become a parent who is able to form a healthy attachment to their own child.

Parenting Styles

There are many different approaches to caring for and connecting with a child. Cultural and social expectations fuel the expectations parents have for themselves and their children. A working parent may have less patience if they are feeling overwhelmed or stressed out. Parents who are able to achieve a work life balance are less stressed and therefore less likely to have conflict with their children (Molina, 2021). All of these factors influence the quality of attachment and bonding.

Researcher Diana Baumrind sought to understand how authority and affection influence parenting and children's behavior. Her research has led to the recognition of four distinct types of parenting styles known as authoritative, authoritarian, permissive, and uninvolved (Baumrind 1971, 1989 & Maccoby & Martin, 1983). These parenting styles are associated with child outcomes both in the early years and later in life.

Authoritative: Authoritative parenting is characterized by warmth, flexibility, and healthy boundaries. This type of parenting is often associated with the most positive outcomes for the child. Children tend to grow up with confidence and are capable of regulating their emotions and behavior. They tend to have positive relationships with their parents and others.

Authoritarian: Authoritarian parenting is characterized by strict rules and high standards, with little warmth or flexibility. This type of parenting is often associated with fear and punishment. Children may grow up complacent to authority figures, be unable to make their own decisions, or demonstrate aggression. They may have trouble connecting with others, have low self-esteem, or struggle with emotional regulation.

Permissive: Permissive parenting is characterized by warmth and flexibility but very few boundaries or expectations for behavior. This type of parenting is often associated with lots of freedom but very little support. Children may grow up with good self-esteem and social skills, but they may also lack impulse control, emotional regulation, or the ability to handle rejection and failure.

Uninvolved: Uninvolved or neglectful parenting is characterized by limited attention, nurturing, and few expectations. A child may have their basic needs met, but parents do not provide regular guidance or support to the developing child. Children may grow up to be self-sufficient and independent, but they may also lack coping and regulation skills and tend to have low self-esteem.

Research has shown that the biggest predictor of our parenting practices and the attachment we form with our children is the attachment style we formed when we were young (Firestone, 2015). Therefore, our childhood experiences impact the way we parent and the quality of the attachment we form with our children. If your childhood was characterized by abuse, trauma, or neglect, this does not mean that you will become that way as a parent. Many parents absorb the norms and practices from their own upbringing, while others actively strive to parent in vastly different ways from how they were raised. Parents can reflect on their childhood experiences and educate themselves on ways to form healthy attachments and how to break negative generational cycles. It takes some work, but it can be done.

Information on specific attachment styles can be found in the Attachment Theory section of this chapter.

Identity Formation

Caregivers are the starting point for a child's development of self. They learn who they are based on the way they are treated. If a child receives warm and positive care from their guardians, they will learn that they are loved and cared for. If a child is ignored or treated in a harsh, condescending way, the child may think that there is something wrong with them. "The process of recognizing oneself seems to be gradual and continuous" (Brooks-Gunn & Lewis, 1975). Healthy attachments set the child up not only to view themselves in positive ways, but also to view their caregivers, and thereby the world, as positive influences.

Researchers believe that children start to develop a sense of self once they recognize that they are separate beings from their primary caregivers. There is no general consensus on what age this process begins, and research on infants has had mixed results. What we do know is that young infants spend much time exploring their bodies via their senses. They eventually understand that they have a body and that they can do things with it like make noises or manipulate objects in their environment. Another stepping stone to developing a sense of self is when children attain object permanence, which is the understanding that someone or something is there, even when not visibly present.

At around 6 to 12 months, infants will experience separation anxiety when they are not near their primary caregiver. This implies their understanding that the caregiver is a separate person. Their absence causes stress within the child, which the child expresses through crying or other vocalizations. Emotional expression also demonstrates a child's understanding of self. For example, emotions like guilt or shame indicate that the child has become conscious of themselves and their actions. How a caregiver responds to the child's behavior is key in creating an understanding of themselves.

Toddlers can clearly demonstrate their sense of self when their language becomes more developed. They will use phrases such as "I do it" or "that's mine," which indicate understanding of possession and one's own identity. They also exercise their right to independence, which can be seen in the way they manipulate objects in their environment through exploration and play. As toddlers move through the preoperational stage and develop their cognitive and social skills, they will learn to understand empathy and to see situations through the eyes of others. This furthers their understanding of themselves and their relation to others or things in the world.

A child's cultural and ethnic background also impacts their identity formation. Children will be exposed to cultural norms early on in the form of language, social rituals, values and beliefs, religion, and family structures. Certain cultures may place importance on individual skills and mastery, while other cultures focus on how each person contributes to the larger community. Identity development is a dynamic process and rarely remains static. As children interact with more adults and children, the formation of their identity can mold and change.

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6.4 Social and Emotional Theories and Milestones

As we can see, infants and toddlers develop many social and emotional skills in the first three years of life. They are learning to express and temper their feelings and how to positively engage with others. They are also developing a sense of who they are in the world. Every child develops in their own way and time. Social emotional development begins with a caring and loving attachment to primary caregivers and is enhanced through meaningful interactions with others and the environment.

Next, we will look at three different theories that have been used to explain **social and emotional development** over the lifespan. The following section will list the common **developmental milestones** expected for social emotional development.

Erikson's Theory of Psychosocial Development

Researcher Erik Erikson believed that children learn through their social interactions. As children grow and expand their experiences, they encounter various "conflicts" that they must overcome. Once children successfully overcome these conflicts, they build valuable skills that will aid them later in their lives. He labeled these as "virtues," which are strengths that a child can use

to resolve future conflicts. Erikson's theory includes eight stages, the first two of which coincide with infancy and toddlerhood. Erikson agreed with attachment theorists that establishing a basic sense of trust in one's caregivers sets the stage for future development.

Stage 1: Trust versus Mistrust (0 to 18 months)

The first stage of Erikson's theory of psychosocial development is **trust versus mistrust** (Erikson, 1982). In this stage, children spend the first 18 months of their lives trying to understand the world that they live in. Children rely solely on their caregivers for food, comfort, and security. Responsive caregivers respond to a child's innate needs and positively interact with them as much as possible. This allows the child to feel secure in the world. Children who successfully achieve trust in this stage will earn the virtue of "hope," which allows them to believe that future others will be available to support them.

If there is a disruption in this process, a child will not develop a basic sense of trust. Perhaps a caregiver is emotionally unavailable to the child or they consistently fail to meet the child's basic needs. These types of deprivations lead a child to mistrust their caregivers, thereby impacting their future relationships with others. The child may view the world as an unpredictable and scary place.

Stage 2: Autonomy versus Shame and Doubt (18 months to 3 years)

The second stage of Erikson's Theory of Psychosocial Development is **autonomy versus shame and doubt** (Erikson, 1982). In this stage, children spend their toddler years establishing their independence and refining their skills. Responsive caregivers allow children to have a sense of control over their decisions and abilities. Children who successfully achieve autonomy in this stage will earn the virtue of "will," which allows them to have a feeling of control over their lives.

Children may experience a disruption in this process if their caregivers are too controlling or judgmental. They may develop low self-esteem or a sense of doubt or shame in their abilities to control their lives.

The other stages of Erikson's theory include:

- Stage 3: Initiative versus guilt (3 to 5 years)
- Stage 4: Industry versus inferiority (middle childhood)
- Stage 5: Identity versus confusion (adolescence)
- Stage 6: Intimacy versus isolation (adolescence to early adulthood)
- Stage 7: Generativity versus stagnation (adulthood)
- Stage 8: Integrity versus despair (older adulthood)

Social Learning Theory

Psychologist Albert Bandura proposed that children learn through the imitation and modeling of others' behavior. This is known as social learning theory. Bandura claims that we are not simply a product of our environment but that we also have an influence on what we learn from the environment (Bandura, 1977). Bandura used experiments with a Bobo doll to demonstrate that children learned from watching others. In the experiment, adults acted violently toward a Bobo doll while children observed. Later, the children were allowed to play with the Bobo doll, and they copied the aggressive behaviors witnessed.

This type of observational learning means that a child can learn by watching others in real time;

by watching real or fictional characters through television, books, or other media; and by listening to others. The child's cognitive capacity and motivation determine how much of the behavior is learned or not learned. This theory has been used in discussions about young children's exposure to television and other types of media.

Attachment Theory

The 20th century became a time of scientific interest and inquiry into child development. The formation of attachments in infancy has been the subject of considerable research. Attachments have been viewed as foundations for future relationships, self-concept, and identity (figure 6.5). Next, we will highlight theories and research studies of attachment.

Figure 6.5. The formation of attachment is viewed as essential to the development of identity, among other areas.

The Harlows' Studies

In one classic study, Wisconsin University psychologists Harry and Margaret Harlow investigated the responses of young rhesus monkeys to explore if breastfeeding was the most important factor in attachment.

The infant monkeys were separated from their biological mothers, and two surrogate mothers were introduced to their cages. The first mother (the wire mother) consisted of a round wooden head, a mesh of cold metal wires, and a milk bottle from which the baby monkey could drink. The second mother was a foam-rubber form wrapped in a heated terry cloth blanket. The infant monkeys went to the wire mother for food, but they overwhelmingly preferred and spent significantly more time with the warm terry cloth mother. The warm terry cloth mother provided no food but did provide comfort (Harlow, 1958).

The infant's need for physical closeness and touching is referred to as **contact comfort**. Contact comfort is believed to be the foundation for attachment. The Harlows' studies confirmed that babies have social and physical needs. Both monkeys and human babies need a secure base that allows them to feel safe. From this base, they can gain the confidence they need to venture out and explore their worlds.

Bowlby's Theory

Building on the work of the Harlows and others, John Bowlby developed the concept of **attachment theory**. He defined attachment as the affectional bond or tie that an infant forms with their mother (Bowlby, 1969). An infant must form this bond with a primary caregiver to have normal social and emotional development. In addition, Bowlby proposed that this attachment bond is very powerful and continues throughout life. He used the concept of a secure base to define a healthy attachment between parent and child (Bowlby, 1982). A secure base is a parental presence that gives the child a sense of safety as the child explores their surroundings (figure 6.6).

Figure 6.6. A mother offers a secure base as her infant plays on a slide.

Bowlby said that two things are needed for a healthy attachment: the caregiver must be responsive to the child's physical, social, and emotional needs, and the caregiver and child must engage in mutually enjoyable interactions (Bowlby, 1969). Additionally, Bowlby observed that infants would go to extraordinary lengths to prevent separation from their parents, including crying, refusing to be comforted, and waiting for the caregiver to return.

Bowlby also observed that these same expressions were common to many other mammals and consequently argued that these negative responses to separation serve an evolutionary function. Because mammalian infants cannot feed or protect themselves, they are dependent upon the care and protection of adults for survival. Thus, those infants who were able to maintain proximity to an attachment figure were more likely to survive and reproduce.

Mary Ainsworth and the Strange Situation

Developmental psychologist Mary Ainsworth, a student of John Bowlby, continued studying the development of attachment in infants. Ainsworth and her colleagues created a laboratory test that measured infants' attachment to their parents. The test is called the Strange Situation because it is conducted in a context that is unfamiliar to the child and, therefore, likely to heighten the child's need for their parent (Ainsworth, 1979).

During the procedure, which lasts about 20 minutes, the parent and the infant are first left alone while the infant explores the room full of toys (figure 6.7). Then, a strange adult enters the room and talks to the parent for a minute, after which the parent leaves the room. The stranger stays with the infant for a few minutes. Then the parent reenters the room, and the stranger leaves. During the entire session, a video camera records the child's behaviors, which are later coded by the research team. The investigators were especially interested in how the child responded to the caregiver leaving and returning to the room, referred to as the "reunion."

Figure 6.7. An infant crawling on the floor with toys around, as done in the Strange Situation.

On the basis of their behaviors, the children are categorized into one of four groups. Each group reflects a different kind of attachment relationship with the caregiver. One style is secure, and the other three styles are insecure.

- **Secure attachment** refers to a bond in which a child feels secure with their caregivers and uses them as a base from which to explore their environment. A child with a secure attachment style usually explores freely while the caregiver is present and may engage with a stranger. The child will typically play with the toys and occasionally bring one to the

caregiver to show and describe. The child may be upset when the caregiver departs, but is also happy to see the caregiver return.

- **Ambivalent attachment** refers to a bond in which the child seeks closeness to the caregiver and is hesitant to explore the environment. A child with an ambivalent attachment style (sometimes called resistant or anxious-ambivalent) is wary about the situation in general, particularly the stranger, and stays close or even clings to the caregiver rather than exploring the toys. When the caregiver leaves, the child is extremely distressed. However, when the caregiver returns, the child is ambivalent. The child may rush to the caregiver but then fail to be comforted when picked up. The child may still be angry and even resist attempts to be soothed.
- **Avoidant attachment** refers to a bond in which the child avoids or is dismissive of their caregivers and may not explore the environment. A child with an avoidant attachment style will avoid or ignore the caregiver, showing little emotion when the caregiver departs or returns. The child may run away from the caregiver when they approach. The child will not explore very much, regardless of who is there, and the stranger will not be treated much differently from the caregiver.
- **Disorganized attachment** refers to a bond in which a child demonstrates an inconsistent relationship to their caregiver and how they interact with the environment. A child with a disorganized (or disoriented) attachment style seems to have a confused or apprehensive way of coping with the stress of the Strange Situation test. The child may cry during the separation but avoid the caregiver when they return, or the child may approach the caregiver but then freeze or fall to the floor.

How common are the attachment styles among children in the United States? It is estimated that about 65 percent of children in the United States are securely attached (Moullin et al., 2014). About 20 percent exhibit avoidant styles, and 10 percent to 15 percent are ambivalent. Another 5 percent to 10 percent of children may be characterized as disorganized.

Some cultural differences in attachment styles have been found (Rothbaum et al., 2010). For example, German parents value independence, and Japanese mothers are typically by their children's sides. As a result, the rate of insecure-avoidant attachment is higher in Germany, and the rate of insecure-resistant attachment is higher in Japan. These differences reflect cultural variation rather than true insecurity, however (van Ijzendoorn & Sagi, 1999). Overall, secure attachment is the most common type of attachment seen in every culture studied thus far (Thompson, 2006).

Most developmental psychologists argue that a child becomes securely attached when there is consistent contact from one or more caregivers who meet the physical and emotional needs of the child in a responsive and appropriate manner. However, even in cultures where mothers do not talk, cuddle, and play with their infants, secure attachments can develop (LeVine et al., 1994).

Severe deprivation of parental attachment can lead to serious problems. According to studies of children who have not been given warm, nurturing care, they may show developmental delays, failure to thrive, and attachment disorders (Bowlby, 1982). **Non-organic failure to thrive** is the diagnosis for an infant who does not grow, develop, or gain weight on schedule, and there is no known medical explanation for this failure. Poverty, neglect, inconsistent parenting, and severe family dysfunction are correlated with non-organic failure to thrive. In addition, postpartum depression can cause even a well-intentioned mother to neglect her infant.

Children who experience social neglect or deprivation, repeatedly change primary caregivers

in a way that limits opportunities to form stable attachments, or are reared in unusual settings (such as institutions) can have difficulty forming attachments. According to the *Diagnostic and Statistical Manual of Mental Disorders, 5th edition, Text Revision* (American Psychiatric Association, 2022), **reactive attachment disorder** refers to a diagnosable mental disorder characterized by inappropriate attachment behaviors such as being inhibited and withdrawn, demonstrating minimal social and emotional responsiveness to others, having limited positive affect, and exhibiting developmental delays, especially in cognitive and language domains.

Fortunately, the majority of severely neglected children do not develop reactive attachment disorder. This disorder occurs in less than 10 percent of children (Irfan et al., 2022). The quality of the caregiving environment after serious neglect affects the development of this disorder. Being able to overcome challenges and successfully adapt is known as **resiliency**. Even young children can exhibit strong resiliency to harsh circumstances. Resiliency can be attributed to certain personality factors, such as an easy-going temperament. Receiving support from others also leads to resiliency.

Social and Emotional Milestones

Young children begin learning social and emotional skills at birth. These skills are mainly directed toward their primary caregivers but eventually extend to others in their environments. Below is a list of the most common social and emotional milestones typically displayed during the first 3 years. It is important to remember that each child is unique and may develop these skills at different rates than outlined in Figure 6.8.

Typical Age	What Most Children Do By This Age
2 months	• calm down when spoken to or picked up • look at your face • seem happy to see you when you approach • smile when you talk to or smile at them
4 months	• smile on their own to get your attention • chuckle (not yet a full laugh) when you try to make them laugh • look at you, move, or make sounds to get or keep your attention
6 months	• recognize familiar people • like to look at themselves in a mirror • laugh
9 months	• act shy, clingy, or fearful around strangers • display different facial expressions, like happy, sad, angry, and surprised • look when you call their name • react when you leave (look, reach for you, or cry) • mile or laugh when you play peek-a-boo
1 year	• play games with you, like pat-a-cake • wave at you or others • engage in hide and seek games
15 months	• copy other children while playing, like taking toys out of a container when another child does • show you an object they like • clap when excited • hug stuffed doll or other toy • show you affection (hug, cuddle, or kiss you)

Figure 6.8. Social and Emotional Milestones

Typical Age	What Most Children Do By This Age
18 months	• move away from you, but look to make sure you are close by • point to show you something interesting • put hands out for you to wash them • look at a few pages in a book with you • help you dress them by pushing their arm through a sleeve or lifting up a foot
2 years	• notice when others are hurt or upset, such as by pausing or looking sad when someone is crying • look at your face to see how to react in a new situation
30 months	• play next to other children and sometimes plays with them • show you what they can do by saying, "Look at me!" • hollow simple routines when told, like helping to pick up toys when you say, "It's clean-up time."
3 years	• calm down within 10 minutes after you leave them, like at a childcare drop off • notice other children and joins them to play

Figure 6.8. Social and Emotional Milestones

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Figure 6.6. Image is licensed under CC0.

Figure 6.7. Image is in the public domain.

Figure 6.8. Developmental Milestones by the CDC, 2022.

6.5 The Importance of Play

There are many reasons to support play across the lifespan, but play in the early years of childhood is especially important. Young children learn through both social interactions and solitary play. Infants "play" when they use social smiles to elicit responses from their caregivers or when they make sounds that cause their caregivers to react. Once a child is more mobile, play can involve experimenting with various objects or banging toys around the house. This type of play is exploratory and sensory based. Piaget would call it sensorimotor play.

So what is play exactly? In the publication "The Importance of Play For Young Children," the National Association for the Education of Young Children features the work of Psychologist Peter Gray, in which he describes four important characteristics of play (NAEYC, n.d.).

- Play is something chosen by the child. A child engages in an activity just for its own sake.
- Play is self directed and not adult directed. The child determines the content, structure, and rules of play.
- To play is to express freedom. A child can stop their play at any time without worry or stress.
- Play helps a child process by using their imaginations. Play has no boundaries, which means that it can follow different rules than those found in real life.

Gray also notes that true play has declined in children over the decades due to changes in society (The Genius of Play, n.d.). Play, he proposes, is evolution's way of helping children educate themselves. They are in charge of their lives and can practice important skills. In today's world, children are being deprived of opportunities to engage in real play due to school regimens or limitations at home. Gray states that this deprivation has led to increases in depression, anxiety, and other stress-related issues, along with declines in social skills and creativity (The Genius of Play, n.d.).

Play can support cognitive, physical, social, and language skill development. For example, a toddler is working toward mastering physical abilities when running, jumping, and climbing on a playground or outside in free play. Current research shows that play, stress, and resilience are closely connected. Play facilitates coping mechanisms, decreases stress, and even improves brain plasticity (Nijhof et al., 2018; Yogman et al., 2018).

There are many aspects to play still being researched, including how children learn through play, how the environment (indoor/outdoor) and materials influence play, and the importance of recess and quality play spaces (Zosh et al., 2017; Sandseter et al., 2020). The mounting evidence speaks to the importance of play during early childhood enough that the National Association for the Education of Young Children (NAEYC) has embedded play in its position statement on developmentally appropriate practices.

> Play is an important vehicle for developing self-regulation as well as for promoting language, cognition, and social competence. [Play] gives [children] opportunities to develop physical competence and enjoyment of the outdoors, understand and make sense of their world, interact with others, express and control emotions, develop their symbolic and problem-solving abilities, and practice emerging skills (NAEYC, 2009).

Parten's Classification of Play

Mildred Parten believed that young children engaged in play that was less social, while older children engaged in play that was more complex.

Although Parten's stages of play, which are described in figure 6.9, have been influential in understanding how children progress, there are those who believe that children can engage in any of the stages of play at any time, depending on their environments and contexts. Parten stressed that the type of play changes as children develop more complex social skills.

Category	Description
Unoccupied play	This refers to a type of play in which infants are not interacting with others or appear not to have a clear goal in their behavior. A child may be exploring the world using their senses. For example, a baby who is lying on the floor looking toward the ceiling or objects in the room.
Solitary play	Children continue to play alone without interacting with others. The goal of this play is to explore objects and the environment. For example, a child may explore a basket of blocks or books.
Onlooker play	Children progress from solitary play to watching others play. They may observe, or they may briefly engage with the other children playing, but they do not directly join the play or game. This type of play helps them learn from others.
Parallel play	Children progress from playing alone to playing alongside others. The children will be in the same activity area or use the same toys, but they do not directly play with each other. They may mimic each other's actions or words. This type of play allows children to practice and learn skills.
Associative play	Children begin interacting with others, but are still focused on their own interests and goals. They may share materials and converse with others. For example, two children play in the sandbox and share sand toys. They talk to each other about what they are doing, but they build their own sand structures.
Cooperative play	This type of play is the most complex and collaborative. Children will work together toward a common goal. This type of play requires many social and communication skills. For example, a group of children may work together to build a structure with blocks. Some children stack the blocks, while others collect and organize the blocks.

Figure 6.9. Parten's Classification of Play

Piaget's Stages of Play

Play is also organized into types that coincide with Piaget's theory of **cognitive development** (figure 6.10). As children progress through increasingly complex cognitive skills, they also progress through various types of play. Piaget is quoted as saying, "Play is the work of childhood," and he recognized the importance of play in a child's development. He originally proposed "three levels of play: functional play, symbolic play, and games with rules. Smilansky expanded on Piaget's model to add a fourth level: constructive play" (Lumen Learning, n.d.).

Type of Play	Description
Functional play	In this type of play, children use their bodies and senses and focus on motor movements. They may play with objects or games without rules. Examples include crawling, running, or exploring markers by putting them in mouth.
Constructive play	This type of play involves children using objects purposefully and with a goal. They may build a house with LEGOs or use markers to draw figures.
Symbolic or fantasy play	This type of play involves symbolic thought, imagination, and pretending. Children will use objects to represent other things. Play can include role-playing or fantasy scenarios. Examples include using a stick as a sword or pretending to be a flying dragon.
Games with rules play	This level of play involves children playing games with rules that guide the activity. The rules can be part of an established game, or children can make the rules up. This type of play requires children to use logic and memory. Examples include tag, board games, or the floor is lava.

Figure 6.10. Piaget's Stages of Play

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Figure 6.9. Parten's Classification of Play by Christina Belli is licensed under CC BY 4.0.

Figure 6.10. Piaget's Stages of Play by Christina Belli is licensed under CC BY 4.0.

6.6 Adaptive Skill Development

Adaptive skill development refers to the ability of a child to engage in age-appropriate life skills. In infancy and toddlerhood, these skills are related to feeding, self-help, and play. Although these skills may not seem complex, they encompass abilities from several developmental domains and are considered foundational for more sophisticated abilities. Children become active participants in their lives as they develop life skills and their level of independence increases. Some children will attain skills and abilities faster than others, and this is completely normal. All children are unique, and they adapt at their own pace.

There are several scales or assessments that measure a child's adaptive abilities. Early childhood educators and pediatricians will often evaluate and observe children to determine if they are developing age-appropriate skills. Deficits in adaptive skill development are often tied to deficits in other areas, such as physical or **cognitive development**. For example, a toddler who struggles to feed themselves or hold a utensil even after ample practice and guidance may be evaluated for motor delays. A pediatrician might evaluate fine motor precision, which entails looking at finger and hand movements. Or they may look at visual-motor integration, which examines the ability to integrate visual stimuli with motor control, balance, and coordination, as well as the adequacy of sensory integration.

The formation of adaptive skills is highly dependent on the guidance of caregivers and the experiences that young children have. Some children may develop self-help skills faster than others because their caregivers encourage them to learn these skills and scaffold their learning. Other children may not have these experiences if their caregivers are not available or attuned to their needs and wants. A child's ability to engage in adaptive skills also depends on their physical and cognitive development. Some children may have a disability that prevents them from engaging in certain activities. Or they may struggle with certain motor skills that make self-care tasks difficult. Cultural factors can impact the way adults and children interact and influence the rate at which adaptive skills are formed. For example, some families may expect and teach independence more robustly than other families.

As infants progress into toddlers, their drive for independence is strong. They want to do things for themselves, and they want to be active learners in their worlds. It is important that caregivers view adaptive skill development as essential in the overall development of a child and understand the connection to later functioning in childhood and adulthood. Let's take a look at three important adaptive skills: eating, toileting, and dressing.

Eating

Eating is a crucial adaptive skill for infants and toddlers as it plays a vital role in their physical growth, development, and overall well-being. During their early years, children need a balanced and nutritious diet to support their rapidly growing bodies and developing brains. Learning to eat a variety of foods is an important developmental milestone for young children.

Caregivers play a crucial role in a child's eating experience. They are tasked with providing diverse and nutritional foods to their children. Caregivers also serve as role models for eating, modeling how and what to eat. Initially, children may be picky eaters and may prefer certain foods over others. However, as they continue to be exposed to a variety of flavors and textures, they can learn to accept and enjoy a wider range of foods. Some families may struggle to provide these experiences for their children. For example, food insecurity and poverty may limit the types of foods a family has access to. Families who are very busy may opt for "easy" meals, such as microwavable food or take out, to accommodate their lifestyle.

Infants and toddlers learn important adaptive skills when given opportunities to eat a variety of foods, hold and use utensils, as well as drink from cups independently. Self-feeding can be a messy experience, but these skills help them become more independent and self-sufficient, which is an important part of their overall development.

Toileting

Learning to manage toileting needs independently is a significant milestone in a child's development, marking the transition from diaper dependence to greater independence and self-care skills. It is considered an adaptive developmental milestone because it enables the child to develop important skills that are necessary for their physical and social growth and independence. Potty training teaches children to recognize the sensations that signal the need to go to the bathroom and to control the release of urine and feces. This promotes better hygiene and cleanliness and helps children develop a greater sense of bodily autonomy and control. The ability to control one's bladder and bowel movements is vital to **physical development**.

In addition to physical development, potty training also plays an important role in **social and emotional development**. Successfully using the

potty helps children build self-confidence and self-esteem as they gain a sense of accomplishment and pride in their ability to care for themselves. It also teaches them to be more aware of their bodily needs and communicate effectively with caregivers and peers. Children may not be able to enroll in certain childcare settings or preschool programs if they are not potty trained.

Each child varies in their readiness to be toilet trained. Some children achieve independence by the time they are a year old, but others do not until they are 3 or even 4 years old. Most children are able to stay dry during the day and night by the time they are 2 to 4 years old (Turner & Matlock, 2022). Becoming toilet trained is not simply a matter of physical readiness but involves other important skills too, such as the willingness to learn and ability to communicate. Turner & Matlock (2022) note that experts agree that children should be able to do the following skills before they can effectively become toilet trained:

- walk to the toilet
- sit up on the toilet
- stay dry for several hours or wake up dry after a nap
- pull clothes up and down
- follow simple instructions
- communicate the need to go to the toilet
- demonstrate independence by saying "no"
- show interest in toilet training
- express a desire to please (give gifts, enjoy praise)
- imitate adults and older children

Dressing

Learning to dress oneself is an important **adaptive development** milestone as it promotes independence and self-care skills. Toddlers typically begin to show an interest in dressing themselves around 18 months of age and can start to develop the ability to dress themselves with increasing proficiency as they grow older. At first, toddlers may struggle with simple tasks, such as putting on socks or shoes, but with practice and guidance from caregivers, they can learn to do these tasks independently. As they continue developing their motor skills and coordination, they can progress to more complex tasks like zipping up their jackets or tying their shoelaces.

Learning to dress oneself also helps promote cognitive development as toddlers must learn to match clothing items, understand the concept of inside and outside, and follow a sequence of steps to properly dress themselves. Caregivers can help facilitate this developmental process by providing opportunities for toddlers to practice dressing themselves, such as setting out clothes for the toddler to choose from, breaking down complex dressing tasks into smaller steps, and offering praise and encouragement for their efforts.

There are several barriers that can impact a young child's ability to learn to dress themselves. Here are a few examples:

1. Access to appropriate clothing: Some families may not have access to clothing that is appropriate for their toddler's developmental stage, such as clothing with easy-to-use zippers or Velcro closures. This can make it more difficult for the toddler to learn to dress themselves independently.
2. Physical or cognitive disabilities: Toddlers with physical or cognitive disabilities may require additional support and accommodations to learn to dress themselves independently. They may need specialized clothing or adaptive equipment to help them with certain tasks.
3. Language barriers: Caregivers who do not speak the same language as their toddler may struggle to provide clear instructions for dressing tasks. This can make it more difficult

for the toddler to learn to dress themselves independently.

4. Cultural practices: Some cultures may have different expectations for when children should learn to dress themselves or what types of clothing are appropriate for different ages or genders. These practices may impact a toddler's ability to learn to dress themselves equitably.
5. Socioeconomic factors: Families who are experiencing poverty may not have access to resources such as clothing or adaptive equipment that can help their toddler learn to dress themselves independently. They may also have limited time or energy to devote to teaching these skills if they are dealing with other stressors related to their financial situation.

It's important to recognize and address these barriers to promote equitable access to learning to dress oneself for all young children.

Adaptive Skills Milestones

Infants and toddlers vary in their development of adaptive skills, as there are many factors that can contribute to their learning. The milestones listed in figure 6.11 are those typical for American children, but there is much diversity in when these skills are developed.

Age	Milestone
Birth to 11 months	• sucks with smooth, coordinated movements • places both hands on bottle and/or breasts • swallows strained food • eats semi-solid foods (e.g., baby cereal) • supports own bottle • chews and bites on toys • holds a spoon • sleeps 12–14 hours
12-23 months	• feeds self small snacks (e.g., crackers) • drinks from a cup with support • naps up to twice a day • helps dress self (e.g., extending limbs) • brings spoon to mouth • drinks from an open cup with some spillage • shows bladder and bowel control pattern • communicates discomfort over soiled diaper (e.g., words or gestures) • feeds self with spoon with some spillage • takes off socks

Figure 6.11. Adaptive Skills Milestones in Infancy and Toddlerhood

Age	Milestone
24-30 months	• requests foods or liquids using words or gestures • removes shoes without assistance • feeds self with utensils without assistance • gives up bottle • zips large zipper when shank is connected • washes and dries hands with help • communicates need to eliminate • holds a cup with one hand • opens doors by turning knobs • helps with everyday tasks (e.g., putting laundry in the basket, clearing dishes, etc.) • unwraps food • pulls pants down with assistance • requires occasional supervision in the home • understands that hot is dangerous (e.g., blows on hot foods, avoids the fireplace, etc.) • cleans up toys when asked • handles fragile items (e.g., egg) • may reject foods • insists on doing things independently
36 months	• can tell the difference between food and non-food substances • takes off clothes without assistance • controls bowel movements regularly (e.g., less than one accident each week) • washes hands independently • wipes nose with help • uses a fork • helps bathe self • takes responsibility for toileting needs

Figure 6.11. Adaptive Skills Milestones in Infancy and Toddlerhood

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Figure 6.11. Table adapted from the Battelle Developmental Inventory-II, 2016.

6.7 Health and Wellness

Development in early childhood is influenced by multiple contexts, including home, school, child care centers, and neighborhoods. Although this might be the case, the home environment is considered one of the most influential. As you might be thinking, it is here that we encounter our first experiences, social and emotional, and our first relationships, which are usually with our caregivers. As we discussed previously, maternal and/or caregiver mental health is very important and influential in all developmental domains. In this section, we will discuss mental health, abuse, and neglect and their impact on **social and emotional development** in early childhood. We will continue our conversation with a discussion on access to health care and nutrition and family leave policy in the state of Oregon.

Medical Care and Nutrition Access

There is no question that having access to health care is crucial to healthy development at any stage of the lifespan. Having access to medical care can give parents and their children the resources necessary to support thriving social and emotional development and mental health. Previously, we discussed the importance of nutrition for healthy brain development. The brain is the basis for social and emotional development, and it develops differently based on the opportunities that children have to engage in active, safe, rich, and meaningful environments including social relationships and ideas (UNESCO). Research shows that having access to nutritious foods is associated with positive social behavior in early childhood (Liu & Raine, 2016). Furthermore, healthy eating is associated with better self-esteem, fewer emotional and peer problems (Ardvisson et al., 2017). Therefore, reducing malnutrition in infancy and early childhood promotes thriving social and emotional development.

Family Leave Policy

We have discussed the event of bringing an infant home and the importance of having access to health, nutrition, and a home environment where the infant can thrive. We have not yet discussed the interaction between employment and child development. In a perfect world, parents would be able to take parental leave to be with their infant and bond with them. Infancy is a crucial developmental period where attachment and bonding are established.

However, what happens if neither parent is able to take the time to establish healthy attachment and bond with their infant? According to the U.S. Department of Labor, out of the nation's 83.8 million families, 80.1 percent had at least one employed member in 2022 (Bureau of Labor Statistics, 2023). Keep this number in mind as we discuss family leave policy.

Family leave policy changes from state to state. For the sake of simplicity, we will focus on Oregon's family leave policies in this section. The Oregon Family Leave Act (OFLA) states that if your employer has 25 or more employees, you could qualify for protected leave (Oregon Bureau of Labor and Industries, n.d.). Therefore, a person is allowed by law to take protected time off to take care of themselves or family members. Under OFLA, a person can take up to 12 weeks of time off per year for multiple reasons, including parental leave, a serious health condition, pregnancy disability leave, sick child leave, military family leave, and bereavement leave. Keep in mind that these 12 weeks are protected time off, but they are not necessarily paid.

According to the state of Oregon, parental leave can be granted to either parent for the birth, adoption, or foster placement of a child. However, if both parents work at the same company, they are not allowed to take parental leave at the same time unless one of the parents is sick. You might be wondering what parental leave has to do with social and emotional development. The basic answer is, to be able to bond and develop a healthy attachment with parent(s) or caregiver(s), an infant must spend time with them.

If the infant is born into a low-income family, they are less likely to spend as much time with one parent as with the other. In some cases, they may not spend much time with either parent. For example, many studies have found a negative association between maternal employment and child development, especially during the first year of life (Brooks-Gunn et al., 2010). However, maternal employment has also been linked to some advantages, such as being able to buy better toys and the ability to afford better quality childcare. Therefore, maternal employment provides both advantages and disadvantages related to child development.

Now, let's go back to the fact that protected leave does not mean paid leave. OFLA simply protects your absence and guarantees your job will be there after the 12 weeks have passed. However, a new law was recently passed in Oregon that means qualifying employees can be provided with paid family leave for up to 12 weeks in a 12-month period. This became effective January 1, 2023.

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6.8 Conclusion

Children are building important attachments and relationships to their caregivers during the first 3 years of life. These relationships are the basis for all that children learn to do, including the development of social and emotional skills. It is important to think about how certain policies and cultural expectations influence a caregiver's ability to spend quality time with their young child. Caregivers also play a role in how a child develops social and emotional skills. They are the first example of what social interaction looks like. Play is the main tool that children use to understand the world around them. They use play to observe, manipulate and act upon their environments. Play also helps children connect with others and build skills that strengthen cognitive and **physical development**. All of the skills a child learns during infancy and toddlerhood have effects that can last well into adulthood.

Review of Learning Objectives

After reading this chapter, you will be able to do the following:

1. Identify the stages of social emotional development for infants and toddlers.
2. Explore the development of adaptive skills and identity formation.
3. Describe the role of play in relation to developmental importance.
4. Analyze the impact of caregivers and environmental influences on attachment and development.

Review of Key Terms

- **Adaptive skill development**: the ability of a child to engage in age-appropriate life skills.
- **Ambivalent attachment**: a bond in which the child seeks closeness to their caregivers and is hesitant to explore the environment.
- **Autonomy versus shame and doubt**: the second stage of Erikson's theory of psychosocial development in which a child establishes their independence and has a sense of control over decisions and abilities.
- **Avoidant attachment**: a bond in which the child avoids or is dismissive of their caregivers and may not explore their environment.
- **Attachment theory**: a term coined by researcher John Bowlby to refer to the affectional bond or tie that an infant forms with their mother.
- **Bidirectionality**: the reciprocal relationship between two variables.
- **Contact comfort**: an infant's need for physical closeness and touching.
- **Disorganized attachment**: a bond in which a child demonstrates an inconsistent relationship to their caregiver and how they interact with the environment.
- **Emotional self-regulation**: strategies we use to control our emotional states so that we can attain goals.
- **Goodness-of-fit**: the child's surrounding environment is a good match for their temperament and needs.
- **Non-organic failure to thrive**: the diagnosis for an infant who does not grow, develop, or gain weight on schedule, and there is no known medical explanation for this failure.
- **Reactive attachment disorder**: a diagnosable mental disorder characterized by inappropriate attachment behaviors such as being inhibited and withdrawn, demonstrating minimal social and emotional responsiveness to others, limited positive affect, and developmental delays.
- **Resiliency**: the ability to overcome challenges and successfully adapt to negative experiences.
- **Secure attachment**: a bond in which a child feels secure with their caregivers and uses them as a base from which to explore their environment.
- **Separation anxiety**: the fear experienced by a child in the presence of a stranger or the departure of significant others.
- **Social referencing**: the process whereby infants seek out information via facial cues from others to clarify and act in a situation.
- **Social smiling**: a developmental milestone in which an infant responds with smiles to those who engage their positive attention.
- **Temperament**: the innate characteristics of a child, such as mood, activity level, and emotional reactivity.
- **Trust versus mistrust**: the first stage of Erikson's theory of psychosocial development, in which a child develops trust in their primary caregivers to feel secure.

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CHAPTER

7

Preschool Cognitive and Language Development

7.1 Chapter Overview and Learning Objectives

Children have spent much of the first 3 years of life bonding with their caregivers, learning how to move their bodies, and exploring their environments. In the next 3 years, they see all their hard work pay off as they begin to understand and interact with the world around them using increasingly complex thought and language. Preschool aged children strive for independence, skill mastery, and understanding. The ever-curious preschooler is full of questions about what they notice in the world. This is a time when they often ask "why?"

We label the ages of 3 to 6 years old as the preschool years because many children have not entered formal schooling yet. The caregivers in a preschooler's life continue to play a significant role in their learning and in their cognitive and language growth. The preschool years are an exciting time for development, but they can also pose a challenge for children and their families due to various social and environmental issues that persist from the early years of development. We will explore several of these factors in this chapter.

Learning Objectives

After reading this chapter, you will be able to do the following:

1. Identify the milestones of preschooler cognitive and **language development**.
2. Explain diverse approaches to and cultural influences in development and parenting.
3. Discuss the impact of caregivers and environmental influences on cognitive and language development.

Key Terms

Throughout this chapter, you will be introduced to important key terms that will help deepen your understanding of human development.

- **Centration**: the act of focusing on only one aspect of an object.
- **Conservation**: the understanding that something can stay the same quantity even though its appearance may change.
- **Executive functions**: processes in the prefrontal cortex that include working memory, attention, problem solving, and impulse control.
- **Fast-mapping**: the process by which words are easily learned by making connections between new words and learned concepts.
- **Intuitive thought substage**: a substage in Piaget's theory of cognitive development in which children begin to use intuitive thinking.
- **Long-term memory**: the third stage of the memory system comprised of declarative and nondeclarative memories; also known as permanent memory.
- **Overregulation**: the process by which children apply language rules too generally, resulting in grammar errors.
- **Prefrontal cortex**: an area of the brain responsible for decision making, problem solving, and emotional regulation.
- **Private speech**: a form of self-directed speech in which a child dialogues with themselves to solve a problem or to think something through.
- **Reversibility**: the ability to reverse a sequence of events.
- **Self-regulation skills**: strategies that are used to manage thoughts, behaviors, and feelings.
- **Sensory memory**: the first stage of the memory system in which sensory information is stored in its raw form for a very brief duration.
- **Short-term memory**: the second stage of the memory system in which conscious effort and adequate attention are needed to function effectively; also known as working memory.
- **Transductive reasoning**: a form of reasoning that occurs when a child is unable to understand cause and effect logically, so they rely on their natural reasoning.

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7.2 Cognitive Development

Preschool-aged children continue to build upon the cognitive skills learned in infancy and toddlerhood. As they interact more independently with their environments, preschoolers use their keen sense of observation and questioning to expand the schemas created in the first 3 years of their lives. In the early years, a child's brain and cognitive understanding is mostly dependent on the interactions with their caregivers, along with social and environmental conditions. During the preschool years, **cognitive development** is accelerated through a child's own imagination, play, and exploration.

We will see a variety of new skills and competencies emerge in the preschool years, such as a child's ability to understand aspects of time and sequence. Preschoolers can remember past events and talk about future events. They also become more adept at understanding and following instructions due to their expanding memory capabilities. There is a notable emergence of pre-academic skills, such as counting, rhyming, grouping, and matching. Let's take a closer look at preschooler cognitive development by first examining brain growth.

The Growing Brain

A child's brain experiences a growth spurt during the preschool years as they learn new skills and are exposed to new stimuli. Not only does the brain increase in complexity, but it also increases in size. At 3 years old, a child's brain is about 80 percent of its adult size. By 5 years of age, it will be around 90 percent. Brain research tells us that "the preschool years can be thought of as a developmental period generally dominated by dynamic and robust progressive processes, with an emphasis on growth, expansion, 'construction,' and 'blossoming' that will later be pruned and tuned with continued maturation and experience" (Brown & Jernigan, 2012).

One of the most dramatic changes that happens during the preschool years is growth within the prefrontal cortex. The **prefrontal cortex** is an area of the brain located at our foreheads that is responsible for a number of important skills. The brain also experiences improvement in other regions, such as the corpus callosum, which is a structure that connects the two hemispheres of the brain. This growth results in improved coordination between the two sides, which helps children perform complex functions (Tanaka-Arakawa et al., 2015). We can witness this change when preschoolers become more physically coordinated and in the improvements we see in cognitive thinking skills.

Figure 7.1. A preschooler learns to read by looking at pictures in a book.

Preschool-aged children experience a peak in executive functions and will continue to develop these into early adulthood (Center on the Developing Child, 2023). **Executive functions** are thought processes that include working memory, attention, problem-solving, and impulse control. These prefrontal cortex functions are crucial in helping children complete tasks, plan and make decisions, and control their behavior. Caregivers are a child's first teacher, and they actively teach children how to manage themselves through modeling and practicing skills. **Self-regulation skills** are strategies that are used to manage thoughts, behaviors, and feelings. They are key in the development of healthy executive functions.

Responsive caregivers who give their children attention and help them sustain attention through positive interactions are providing a framework for executive functioning in the early years. Self-regulating skills take considerable practice and time to master, but preschool-aged children can build self-regulating behaviors when given ample opportunities by their caregivers. Caregivers

should ensure that children have plenty of time to play, that there are established routines at home, and that they scaffold learning for their children, especially when encountering something new.

Children who do not have the opportunity to practice important brain skills or who experience disruptions in the preschool years can develop delays in their learning or social functioning. For example, a child living in extreme poverty may not have access to adequate nutrition to support the developing brain. This can lead to delayed growth or impairment. Similarly, adverse experiences, such as exposure to violence and abuse, create stress within the developing child. This type of toxic stress can "disrupt brain architecture and impair the development of executive functions" (Center on the Developing Child, 2023).

In Chapter 5, we learned that young children's brains are highly plastic, which allows them to adapt to environmental factors and new experiences. Not all adaptations are necessarily good for the developing child. While plasticity is an important brain process that prepares children for their environments, it can also lead to changes within the brain that impact memory and other important cognitive functions. For example, the brain of a child exposed to constant threats will rewire itself for faster activation of fight, flight, or freeze responses. This can lead to increased anxiety, depression, and stress in later childhood and adulthood (Herzog & Schmahl, 2018).

The use of screen-based media continues to be a factor to consider in brain development. We learned that infants and toddlers are spending more time in front of screens via television, phones, and tablets. A report shows that preschoolers spend a daily average of 2.5 to 3 hours on a screen of some kind (Rideout & Robb, 2020). While screen time in isolation isn't necessarily going to damage the brain, it is important to consider the cumulative impact, or the long-term effect, of screen use from infancy through the preschool years. Children who experience delays early on may experience even more delays in later development.

When children are in front of a screen, especially without parental engagement, they are missing out on important interactions that help strengthen vital brain connections. Preschoolers are becoming increasingly independent but continue to need positive interactions from the adults in their lives. Most importantly, meaningful child-adult engagement, such as reading or playing together, is key to supporting healthy brain growth.

Learning and Memory

As mentioned earlier, preschoolers will see increased development in attention skills and executive functions. They will also see an increase in working memory capacity. Information processing researchers note that the preschool years also bring improvements in memory strategies, memory accuracy, and autobiographical memory. This developmental period is seen by many researchers as a crucial time period in memory development (Posner & Rothbart, 2007).

Sensory memory (also called the sensory register) is the first stage of the memory system. Sensory memory stores raw sensory input in the brain for a very brief duration, essentially only long enough for the brain to register and process the information. Studies of auditory sensory memory show that it lasts about one second in 2-year-olds, 2 seconds in 3-year-olds, more than 2 seconds in 4-year-olds, and 3–5 seconds in 6-year-olds (Glass et al., 2008). Other researchers have also found that young children hold sounds for a shorter duration than do older children and adults and that this deficit is not due to attentional differences between these age groups but reflects differences in the performance of the sensory memory system (Gomes et al., 1999).

The second stage of the memory system is **short-term memory**, also known as working memory. Working memory is the component of memory in which current conscious mental activity occurs. Working memory often requires conscious effort and adequate attention to function effectively. Due to increased capacity within the prefrontal cortex, preschoolers will see an increase in their short-term memory and executive functions. These self-regulatory processes, such as the ability to inhibit a behavior or cognitive flexibility, enable adaptive responses to new situations and facilitate the achievement of a specific goal.

A child shows higher executive functioning skills when the parents are more warm and responsive, use scaffolding when the child is trying to solve a problem, and provide cognitively stimulating environments for the child (Fay-Stammbach et al., 2014). For instance, scaffolding was positively correlated with greater cognitive flexibility at age 2 and inhibitory control at age 4 (Bibok et al., 2009). In a longitudinal study of 102 kindergarten children conducted by Schneider et al. (2009), the majority of children used no strategy to remember information, a finding that was consistent with previous research. As a result, their memory performance was poor compared to their abilities as they aged and started using more effective memory strategies.

The third type of memory is **long-term memory**, which is also known as permanent memory. A basic division of long-term memory is between declarative and nondeclarative memory. Declarative memories, sometimes referred to as explicit memories, are memories of facts or events that we can consciously recollect. Declarative memory is further divided into semantic and episodic memory. Semantic memories are memories of facts and knowledge that are not tied to a timeline. Episodic memories are tied to specific events in time. Nondeclarative memories, sometimes referred to as implicit memories, are typically automated skills that do not require conscious recollection.

Attention

Changes in attention have been described by many as the key to changes in memory (Nelson & Fivush, 2004; Posner & Rothbart, 2007). Attention is not a unified function but consists of subprocesses. The ability to switch our focus between tasks or external stimuli is called divided attention or multitasking. This is separate from our ability to focus on a single task or stimulus while ignoring distracting information, called selective attention. Different from these is sustained attention, or the ability to stay on task for long periods of time. Moreover, we also have attention processes that influence our behavior and enable us to inhibit a habitual or dominant response, and others that enable us to distract ourselves when upset or frustrated.

Young children (age 3–4) have considerable difficulty dividing their attention between two tasks. As a result, they often perform at levels equivalent to our closest relative, the chimpanzee, but by age 5, they have surpassed the chimp (Hermann et al., 2015; Hermann & Tomasello, 2015). Despite these improvements, 5-year-olds continue to perform below the level of school-age children, adolescents, and adults. Children's ability with selective attention tasks improves as they age. However, this ability is also greatly influenced by the child's temperament (Rothbart & Rueda, 2005), the complexity of the stimulus or task (Porporino et al., 2004), and whether the stimuli are visual or auditory (Guy et al., 2013).

Guy et al. (2013) found that children's ability to selectively attend to visual information outpaced that of auditory stimuli. This may explain why young children cannot hear the teacher's voice over the cacophony of sounds in the typical preschool classroom (figure 7.2) (Jones et al.,

2015). Jones and his colleagues found that 4–7-year-olds could not filter out background noise, especially when its frequencies were close to those of the target sound. In comparison, 8–11-year-old children often performed similarly to adults.

Figure 7.2. Selective attention tasks improve with age, but are also affected by temperament.

Most measures of sustained attention typically ask children to spend several minutes focusing on one task while waiting for an infrequent event, while there are multiple distractors for several minutes. Berwid et al. (2005) asked children between the ages of 3 and 7 to push a button whenever a "target" image was displayed, but they had to refrain from pushing the button when a non-target image was shown (figure 7.3). The younger the child, the more difficulty they had maintaining their attention.

Figure 7.3. A child playing a game that measures sustained attention.

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7.3 Moral Development

Preschool-aged children are continuing to build their understanding of morality based on their experiences as infants and toddlers. They now have increased cognitive skills and a deeper understanding of cause and effect. Preschoolers are also developing empathy, which is the ability to understand how someone else is feeling. An increased sense of empathy means that children can feel ashamed or embarrassed when they violate a moral code. For example, they may feel bad

for hurting another child or guilty for lying to their parents.

Preschoolers continue to learn moral ideals from their caregivers and those around them. They inherit the social norms and rules from their households and families. They learn what is acceptable or not acceptable and develop a sense of justice about what is fair or not fair. It is important for caregivers to model prosocial and respectful behavior to children so that they can internalize positive moral values. For example, caregivers can express concern for others within the community or discuss age appropriate social issues with their child.

Next, we will examine two theories of **moral development** to help us understand the process by which preschool aged children develop morality.

Kohlberg's Stages of Moral Development

Lawrence Kohlberg built upon many of Piaget's ideas, including a comprehensive stage theory to explain how children develop morality. He focused less on the actual decisions a child made and more on the thinking processes involved when encountering a moral dilemma. He developed six stages of moral development encompassed within three levels of moral reasoning. We will discuss Kohlberg's first level of moral development, which includes two stages. **Preconventional morality** assumes that children's morality is dominated by adult influence versus logical reasoning. This level coincides with children ages 3–7. Due to the nature of Kohlberg's research, there is no stage of moral development for infants.

- Stage 1: Punishment and Obedience Orientation. In this stage, children control their behavior based on the possible consequences they might face. They may make a decision solely based on avoiding punishment. If they receive a negative consequence based on something they did, they will interpret that behavior as "bad." "Good" behaviors are those that are not punished.
- Stage 2: Individualism and Instrumental Purpose Orientation. In this stage, children's behavior continues to be controlled on the basis of consequences, yet they may choose to follow rules based on their own wants or needs. They begin to understand that they have their own interests and that the interests of others may conflict.

The other two levels of Kohlberg's moral theory include conventional morality, which involves moral reasoning based on external ethics (stages 3 and 4), and post conventional morality, which involves moral reasoning based on personal ethics (stages 5 and 6).

Preschoolers approach moral thinking with preoperational logic. They focus on decisions that directly impact them, and they have a difficult time understanding the perspectives of others. Kohlberg viewed this level of moral development as preconventional because children have not yet developed an understanding of right and wrong based on logical thinking or social rules. Their moral thinking is dominated by adult power and influence.

Kohlberg's ideas on moral development have been influential in understanding how young children develop. Yet, there have been many criticisms of his work and research practices. The most common critique is that Kohlberg only sampled young, White males in his trials, which led to a biased view on how morality is formed or determined. Since we know that society genders children right after birth, we also understand that children may develop different cognitive and social processes based on gender constructs. Race also plays a role in the interactions children have throughout their

lives and thereby influences a child's sense of fairness and justice.

Carol Gilligan's Ethics of Care

Researcher Carol Gilligan challenged Kohlberg's theory of moral development for not taking into account the female experience. She claimed that the results of his research and theory demonstrate sex bias (sexism) because it was often found that males were considered more "advanced" in their moral reasoning than females (Gilligan, 1977). Gilligan researched both males and females and found that humans are instinctively relational and often use a combination of emotions and logic to make decisions.

Her theory, known as the ethics of care, focuses on female moral development and proposes that females think about personal relationships in addition to logic and justice. These decisions are driven by care for others and maintaining positive relationships. While Gilligan's theory is focused on women's morality, the principles are applicable to children as well. Children are balancing their understanding of logical reasoning with the nuances of their everyday social interactions. Because young children are still reliant on adult care and interactions with them and others, they may place a high value on maintaining a positive relationship with those around them through their moral choices.

Both Kohlberg and Gilligan's theories align with a gendered view on morality based on gender social constructs. Therefore, we can see that morality is based on context and that there may not be a universal way that morality is formed.

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7.4 Cognitive Development Theories and Milestones

Building on the theories discussed in infancy and toddlerhood, we will explore Piaget's preoperational stage in more depth as well as Vygotsky's sociocultural theory. We can see that preschoolers are becoming more logical in their thinking and that they continue to rely on the scaffolding of their caregivers in their daily learning. Children also start to develop their own inner voice at this age, which helps them navigate situations and aids in problem solving.

Piaget and the Preoperational Stage

Preschoolers are now firmly in Piaget's preoperational stage of **cognitive development** and continue to build upon the symbolic function substage. They become masters of symbolic thought, which is the ability to mentally or symbolically represent concrete objects, actions, and events (Piaget, 1952). We can witness this advancement through their play, which becomes more elaborate than in infancy and toddlerhood. Younger preschoolers' understanding of concepts may continue to be limited due to their inability to think abstractly and their focus on the concrete appearance of things (Piaget, 1969). They may also

continue to view the world through their own perspectives due to egocentric thinking.

As preschoolers gain higher levels of cognitive functioning, they will move from the symbolic function substage to the intuitive thought substage. In the **intuitive thought substage** (4–7 years old), children begin to use intuitive thinking, which relies less on perceptions and aims to understand the world through reasoning and logic. In this substage, we will notice an increase in "why?" and "how come?" questions. These questions allow children to determine the cause of something and clarify their understanding. This understanding also helps preschoolers engage in higher levels of problem solving. A preschoolers' understanding of the world becomes more logical, but they may not be able to fully explain why something happens or why they think the way they do.

Children's cognitive functioning in the preoperational stage is marked by several important concepts that give insight into their thinking:

- Magical thinking: As noted in Chapter 5, toddlers engage in magical thinking when they believe that their actions or thoughts are connected to an unrelated event that happens to occur simultaneously. Magical thinking continues in the preschool years, although it may diminish as children gain understanding of logical principles. For example, as an older preschooler becomes aware of time, they may realize that it is impossible for Santa Claus to deliver gifts to all the children in the world in one night.
- Transductive reasoning: **Transductive reasoning** occurs when a child is unable to understand cause and effect logically, so they rely on their natural reasoning. This is similar to magical thinking. An example of this would be a child who is used to getting a phone call from their grandmother in the afternoon and then taking their nap afterward. One day, the grandmother calls in the morning, so the child thinks that it's now time for a nap. This type of reasoning is an important milestone in reaching higher levels of logic and understanding of cause and effect.
- Conservation: **Conservation** is the understanding that something can stay the same quantity even though its appearance may change. Children in the preoperational stage demonstrate errors in conservation. For example, a child may think that an 8 oz. (236.6 ml) cup of water poured into a larger cup contains more liquid, even though the amount of water is the same. Children experience **centration**, which is when they focus on only one aspect of an object (in this case, the larger cup size).
- Reversibility: Closely related to conservation and centration, **reversibility** refers to the ability to reverse a sequence of events. Children in the preoperational stage are not always able to see that an action can be undone. Using the previous example, a child may not understand that the water poured from the larger cup back into the 8 oz. (236.6 ml) cup is still the same amount of water.

Vygotsky's Sociocultural Theory

As mentioned in Chapter 5, Vygotsky believed that children build cognitive skills through their social interactions. Preschoolers are becoming more independent, but they still need their caregiver's guidance and support. Caregivers can continue to scaffold children's learning experiences and guide them toward more independence and confidence. These interactions not only increase how much a child learns, but also help them develop more complex mental functions. Vygotsky argued that a child could only develop these types of abilities through interactions with adults or knowledgeable older children.

During the preschool years, children develop a form of self-directed speech, or **private speech**, in which they engage in a dialogue with themselves to solve a problem or to think something through. This type of verbal thought coincides with gains in **language development**. Vygotsky believed that once thought and language merged within a child's development, they could use private speech to assist with their reasoning (Vygotsky, 1987). Children who are exposed to a variety of experiences and social settings will demonstrate increased use of private speech. Therefore, Vygotsky proposed that private speech is a product of a child's social environment. Children who do not have the same social opportunities may demonstrate delays in private speech development (Vygotsky, 1987).

Cognitive Milestones

Researchers have seen that preschoolers across the United States experience skill development during specific age ranges. It is important to note that each child develops at their own pace and that cognitive milestones will vary between families, communities, and cultures.

Figure 7.4 lists some typical cognitive milestones we expect children to reach between the ages of 3 years old and 6 years old.

Typical Age	What Most Children Do by This Age
3–4 years	• name a few colors of items • tell what comes next in a well-known story • draw a person with three or more body parts
4–5 years	• count to 10 • name some numbers between one and five when pointed to • use words about time, like "yesterday," "tomorrow," and "morning" • pay attention for 5 to 10 minutes during interactive activities • write some letters in their name • name some letters when you point to them
5–6 years	• show rapid development of mental skills • learn better ways to describe experiences and talk about thoughts and feelings • have less focus on themselves and more concern for others

Figure 7.4. Cognitive Milestones

Licenses and Attributions for Cognitive Development Theories and Milestones

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7.5 Language Development

The world of preschoolers is full of wonder, excitement, and lots of conversation. This era of childhood can be marked by the neverending question of "why?" Why do I have a belly button? Why do we eat food? Why does the sun go away at night? A child's vocabulary expands between age 2 and age 6 from about 200 words to over 10,000 words through a process called **fast-mapping**. Words are easily learned by making connections between new words and concepts already known. This can be explained by the rapid growth of the brain and connection between the two halves.

Culture and specific language factors continue to play a part in the way children learn and use language. The parts of speech that are learned depend on the language and what is emphasized. For example, children speaking verb-friendly languages, such as Chinese and Japanese, tend to learn nouns more readily. In contrast, those learning less verb-friendly languages such as English, seem to need assistance in grammar to master the use of verbs (Imai et al., 2008).

Children can repeat words and phrases after having heard them only once or twice, but they do not always understand the meaning of the words or phrases. This is especially true of expressions or figures of speech, which children tend to take literally. For example, if a classroom full of preschoolers hears the teacher say, "Wow! That was a piece of cake," the children are likely to respond, "Cake? Where is my cake? I want cake!"

Children learn the rules of grammar as they learn language, but they may apply these rules too generally. This process is known as **overregulation**. For instance, after learning to add "ed" to the end of a word to indicate past tense, a child may form a sentence such as "I goed there. I doed that." This is typical at ages two and three and is a sign of increasing intelligence. Children will soon learn new words, such as "went" and "did," to be used in those situations.

As proposed by Vygotsky's zone of proximal development, children can be assisted in learning language by others who listen attentively, model more accurate pronunciations, and encourage elaboration. For example, if a child exclaims, "I'm goed there!" an adult could respond, "You went there? Say, 'I went there.' Where did you go?" Children may be ripe for language, as Chomsky suggests, but active participation in helping them learn is also important for **language development**.

Multilingualism

Hearing two or more languages at home is commonplace around the world. It is estimated that around 67.8 million people speak a language other than English within the United States alone, and that this number is increasing, particularly in Spanish and Chinese speakers (Dietrich & Her-

nandez, 2022). Children who learn and speak in two or more languages experience distinct impacts on brain development, such as increased activity of executive functions, as compared to monolingual speakers (I-LABS, 2016). This increase in function can be explained by the child switching back and forth between languages, which requires them to pay close attention, ignore irrelevant information, and practice working memory (I-LABS, 2016; Gross et al., 2014).

In Chapter 4, we discussed that the ability to learn in multiple languages begins in the womb. Prenatal babies can distinguish distinct sounds and tones and are drawn to those that align with their mother's native language. Studies show that monolingual babies demonstrate decreased perception of sound at around 11 months of age, which means that they cannot discriminate foreign language sounds as easily as when they were younger (I-LABS, 2016). Children and adults are capable of learning other languages, but early exposure results in faster language acquisition, as well as the ability to sound like a native speaker.

It is important to note that speaking more than one language has social and cultural advantages as well. Being able to communicate with family members who can only speak one language is vital to strengthening family bonds and retaining cultural heritage. Also, being multilingual means that one can connect to a larger number of people, such as through travel or within the workplace. Unfortunately, there are many factors that can impact a child's ability to successfully learn and communicate in more than one language. Going back to Bronfenbrenner's systems theory, multilingual language development is subject to the larger forces in society, such as social attitudes, policies, and practices.

Global research demonstrates that a bilingual child's language and academic success are impacted by how the language is supported in school (**Winsler et al., 1999**). Despite the obvious benefits to multilingualism, bilingual education continues to be a controversial subject in the United States. Attitudes and beliefs around immigration and national identity may limit bilingual educational opportunities or add stress to families who seek to retain their native language (Rowe & Weisleder, 2020). A study of Spanish-speaking immigrant parents in the United States found that social influences and the political discourse around bilingual learning often undermined their efforts to retain the home language (**Surrain 2018**). Furthermore, children may avoid using their native language in favor of English (Hoff, 2018).

Race and ethnicity are additional factors that can impact multilingual learning. For example, White children who are English-speaking may be celebrated for learning a second language. They may have access to better quality bilingual education in their schools, as well as more support. Research by Flores and Rosa (2015) notes that racial and ethnic identity plays a role in how language abilities are evaluated. Immigrant children with similar or higher levels of bilingualism to White children may be viewed as a challenge within the educational system, while their White counterparts are viewed more favorably (Flores & Rosa, 2015).

CASE STUDY: GABRIELA

How do attitudes and beliefs around multilingualism impact a child's development?

Gabriela's family qualified for the local Head Start program, which meant that Gabriela started attending preschool just after she turned 4 years old. She has a difficult time separating from her mother and cries every day during drop-off. Gabriela's mother, Consuelo, also has a hard time with the transition. She recently started working as a housekeeper, cleaning homes with a friend while Gabriela attends school. Consuelo contemplates quitting her job so that she can continue to stay home with her daughter, but she and her husband also want to save money to buy a home of their own.

There is one teacher that Gabriela talks to, but she does not engage much with the lead teacher. She thinks the lead teacher is mean because she often yells at the kids or puts them in a time-out. The lead teacher has told Gabriela that she should speak English while at school. Gabriela knows many English words and phrases, but she prefers to speak in Spanish. Gabriela is very quiet during the school day, but she does play with a few of her classmates who are also Spanish speakers. She enjoys playing with magnets at the light table and recently started playing with others in the dramatic play area. She would much prefer being at home with her mother and aunt, helping them with household chores and running errands.

Language and Communication Milestones

Preschoolers are achieving major advancements in their ability to use language thanks to their growing cognitive skills and social interactions. They are becoming great conversationalists and can easily communicate with others during this time of their lives. Figure 7.5 shows common language milestones for children 3–6 years old. It is important to note that each child develops language skills in their own way and may not follow the progression outlined in the following table.

Typical Age	What Most Children Do by This Age
3 years	• talk with you in conversation using at least two back-and-forth exchanges • ask "who," "what," "where," or "why" questions, such as "Where is Mommy/Daddy?" • say what action is happening in a picture or book when asked, such as "running," "eating," or "playing" • say first name when asked • talk well enough for others to understand most of the time
4 years	• say sentences with four or more words • say some words from a song, story, or nursery rhyme • talk about at least one thing that happened during their day, such as "I played soccer." • answer simple questions, such as "What is a coat for?" or "What is a crayon for?"
5 years	• tell a story they heard or made up with at least two events, such as "A cat was stuck in a tree and a firefighter saved it." • answer simple questions about a book or story after you read or tell it to him • keep a conversation going with more than three back-and-forth exchanges • use or recognize simple rhymes (bat–cat, ball–tall)
6 years	• learn better ways to describe experiences and talk about thoughts and feelings

Figure 7.5. Language Milestones

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Figure 7.5. **Developmental Milestones** by the **CDC**, 2022 is in the public domain.

7.6 Physical Development in the Preschool Years

Play is the business of preschoolers. In order for them to become competent in playing and interacting with their environment, they must go through significant changes in their bodies and physical abilities. Preschooler bodies tend to be more proportioned and look more adult-like than baby-like. They are able to move their bodies in more sophisticated ways, and we see a marked improvement in the balance and coordination.

Let's take a look at what's happening in a preschooler's **physical development** by examining the growing body.

The Growing Body

Children's bodies are continuing to develop throughout the preschool years, but we may see things slow down a bit compared to the rate of growth during infancy and toddlerhood. One thing immediately noticeable is that children start the preschool years with all 20 of their teeth. Children will experience widening of the mouth and jaw to make room for permanent teeth (AAP, 2012). This will make a preschooler's facial features appear more distinct and mature.

A 3-year-old preschooler will still present with a large head compared to the rest of their body and will look more like a toddler than a preschooler. Their bodies eventually become more proportioned. Preschoolers start to lose their "baby fat" and start to gain more muscle (AAP, 2012). The typical growth for 3- to 6-year-olds includes gains of 4–5 lb. (113.4 to 141.8 g) per year, 2–3 in. (5.1–7.6 cm) in length per year, and 20/20 (or perfect vision) capabilities by 4 years old (MedlinePlus, 2023).

By now, most preschoolers have achieved control of their bladder and bowel muscles and are potty trained. It is common for preschoolers to have accidents, especially at night, as children practice staying dry for long periods of time. The American Academy of Pediatrics states that there are three common reasons why children will have accidents at night (AAP, 2021):

- Communication between the brain and bladder: If the bladder signals to the brain that it's filling up with urine, but the brain doesn't send a message back to the bladder to relax and hold the urine until morning, bedwetting will happen. Likewise, if the bladder signals to the brain that it's filling up with urine, but the brain doesn't hear the signals, which is especially common during deep sleep, bedwetting will happen.
- Stress or trauma: Children who have previously been dry at night may have bouts of bedwetting when they experience stress or traumatic events or when they get sick or constipated. This is a different problem than the child who has never been dry at night. Children with these short-term episodes of bedwetting usually have dry nights when the underlying problem resolves.
- Medical concerns: Rarely, some children begin to wet the bed as a result of a serious medical problem.

Preschoolers require adequate amounts of sleep to recharge their bodies each day. The CDC recommends that children ages 3–5 get 10–13 hours per 24 hours, including naps (CDC, 2022). When children get the proper amount of sleep, they are more alert, have improved cognitive functions, and are able to regulate themselves (Pacheco, 2023).

Preschoolers also require a healthy and balanced diet that includes fruits and vegetables, which provide young bodies with vitamins and minerals to support growth and immune function.

Children who do not get adequate nutrition may experience growth delays. Lack of nutrition and sleep can lead to long-term consequences if not addressed early.

Motor Development

The preschool years are notorious for motor skill refinement. Preschoolers are especially attracted to motion and song. Their days are filled with jumping, running, swinging, and clapping. They turn every space into a playground, which may mean climbing on a chair at the dining table or sliding underneath a booth at a restaurant. Of course, this can be frustrating to a caregiver, but it's the business of children at this stage.

Children generally continue to improve their gross motor skills during this time, including their abilities to jump, run, and kick a ball. Caregivers are frequently asked by children to "look at me," while they hop or roll down a hill. Children's songs are often accompanied by arm and leg movements or cues to turn around or move from left to right.

Figure 7.6. A preschooler is advancing in their gross motor skills and is able to climb up safely onto a play structure.

The gross motor milestone chart below (figure 7.7) shows the progression of gross motor skills that children will typically develop during the preschool years.

Typical Age	What Most Children Do by This Age
3 years	· climb well · run easily · pedal a tricycle · walk up and down stairs, one foot on each step
4 years	· hop and stand on one foot for up to 2 seconds · catch a bounced ball most of the time
5 years	· stand on one foot for 10 seconds or longer · hop; may be able to skip · can do a somersault · can use the toilet on their own · swing and climb

Figure 7.7. Gross Motor Milestones

There are many activities focused on play that young children enjoy and that support their gross motor skill development, including:

- tricycles
- slides
- swings
- sit-n-spin
- mini trampolines
- bowling pins (can use plastic soda bottles also)
- tents (throwing blankets over chairs and other furniture to make a fort)
- playground ladders
- suspension bridges on playgrounds
- tunnels (try throwing a bean bag chair underneath for a greater challenge)
- ball play (kick, throw, and catch)
- Simon Says
- target games with bean bags and balls
- music
- scooters or skateboards

Fine motor skills are also being refined as children continue to develop more dexterity, strength, and endurance. Fine motor skills are very important as they are foundational to self-help skills, such as tying a shoelace, and later academic abilities, such as writing.

Figure 7.8 shows how fine motor skills progress during early childhood for children who are developing typically.

Typical Age	What Most Children Do by This Age
3 years	• copy a circle with pencil or crayon • turn book pages one at a time • build towers of more than six blocks • screw and unscrew jar lids or turn door handles
4 years	• pour, cut with supervision, and mash own food • draw a person with two to four body parts • use scissors • start to copy some capital letters
5 years	• can draw a person with at least six body parts • can print some letters or numbers • copy a triangle and other geometric shapes • use a fork and spoon and sometimes a table knife

Figure 7.8. Fine Motor Milestones

Here are some fun activities that will help children continue to refine their fine motor abilities. Fine motor skills are slower to develop than gross motor skills, so it is important to have age-appropriate expectations and play-based activities for children, such as:

- pouring water into a container
- drawing and coloring (figure 7.9)
- using scissors
- finger painting
- fingerplays and songs (such as the "Itsy Bitsy Spider")
- using play dough
- lacing and beading
- practicing with large tweezers, tongs, and eye droppers

The development of visual pathways is represented in changes in children's drawings. As the brain of a child matures, the images in their drawings become more detailed as they expand their ability to visualize in their head what they are creating on paper. For example, children initially practice simple motor skills by drawing scribbles and dots, without connecting the image being visualized to the scribbles created on the paper (figure 7.9, left). By about age 3, the child begins to draw creatures with heads but not many other details (figure 7.9, middle). Gradually, pictures begin to have more details, such as arms and faces with a nose, lips, and eventually eyelashes (figure 7.9, right).

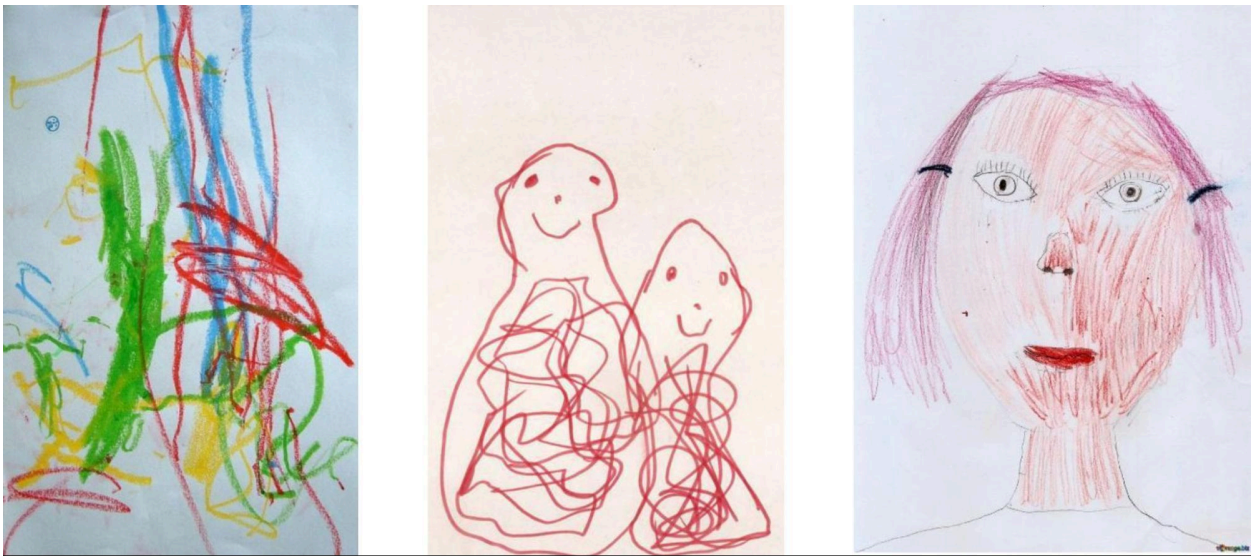

Figure 7.9. Early scribbles (left); creatures with heads (middle); a detailed face (right).

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7.7 Sexual Development

During the preschool years, children are aware of their own bodies and also become curious about other people's bodies. They are keenly aware of physical differences between themselves and the people around them. By now, we expect that children can label body parts, including sexual organs, by their appropriate names. They may also start to use other terms based on peer interactions.

Body Awareness and Exploration

Preschoolers are aware of their physical bodies and their sex organs. They may engage in many typical behaviors, such looking at their naked bodies or touching their genitals. Sexual behavior in this stage of development is sensory and based on curiosity. Preschoolers do not have a concept of erotic pleasure, but they do understand that certain parts of the body produce pleasurable sen-

sations when touched. Some children will touch themselves to self-soothe.

Preschool children may explore their bodies in private, but some will touch themselves in public places. If a caregiver notices this behavior, they can gently educate the child about appropriate and inappropriate body exploration.

The American Academy of Pediatrics lists several common sexual behaviors for preschoolers (AAP, 2023). These include:

- touching/rubbing genitals in public or private
- looking at or touching a peer's or sibling's genitals
- showing genitals to peers
- standing or sitting too close to someone
- trying to see peers or adults naked

Body Safety and Consent

As mentioned in Chapter 5, infants and toddlers should learn about basic body safety and be encouraged to express consent about their bodies being touched. This education should continue in the preschool years and can include more explicit information about personal safety, such as discussions about sexual abuse and inappropriate touch. Children can be taught about privacy and learn that their bodies are private and that no one has the right to touch them. They can also be taught about the social boundaries involving their bodies, such as not allowing other children to touch them in their private areas.

It is important to teach children about consent and encourage them to speak up when someone violates their personal boundaries or body. They should not be forced to hug, kiss, or touch anyone that they do not want to. Similarly, preschool children should be allowed to have privacy when changing their clothes or bathing (if developmentally appropriate). Children should be taught to report situations that feel uncomfortable or when someone violates their body space.

Figure 7.10 shows the American Academy of Pediatrics guidelines for common and uncommon sexual behavior for 2- to 6-year-olds.

Common normal behaviors	Less common normal behaviors	Uncommon normal behaviors in children	Rarely normal
Touching/ masturbating genitals in public or private	Rubbing body against others	Asking a peer or adult to engage in specific sexual act(s)	Engaging in any sexual behaviors involving children who are 4 or more years apart
Viewing or touching peer's or a new sibling's genitals	Trying to insert tongue in mouth while kissing	Inserting objects into genitals	Displaying a variety of sexual behaviors on a daily basis
Showing genitals to peers	Touching a peer's or an adult's genitals	Engaging in explicit imitation of sexual intercourse	Engaging in sexual behavior that results in emotional distress or physical pain
Standing/sitting too close	Mimicking the movements associated with sexual acts crudely	Touching animal genitals	Performing sexual behaviors associated with other physically aggressive behaviors
Trying to view peers or adults nude	Engaging in sexual behaviors that are occasional but persistent and disruptive to others	Engaging in sexual behaviors that are frequently disruptive to others	Engaging in sexual behaviors that involve coercion
Performing behaviors that are transient, not very frequent, and can be easily diverted	Performing behaviors that are transient and moderately responsive to distraction	Performing behaviors that persist and are resistant to parental distraction	Performing behaviors that are persistent and resistant to the point that the child becomes angry if distracted

Figure 7.10. Examples of Common and Uncommon Sexual Behaviors in Children Aged 2 Through 6 Years

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Figure 7.10. American Academy of Pediatrics, 2023.

7.8 Health and Wellness

We have discussed in the previous chapters the importance of the home and neighborhood environment for thriving development. In this section, we will discuss many health and wellness topics for the first time, such as autism and ADHD. We will also continue our conversation about other topics, such as sleep quality and nutrition access, that impact **cognitive development** in the preschool years. Let's start our conversation with factors found within the home environment and

proceed to those that are influenced at both home and neighborhood environments.

Screen Time

Our world is surrounded by screens. Some children have an extensive exposure to screens at home, school, and many other places. Screens are easy to access, and parents are using them more and more for both activities and entertainment. But are screens good or bad for children? Research thus far shows that the use of screens can be beneficial to children in some instances, such as using them for educational purposes (Radeskey et al., 2015). However, the prolonged use of screens has also been linked to many negative developmental health outcomes, including behavior problems (Tamana et al., 2019), speech delays (van den Heuvel et al., 2019), lower executive functioning (Kostyrka-Allchorne et al., 2017), and academic problems (Adelantado-Renau et al., 2019).

It seems that both the negative and positive effects of screen use depend on the age of exposure, the purpose of usage, and the duration of use (Kerai et al., 2022). Evidence-based guidelines recommend limiting the use of screen time to 1 or 2 hours daily for children under 5 years of age. Screen time includes the use of television, smart phones, tablets, computers, and video game consoles. Kerai and colleagues (2022) found that children that used screen time for more than 1 hour daily were more likely to be at risk in all five developmental domains, including language and cognitive development and communication skills.

Sleep

Adequate sleep is crucial for thriving development as it is a building block of multiple developmental domains. Sleep has a direct impact on alertness and attention, cognitive performance, vocabulary development, and learning and memory, especially in early childhood (Zhou et al., 2015). The American Academy of Pediatrics estimates that about 25 percent of children are impacted by sleep problems (Mindell & Owens, 2015). So, what happens when a child does not get enough sleep? If you ask a parent, they will tell you that if their child does not get adequate sleep, they might be grumpy, unfocused, or hyperactive. Evidence-based recommendations by the American Academy of Pediatrics include 11 to 14 hours for 1- to 2-year-olds, and 10 to 13 hours for 3- to 5-year-olds.

As we just learned, both sleep and screen time impact cognitive and **language development** in early childhood. Screen time, especially right before bedtime, affects sleep quality and quantity. The use of screens before bedtime can impact alertness, therefore preventing children from being able to relax during bedtime. Additionally, nighttime screen use impacts children's ability to fall asleep, increases wakings and nightmares during the night, and causes sleepiness during the day. Garrison et al. (2010) found that children between ages 3 and 5 had trouble sleeping when they had screen time after 7 p.m. Furthermore, the results showed that the amount of violent content in the program or game also appeared to be a contributing factor.

Nutrition

We discussed previously the importance of adequate nutrition for thriving cognitive and language development. Healthy brain development requires a well-balanced diet including proteins, fats, carbohydrates, vitamins, minerals, and water to maintain proper functioning. Many micronutrients, including iron, zinc, choline, iodine, folate, and B12, have been identified to play a special role in cognitive development (Bourre, 2006). Unfortunately, it is estimated that almost 11 percent of

children age 5 and under experience food insecurity (Ullman et al., 2022). Lack of access to foods, especially healthy ones, can have a profound impact on cognitive, language, and **physical development**. Interventions targeting food insecurity are fundamental to the developing child.

Mental Health

In this section, we will discuss several common mental health issues that may emerge in the preschool period. All these conditions can have an effect on cognitive and/or language development. For example, attention-deficit/hyperactivity disorder (ADHD) is linked to impaired cognitive development in early childhood (Coghill et al., 2014), and autism spectrum disorder (ASD) is associated with difficulty developing language skills (NIH, 2020).

Attention-Deficit/Hyperactivity Disorder

According to the Centers for Disease Control and Prevention (CDC), ADHD is one of the most common neurodevelopmental disorders in early childhood. However, thriving preschoolers are full of energy and can appear rumbustious, inattentive, and hyperactive at times. Therefore, the line between typical developmental changes and symptoms of ADHD is blurry. This makes ADHD difficult to diagnose. Nonetheless, children with ADHD might experience trouble paying attention and with impulsivity (acting without thinking of consequences), and they might be overly active (CDC, 2022). Let's discuss common signs and symptoms of ADHD.

First, keep in mind that it is typical of thriving preschoolers to have trouble focusing and behaving at times. Children are constantly learning, evolving, and developing. However, children with ADHD do not grow out of these behaviors. Instead, the symptoms continue and can cause difficulties at home, school, and with relationships. A child with ADHD might daydream a lot, forget or lose things often, squirm or fidget, have difficulty getting along with others, and have trouble resisting temptation (CDC, 2022).

There are three different types of ADHD. However, symptoms and the presentation may change over time. The following is a brief discussion of each type of ADHD:

- Predominantly inattentive presentation: Children with this type of ADHD have difficulty organizing and finishing tasks, paying attention to details, or following instructions and conversations. They may also have difficulty following daily routines and remembering details.
- Predominantly hyperactive-impulsive presentation: Children with this type of ADHD fidget and talk a lot. It is difficult for them to sit still for long, and younger children may jump, run, climb, and move their extremities constantly. Restlessness and impulsivity may be common, and a child with impulsivity might get injured or have more accidents than others (CDC, 2022).
- Combined presentation: Children with this type of ADHD exhibit symptoms of the other two types equally.

Although scientists are actively researching the cause(s), risk factors, and better ways to treat, manage, and prevent ADHD, the cause(s) and risk factors are still unknown. Current research shows that genetics may play a role (Faraone et al., 2021). However, researchers are also studying the potential effects of brain injury, environmental exposure during pregnancy or at a young age, substance use during pregnancy, premature delivery, and low birthweight, among other possible causes (CDC, 2022).

Research does not support popular and somewhat controversial views that ADHD is caused by high sugar consumption, too much screen time, parenting, or certain social and environmental factors, such as poverty or family dynamics (CDC, 2022). Many factors, like the ones already mentioned, can worsen symptoms, especially in certain children. However, the evidence is not strong enough to determine that these are the main causes of ADHD (CDC, 2022).

Autism Spectrum Disorder

Autism spectrum disorder (ASD) is a developmental disability caused by brain differences that can cause major social, communication, and behavioral challenges (NIH, 2020). Children with autism present a wide range of symptoms, skills, and level of impairments. The use of the term "spectrum" refers to this wide range among people with autism.

Children with ASD may experience various levels of difficulty with language development and comprehension. Additionally, they may experience difficulty with nonverbal communication, such as body language, eye contact, and facial expressions (NIH, 2020). Some examples of signs and symptoms related to ASD include avoiding and/or not maintaining eye contact; not displaying emotions, such as happy, sad, angry, or surprise, in their facial expressions; ignoring other children; and not singing, dancing, or acting out scenarios (CDC, 2022).

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7.9 Conclusion

Preschool-aged children will see significant changes in their cognitive and language skills. Their vocabulary increases tremendously, and they are able to understand the world in a more comprehensive way. They also experience changes within their bodies as they build muscle and grow taller. Preschoolers can move with more coordination as they learn new skills. Changes within the brain and increasing experiences in the world allow children to learn about morality and to develop empathy for others.

Children will continue to need guidance and strong relationships with their caregivers to navigate the many challenges that can occur during this period of their lives. Even as they gain more independence, children rely on adult modeling and teaching to learn important skills and behaviors. Trusting and positive relationships will prepare preschoolers for development in other domains. Next, we will learn how preschool children develop social skills, emotional skills, and adaptive behaviors, and how they form a more secure sense of their identity.

Review of Learning Objectives

1. Identify the milestones of preschooler cognitive and **language development**.
2. Explain diverse approaches to and cultural influences in development and parenting.
3. Discuss the impact of caregivers and environmental influences on cognitive and language development.

Review of Key Terms

- **Centration**: the act of focusing on only one aspect of an object
- **Conservation**: the understanding that something can stay the same quantity even though its appearance may change
- **Executive functions**: processes in the prefrontal cortex that include working memory, attention, problem solving, and impulse control
- **Fast-mapping**: the process by which words are easily learned by making connections between new words and learned concepts
- **Intuitive thought substage**: a substage in Piaget's theory of cognitive development where children begin to use intuitive thinking
- **Long-term memory**: the third stage of the memory system comprised of declarative and nondeclarative memories; also known as permanent memory
- **Overregulation**: the process by which children apply language rules too generally, resulting in grammar errors
- **Prefrontal cortex**: an area of the brain responsible for decision making, problem solving, and emotional regulation
- **Private speech**: a form of self-directed speech in which a child dialogues with themselves to solve a problem or to think something through
- **Reversibility**: the ability to reverse a sequence of events
- **Self-regulation skills**: strategies that are used to manage thoughts, behaviors, and feelings
- **Sensory memory**: the first stage of the memory system in which sensory information is stored in its raw form for a very brief duration
- **Short-term memory**: the second stage of the memory system in which conscious effort and adequate attention is needed to function effectively; also known as working memory
- **Transductive reasoning**: a form of reasoning that occurs when a child is unable to understand cause and effect logically, so they rely on their natural reasoning

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CHAPTER

8

Social, Emotional, Adaptive, and Identity Development in Preschoolers

8.1 Chapter Overview and Learning Objectives

There are many exciting changes happening within a preschooler's development. Most notably, children start to form important social skills and have increased capacity for managing their own emotions. Social and emotional skills are important throughout life because they help children regulate themselves, understand others, and assist in forming positive relationships. Preschoolers are also learning important life skills during this time. They are becoming increasingly independent and are capable of many adaptive skills, such as using the bathroom independently and dressing themselves.

Caregivers continue to play an important role in a child's daily life. Preschoolers benefit from nurturing relationships that are supportive but also allow them to work through learning on their own. During the preschool years, we will notice that children who have experienced significant stress, trauma, or delays in their development as infants and toddlers will experience even further difficulties during this stage. Children who experience barriers in their development can "exhibit social and emotional difficulties and tend to have trouble following directions and participating in learning activities" (Ho & Funk, 2018).

In this chapter, we will discuss typical social, emotional, adaptive, and identity milestones in the preschool years. We will also address the diverse cultural and social variables that impact children during this stage of development.

Learning Objectives

After reading this chapter, you will be able to do the following:

1. Identify the milestones of preschoolers' **social and emotional development**.
2. Explore the development of adaptive skills and identity formation.
3. Describe the role of play in relation to developmental importance.
4. Analyze the impact of caregivers and environmental influences on social, emotional, adaptive, and identity development.

Key Terms

Throughout this chapter, you will be introduced to important key terms that will help deepen your understanding of preschooler development:

- **Child abuse**: the physical, sexual, or emotional mistreatment or neglect of a child or children.
- **Emotional abuse**: a pattern of behavior in which a caregiver insults, humiliates, instills fear in, or controls another person.
- **Initiative versus guilt**: the third stage of Erikson's theory of psychosocial development, in which a child establishes taking initiative and has a sense of power over what happens to them.
- **Neglect**: a form of abuse in which a caregiver fails to provide adequate care for someone they are responsible for.
- **Personality**: an individual's consistent pattern of feeling, thinking, and behaving.
- **Physical abuse:** a form of abuse that involves physical aggression directed at another person.
- **Protective factors**: circumstances or traits that help a child cope with stressful events.
- **Self-esteem**: an evaluative judgment about who we are.
- **Sexual abuse**: a form of abuse in which a person abuses another for sexual stimulation.
- **Social competence**: the ability to get along with others.

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8.2 Social and Emotional Development

The preschool years are a time of curiosity, understanding, and intense play. Maturation of the brain allows preschoolers to learn important social skills and use symbolic thought in their interactions. Advances in executive functions mean that preschoolers can regulate their emotions more efficiently than in toddlerhood, and they can now better interpret the emotions expressed by others. Three- to six-year-olds have an increased capacity for empathy. They are also able to understand that others have different perspectives than they do.

This skill helps them connect with others and form positive relationships.

By now, caregivers have provided a foundation for a child's sense of trust and safety. Caregivers who were nurturing to their children in infancy and toddlerhood have provided a model for how to develop quality social relationships with others. Children who experience disruption of this foundation will demonstrate delays or dysfunction in their **social and emotional development**. As we learned in the previous chapters, there are a variety of biological, social, and environmental factors that can negatively impact children.

Adverse childhood experiences, or events that cause trauma and toxic stress, can shift a child's developmental trajectory (Malik & Marwaha, 2022). These effects are further compounded if a child experiences stress early in their development and if it continues through the preschool age. For example, studies suggest that babies who are exposed to maternal stress in the womb will have impacted stress responsiveness later in their development (Shonkoff & Garner, 2012). Many children can overcome the impact of trauma or toxic stress if they have nurturing and supportive caregivers by their side (Luby et al., 2016).

An important milestone in preschool development is the emergence of a distinct personality. **Personality** is an individual's consistent pattern of feeling, thinking, and behaving, and it is influenced by many factors. People tend to retain the same traits or aspects of their personality throughout their lives, although these traits become refined over time (Thompson, 2023). Children form their personality as a result of the many factors they encounter throughout their development, such as biological disposition, social experiences, and environmental opportunities (Thompson, 2023).

Play continues to be an important vehicle for social and emotional development. Preschoolers enthusiastically play in and explore their environments. This is why the preschool years are often known as the playful years. The cognitive, language, and motor skills children are learning become the basis for imaginative and cooperative play. They are able to think about complex scenarios, communicate well with others to achieve a goal, and use their bodies to act out their thoughts. Through play and social interactions, preschoolers enhance their problem solving skills, learn to increase their memory and attention spans, and discover a new sense of self. Most preschoolers have not entered formal schooling during this stage of their lives, but the social and emotional skills they develop during these 3 years are foundational to future learning and interactions.

In the next few sections, we will explore the various areas of social and emotional development which include:

- attachment and bonding
- temperament and personality development
- emotional development and self-regulation
- play and social competence

Let's begin by looking into the foundations of social and emotional development by exploring attachment and bonding in the preschool years.

Attachment and Bonding

Thus far, we have discussed the importance of healthy attachment and bonding in infancy and toddlerhood. Although preschool-aged children are increasingly independent, caregivers should continue to make meaningful connections with their child. Karen Stephens, former director of the Illinois State University Child Care Center, writes about the importance of bonding in the preschool years. Bonding that is nurtured from infancy through the preschool years will lead to maximum benefits for the child.

> These include an optimistic attitude toward life and greater resilience to stress

or trauma. Refined brain development and learning pathways expand, too. Preschoolers' trust in adults, self-confidence, and even the immune system gets a boost from strong emotional attachments (Stephens, 2007).

A lack of healthy attachments can impact the long-term health of children. For example, a study shows that when children do not form secure attachments with their caregivers, "there is increasing evidence…that neglect, parental inconsistency and a lack of love can lead to long-term mental health problems as well as to reduced overall potential and happiness" (Winston & Chicot, 2016).

Trauma and adverse experiences can impact a preschooler's bond to their primary caregivers and disrupt development. Young children are affected by any event that threatens their safety and well-being or the safety and well-being of their caregivers (NCTSN, n.d.). For example, a child will experience a trauma response if exposed to domestic violence, even when the abuse is not specifically directed toward them. Preschooler brains are still developing, and they may have difficulty logically analyzing traumatic events. A child may blame themselves for violence in the home or develop fears that can impact their development.

Preschoolers experience profound brain growth during this stage of development, but this also means that they are more vulnerable to the effects of trauma. Trauma exposure can reduce the size of the brain cortex, which is responsible for a variety of functions such as thinking, communicating, memory, attention, and emotional regulation (NCTSN, n.d.). If the trauma the child experienced also impacted the caregiver, the relationship between them can be strongly affected. The parent may not be able to regulate their own stress or communicate effectively with their child. In some cases, the parents may not be able to protect their child emotionally and physically.

Caregivers can help a child cope with traumatic experiences, provided that the child has formed a strong bond with them (Luby et al., 2016). Healthy attachments between a child and their caregivers serve as an important protective factor that can shield a child from harmful experiences. **Protective factors**, or circumstances and traits such as familial support, access to resources, and individual strengths, can help a child manage stressful events more effectively.

Figure 8.1. A mother with a healthy attachment to her child comforts him in a time of distress.

Emotional Development and Self-Regulation

One of the skills preschoolers develop during this stage is the ability to control their own emotions. They can also interpret the emotions of others, yet they may be limited in understanding abstract emotions, such as greed or gratitude. Self-regulation during the preschool years refers to children's ability to manage and control their emotions, behavior, and impulses. It involves developing skills to regulate their attention, emotions, and actions so they can adapt to different situations and interact effectively with others. Here are some key points about self-regulation in the preschool years:

- Emotional regulation: Preschoolers are learning to identify and regulate their emotions. They are developing strategies to cope with different feelings, such as anger, frustration, and sadness. Through guidance and support from adults, they learn to express and manage their emotions in socially acceptable ways.
- Impulse control: Preschoolers are working on controlling their impulses and delaying gratification. They are learning to think before acting and resisting the urge to engage in impulsive or inappropriate behaviors. Developing self-control allows them to make better decisions and consider the consequences of their actions.
- Attention regulation: Preschoolers are gradually improving their ability to focus and sustain attention on tasks. They are learning to filter out distractions and concentrate on activities for longer periods of time. This skill is important for academic readiness, as it enables them to engage in structured learning activities and follow instructions.
- Stress management: Preschoolers are exposed to various stressors, both at home and in the wider world. Self-regulation skills help them cope with stress and anxiety. They learn to use calming strategies, such as deep breathing, positive self-talk, and seeking support from trusted adults.
- Problem-solving skills: Self-regulation involves the ability to approach problems and conflicts in a calm and thoughtful manner. Preschoolers learn to assess situations, generate solutions, and make decisions based on their understanding of the consequences. These problem-solving skills contribute to their social development and conflict resolution abilities.
- Self-care routines: Preschoolers start developing independence in self-care routines, such as dressing, feeding themselves, and toileting. Through practicing these routines, they gain a sense of control over their bodies and actions, enhancing their self-regulation skills.
- Scaffolded support: Preschoolers rely on adults for guidance and support in developing self-regulation skills. Adults can provide consistent routines, clear expectations, and appropriate boundaries to help children understand and manage their behavior. By modeling self-regulation themselves, adults play a vital role in supporting preschoolers' development in this area.
- Play and social interaction: Play and social interactions provide opportunities for preschoolers to practice self-regulation skills. Engaging in pretend play, taking turns, sharing toys, and cooperating with others requires self-control and regulation of emotions.

Developing self-regulation skills is a gradual process that continues throughout childhood. By fostering a supportive and nurturing environment, providing consistent guidance, and promoting opportunities for practice, parents, caregivers, and educators can support preschoolers in developing effective self-regulation abilities that will benefit them in various aspects of their lives.

Figure 8.2. A father spends quality time with his preschool child outside.

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Figure 8.1. Photo by Jordan Whitt on Unsplash.

Figure 8.2. Photo by Precious Plastic Melbourne on Unsplash.

8.3 Play and Social Competence

If you have ever been around a preschooler for a length of time, you know that they take play very seriously. Why is the drive to play so strong? Is play simply a recreational activity or something more? Jack Schonkoff, the director of the Center on the Developing Child at Harvard University, states that play "is not taking a break from learning. Play is one of the most important ways in which children learn" (DeRuy, 2016). Research supports the idea that play is something hardwired in children across all cultures and time periods. We know that play helps the brain develop and contributes to lifelong health and resilience (Center on the Developing Child, n.d.).

Cognitive shifts and expansive imaginations allow children to engage in more advanced levels of play during the preschool years. They may continue to engage in solitary or constructive play, but thinking up complex scenarios or playing games with others commonly occupy children's time. Preschoolers become more interested in connecting with other children than before (Urban Child Institute, n.d.). They may develop their first true friendships during this stage, and these friendships become very important to them (APA, 2017). Play is the perfect tool for creating and maintaining friendships.

Preschool-aged children are becoming more aware of the social world around them. This increasing knowledge about the world helps them build social competence and understanding. **Social competence** refers to a person's ability to

get along with others. This process is rather complex and involves many skills and abilities. For example, preschool children must be able to understand social expectations, rules, and norms and follow them in an age appropriate way. They should also understand the perspectives and needs of others (empathy) and be able to use social skills effectively, such as maintaining eye contact or a conversation.

Children must be able to regulate their own emotions in social interactions, which involves balancing their own wants and needs in relation to others. Social understanding begins early in infancy when infants can "read" their caregiver's facial cues (social referencing). Preschoolers are more keenly aware of how people's emotions, words, and behaviors connect (Thompson, 2023). They carefully interpret what they see and hear within their social environment and learn how to interact with peers and adults.

It is important to consider how health issues or disabilities may impact a child's ability to engage in play activities or build social competence in the preschool years. Health issues like asthma may make it difficult for a child to participate in active sports like basketball or soccer. A lack of inclusive tools, toys, or play spaces may prevent a child with a physical disability from playing and interacting with their peers (Besio, 2022). Lack of access to caregivers or support staff may impede a child with a social or emotional disability from interacting meaningfully with their peers (Besio, 2022). Adults can ensure that all children have access to play and peer interactions in whatever forms work best for the child.

CASE STUDY: ANTHONY

How might health issues and disabilities impact a child's **social and emotional development**?

Anthony is now 4 years old. He continues to struggle with issues related to his premature birth, including asthma, but he is growing steadily. He regularly sees his pediatrician and enjoys visits to the dentist. He is currently enrolled in a local preschool and loves his teachers and classmates. Anthony's parents make too much money to qualify for low-cost preschool but they were able to find a private school which fit their goals for Anthony's learning.

Anthony loves his school and enjoys playing outside on the playground. Unfortunately, his asthma can make it difficult for him to keep up with the other kids. He longs to play soccer with some of the boys in class, but asthma attacks sometimes force him out of the game, which makes him sad. Anthony often plays with blocks or LEGOs by himself, or he visits the book area. One of his favorite things to do is read. He is starting to read some simple words and makes up his own stories. His parents read to him daily, and he has his own mini-library in his room. Anthony spends a lot of time with his parents. He is an only child and therefore has limited peer interactions at home.

Play Theories and Frameworks

Preschoolers will continue to build up on the play skills learned in infancy and toddlerhood. They can move through various types of play, but their increased cognitive, language, and social skills often lead to them spending more time in symbolic, constructive, or cooperative play.

Parten's Classification of Play

We are revisiting Mildred Parten's classification of play from Chapter 6 in the preschool years because each of the categories still applies to the way 3-to 6-year-olds interact with their environments and peers. In figure 8.1, you will see the classification of play and some typical behaviors associated with each category.

Category	Description
Unoccupied play	This type of play is typically not seen in the preschool years.
Solitary play	Children play alone without interacting with others. The goal of this play is to explore objects and the environment. For example, a child may explore a basket of blocks or books.
Onlooker play	Children watch others play. They may simply observe, or they may briefly engage with the other children playing, but they do not directly join the play or game. This type of play helps them learn from others.
Parallel play	Children play alongside others. The children will be in the same activity area or use the same toys, but do not directly play with each other. They may mimic each other's actions or words. This type of play allows children to practice and learn skills.
Associative play	Children will interact with others, but are still focused on their own interests and goals. They may share materials and converse with others. For example, two children play in the sandbox and share sand toys. They talk to each other about what they are doing, but they build their own sand structures.
Cooperative play	This type of play is the most complex and collaborative. Children will work together toward a common goal. This type of play requires many social and communication skills. For example, a group of children may work together to build a structure with blocks. Some children stack the blocks, while others collect and organize the blocks.

Figure 8.3. Parten's Classification of Play for Preschoolers

Piaget's Stages of Play

While Piaget believed that children progress through the stages of play as they gain cognitive skills, he also recognized that the different stages of play can be enjoyed by children throughout their childhood, not just at specific ages (**Lumen Learning [Website], n.d.**). Figure 8.4 revisits Piaget's stages of play from Chapter 6.

Type of Play	Description
Functional play	In this type of play, children use their bodies and senses, focusing on motor movements. They may play with objects or games without rules. Examples include climbing or running.
Constructive play	This type of play involves children using objects purposefully and with a goal. They may build a house with LEGOs or use markers to draw figures.
Symbolic or fantasy play	This type of play involves symbolic thought, imagination, and pretending. Children will use objects to represent other things. Play can include role-playing or fantasy scenarios. Examples include using a stick as a sword or pretending to be a flying dragon.
Games with rules play	This level of play involves children playing games with rules that guide the activity. Rules can be part of an established game, or children can make rules up. This type of play requires children to use logic and memory. Examples include tag, board games, or the floor is lava.

Figure 8.4. Piaget's Stages of Play

Play as Sensory Learning

Maria Montessori, an Italian educator during the early 1900s, postulated that "play is the child's work." According to the Montessori method, which is still employed today in private schools, children are best served by spending their playtime learning or imagining. Montessori play is sensory, using a hands-on approach to everyday items, such as leaves or rice. The child sets their own pace, and the teacher is collaborative in helping the child play to learn.

Play in the Reggio Emilia Approach

The Reggio Emilia approach does not separate the ideas of learning and play. Rather, it sees them as integral in the growth and development of young children. Reggio Emilia believes that children have a hundred different ways of thinking, learning, and discovering, and play is the perfect vehicle for exploring their environment and gaining knowledge. Whether through dance, painting, singing, pretend play, or jumping around outside, kids are learning. If you have ever watched preschoolers play, you know that they are incredibly creative and imaginative. They can turn sticks, rocks, paper, or really anything into a toy or game. It is important to let kids play, because that is how they learn.

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Figure 8.4. Piaget's Stages of Play by Christina Belli is licensed under CC BY 4.0.

8.4 Social Emotional Theories and Milestones

Preschoolers are developing many social and emotional skills from 3 to 6 years old. The interactions they have with others influence the way in which skills are learned. Next, we will look at two different theories that have been used to explain **social and emotional development** in children.

Erikson's Theory of Psychosocial Development

Researcher Erik Erikson believed that children learn through their social interactions. In preschool, children will experience unique "conflicts" that will help them develop. The first two stages of Erikson's theory were covered in the previous unit. We will now focus on stage 3 of his theory.

Stage 3: Initiative versus Guilt (3 to 5 years old)

The third stage of Erikson's Theory of Psychosocial Development is **initiative versus guilt** (Erikson, 1982). In this stage, children are eager to try new things, learn new skills, and engage with peers. This desire to take initiative occurs when children successfully achieve trust and autonomy in stages 1 and 2. Children learn that they have power over what happens to them and can influence the world they live in.

Preschoolers who live in supportive environments with nurturing caregivers have no trouble initiating activities or exploring their worlds independently. They may want to pretend that they are in school with their friends, or they may work together to build a sand castle (figure 8.5). Children may also want to take over self-care tasks, such as dressing themselves without the help of an adult. Caregivers can support a preschool child's sense of initiative by giving them space to try new things and by avoiding being critical of any mistakes (or messes) that arise from this independence. Encouragement is key for optimal development.

Unfortunately, some children do not live in supportive environments. They may experience criticism by their caregivers or be overly controlled by the adults around them. These barriers can result in children being hesitant to try new things or feeling guilt or shame if they try a task and fail. This inhibits their natural sense of purpose and curiosity. Guilt is a common feeling experienced by children, but it should not overwhelm their need for initiative. Success in this stage will lead to the virtue of "purpose" which contributes to a healthy relationship between the self and the external world (Orenstein & Lewis, 2022).

Figure 8.5. Preschoolers who independently explore the world around them most likely live in supportive environments where initiative is used rather than guilt.

Social Learning Theory

Have you ever heard the phrase "monkey see, monkey do"? If so, you are familiar with Albert Bandura's social learning theory. As mentioned in Chapter 6, infants and toddlers spend much of their time learning about their environment and observing others, mainly their caregivers. Preschool children continue to use observational learning, but they are now exposed to several models of behavior, such as caregivers, friends, and relatives, teachers or child care providers, and characters on television or other media (Health Research Funding, n.d.).

Social learning theory helps us understand some of the typical behaviors that we see during the preschool years, such as when children mimic the behaviors of those aligned with their own gender. We may also notice some atypical behaviors as children "try" new things as a result of imitation or modeling (Health Research Funding, n.d.).

Social and Emotional Milestones

A child's expanded understanding of themselves and others develops with age. Many factors contribute to the way in which children develop social and emotional skills. Below is a list of the most common social and emotional milestones typically displayed during the preschool years. It is important to remember that each child is unique and may develop these skills at different rates than outlined below in figure 8.6.

Typical Age	What Most Children Do by This Age
3–4 years	• pretend to be something else during play (teacher, superhero, dog) • ask to go play with children if none are around, for example, "Can I play with Alex?" • comfort others who are hurt or sad, such as by hugging a crying friend • avoid danger, such as by not jumping from tall heights at the playground • like to be a "helper" • change behavior based on where they are (place of worship, library, playground)
4–5 years	• follow rules or take turns when playing games with other children • sings, dance, or act for you • do simple chores at home, like matching socks or clearing the table after eating
5–6 years	• show more independence from parents and family • start to think about the future • understand more about their place in the world • pay more attention to friendships and teamwork • want to be liked and accepted by friends

Figure 8.6. Social and Emotional Milestones

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Figure 8.5. **Image** by **Steve Hillebrand** is in the **Public Domain**.

Figure 8.6. Developmental Milestones by the **CDC** is in the **Public Domain**.

8.5 Adaptive Skill Development

Adaptive skill development becomes more advanced during the preschool years. In Chapter 6, we learned that adaptive skills in infancy and toddlerhood are focused on feeding, toileting, and self-help skills. In the preschool years, these skills become much more advanced. Preschoolers not only crave independence, they are also very capable of pursuing it thanks to their strong cognitive, physical, and social emotional abilities. As with all skills mentioned, some children may achieve mastery of adaptive skills faster than others. This is completely normal.

Adaptive skills for 3- to 6-year-olds rely on abilities from all of the major developmental domains.

In order for a preschooler to be independent, they must have age-appropriate fine and gross motor skills, emotional regulation, communication skills, as well as the ability to listen and understand. Children require time and care to be able to develop adaptive skills in the preschool years. Caregivers continue to play an important role in a child's development. For some children, early childhood educators are also involved. Caregivers can support adaptive skill development by providing assistance when needed, modeling, and providing ample opportunities for the child to practice a specific skill.

Preschoolers vary in their development of adaptive skills, as there are many factors that can contribute to their learning. The milestones listed in figure 8.6 are those typical for American children, but there is considerable diversity in when these skills are developed.

Age	Milestones
3–4 years	• participates in self-care with support • eats and drinks with increasing independence • dresses with decreasing support • uses the toilet and washes with decreasing support • follows simple rules and familiar routines • begins to use materials with increasing care and safety • can communicate needs
4–5 years	• actively takes part in basic health and safety routines • makes healthy food choices • actively participates in self-care tasks • follows multi-step directions and routines • easily communicates needs • interacts with peers and participates in games • can problem solve with decreasing support
5–6 years	• performs self-care tasks independently • follows multi-step directions and routines • participates in games with active communication with peers • follows social norms • adapts to changes in routine • has increasing problem-solving capabilities • is aware of and follows safety rules

Figure 8.7. Adaptive Skills Milestones for Preschoolers

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Figure 8.7. Table is adapted from The Battelle Developmental Inventory—Third Edition (BDI-3) Crosswalk to Child Outcomes (updated October 2021).

8.6 Identity Formation

From the ages of 3 to 6 years old, children's understanding of themselves and their role in the world expands greatly. This coincides with expanding cognitive and language skills as well as relationships with others.

Early childhood is a time of forming an initial sense of self. A self-concept or idea of who we are, what we are capable of doing, and how we think and feel is a social process that involves taking into consideration how others view us. To develop a sense of self, you must have interaction with others. Interactionist theorists Charles Horton Cooley and Herbert Mead offer two interesting explanations of how a sense of self develops.

Charles Horton Cooley (1964) suggests that our self-concept comes from looking at how others respond to us. This process, known as the looking-glass self, involves looking at how others seem to view us and interpreting this as we make judgments about whether we are good or bad, strong or weak, beautiful or ugly, and so on. Of course, we do not always interpret others' responses accurately, so our self-concept is not simply a mirror reflection of the views of others (figure 8.8).

After forming an initial self-concept, we may use it as a mental filter for screening out those responses that do not seem to fit our ideas of who we are. Some compliments may be negated, for example. The process of the looking-glass self is pronounced when we are preschoolers, as well as when we are starting at a new school or job or are taking on a new role in our personal lives and are trying to gauge our own performances. When we feel more sure of who we are, we focus less on how we appear to others (Leon, A.).

Figure 8.8. The "looking-glass self" is one theory on how humans at the preschool age develop a self-concept based on other people's reactions to them.

Herbert Mead (1967) offers an explanation of how we develop a social sense of self by being able to see ourselves through the eyes of others. There are two parts of the self: the "I," which is the part of the self that is spontaneous, creative, innate, and is not concerned with how others view us, and the "me," or the social definition of who we are.

When we are born, we are all "I" and act without concern for how others view us. But the socialized "me" develops when we are able to consider how one important person views us. This initial stage is called "taking the role of the significant other." For example, a child may pull a cat's tail and be told by their mother, "No! Don't do that. That's bad," while receiving a slight slap on the hand. Later, the child may mimic the same behavior toward themself and say aloud, "No, that's bad," while patting their own hand. What happened? The child is able to see themself through the eyes of the mother. As the child grows and is exposed to many situations and rules of culture, they begin to view themselves in the eyes of many others through these cultural norms or rules. This is referred to as "taking the role of the generalized other" and results in a sense of self with many dimensions. The child develops a sense of self as a student, a friend, and a child, among other roles.

Other areas profoundly shape identity formation, including systemic racism and ableism in young children during this critical developmental stage. Children are highly perceptive of social cues and treatment by peers, caregivers, and society at large. When children are exposed to biases or discriminatory behaviors, whether overt or subtle, it influences their self-concept and can reinforce feelings of exclusion or inferiority. For example, children who witness or experience racism may internalize negative stereotypes or believe that

they are less capable or valued than others. Similarly, ableism can manifest in environments that do not accommodate or recognize the potential of children with disabilities, signaling to them that their abilities and contributions are undervalued. These experiences can disrupt the natural development of a healthy self-concept and impact how children view their worth and role in the world. Early interactions that emphasize **equity**, inclusion, and positive reinforcement are therefore essential to support all children's sense of belonging and resilience.

One way to gain a clearer sense of self is to exaggerate the qualities that are to be incorporated into it. Preschoolers often like to exaggerate their own qualities or to seek validation as the biggest, smartest, or the child who can jump the highest. This exaggeration tends to be replaced by a more realistic sense of self in middle childhood.

Self-Esteem

Early childhood is a time of forming an initial sense of self. In contrast to self-concept, **self-esteem** is an evaluative judgment about who we are. The emergence of cognitive skills in preschoolers results in improved perceptions of the self, but they tend to focus on external qualities, which are referred to as the categorical self. When researchers ask young children to describe themselves using open-ended questions, their descriptions tend to include physical descriptors, preferred activities, and favorite possessions. For example, the self-description of a 3-year-old might be "a 3-year-old girl with red hair who likes to play with blocks." However, even children as young as 3 years old know there is more to themselves than these external characteristics.

Researchers Susan Harter and Robin Pike (1984) challenged the method of measuring personality with open-ended questions. They felt that language limitations were hindering the ability of young children to express their self-knowledge. They suggested a change to the method of measuring self-concept in young children, whereby researchers provide statements that ask whether something is true of the child (e.g., "I like to boss people around," "I am grumpy most of the time"). They discovered that in early childhood, children answer these statements in an internally consistent manner, especially after age 4 (Goodvin et al., 2008). Furthermore, they often give similar responses to what others (parents and teachers) say about the child (Brown et al., 2008; Colwell & Lindsey, 2003).

Young children tend to have a generally positive self-image. This optimism is often the result of a lack of social comparison when making self-evaluations, and of comparison between what the child once could do and what they can do now (Ruble et al., 1980; Kemple, 1995). However, this does not mean that preschool children are exempt from negative self-evaluations (figure 8.9). Preschool children with insecure attachments to their caregivers tend to have lower self-esteem at age 4 (Goodvin et al., 2008). Maternal negative affect (emotional state) was also found by Goodwin and her colleagues to produce more negative self-evaluations in preschool children.

Figure 8.9. Young children don't always feel good about themselves.

Gender Identity

Gender identity is an important dimension of the self that develops more fully in the preschool years. Preschoolers become increasingly interested in their differences and similarities, both physically and in terms of activities that appear to be acceptable based on gender. While 2-year-olds can identify some differences and learn whether they are biologically male or female, preschoolers become more interested in what it means to be boys or girls. This self-identification of gender identity is followed sometime later with gender constancy or the knowledge that gender does not change. Gender roles, or the rights and expectations that are associated with a particular gender, are learned throughout childhood and into adulthood.

The Social Reinforcement of Gender

Learning theorists suggest that gender role socialization is a result of the ways in which parents, teachers, friends, schools, religious institutions, media, and others send messages about what is acceptable or desirable behavior in men and women. This socialization begins early—in fact, it may even begin the moment a parent learns that a child is on the way. Knowing the sex of the child can conjure up images of the child's behavior, appearance, and potential on the part of a parent. This stereotyping continues to guide perception through life. When presented with their baby wrapped in blue (a color often used in the United States to designate male babies), the parents are likely to describe the child as tough, strong, and angry when crying. Shown the same infant in pink (a color often used in the United States for baby girls), these parents are likely to describe the baby as pretty, delicate, and frustrated when crying (Maccoby & Jacklin, 1987). Female infants are held more, talked to more frequently, and given direct eye contact, while male infants' play is often mediated through a toy or activity.

Figure 8.10. Store shelves filled with pink and purple colors and girls' toys (left) and store shelves filled with primary colors and boys' toys (right).

Sons are often given tasks that take them outside the house and that have to be performed only on occasion, while daughters are more likely to be given chores inside the home, such as cleaning or cooking, which is performed daily. Sons are typically encouraged to think for themselves when they encounter problems, and daughters are more likely to be given assistance, even when they are

working on an answer. This impatience is reflected in teachers waiting less time when asking a girl student for an answer than when asking for a reply from a boy student (Sadker & Sadker, 1994). Girls are given the message from teachers that they must try harder and endure in order to succeed, while boys' successes are attributed to their intelligence. Of course, the stereotypes of advisors can also influence which kinds of courses or vocational choices children are encouraged to make.

Friends discuss what is acceptable for different genders, and popularity may be based on modeling what is considered ideal behavior or looks for the genders. Girls tend to tell one another secrets to validate others as best friends, while boys compete for position by emphasizing their knowledge, strength, or accomplishments. This focus on accomplishments can even give rise to boys exaggerating their accomplishments, while girls are discouraged from showing off and may learn to minimize their accomplishments as a result.

Gender messages abound in our environment. But does this mean that each of us receives and interprets these messages in the same way? Probably not. In addition to being recipients of these cultural expectations, we are individuals who also modify these roles (Kimmel, 2008). Based on what young children learn about gender from parents, peers, and those whom they observe in society, children develop their own conceptions of the attributes associated with being a man or woman. These concepts are referred to as gender schemas.

How much does gender matter? In the United States, gender differences are found in school experiences (even into college and professional school, girls are less vocal in the classrooms and much more at risk for sexual harassment from teachers, coaches, classmates, and professors), in social interactions, and in media messages. The stereotypes that boys should be strong, forceful, active, dominant, and rational, and that girls should be pretty, subordinate, unintelligent, emotional, and gabby are portrayed in children's toys, books, commercials, video games, movies, television shows, and music. In adulthood, these differences are reflected in income gaps between men and women, with women who work full-time earning about 74 percent of the income of men. The differences are also seen in higher rates of women suffering rape and domestic violence, higher rates of women experiencing eating disorders, and higher rates of young men suffering violent deaths. Each of these differences will be explored further in subsequent chapters.

Gender Dysphoria

A growing body of research is now focused on gender dysphoria, or the distress accompanying a mismatch between one's gender identity and biological sex (American Psychiatric Association, 2013). Although prevalence rates are low, at approximately 0.3 percent of the U.S. population, children who later identified as transgender often stated that they were the opposite gender as soon as they began talking (Russo, 2016). Comments indicating a preference for the toys, clothing, and anatomy of the opposite sex, while rejecting the toys, clothing, and anatomy of their assigned sex are criteria for a diagnosis of gender dysphoria in children.

Many young children do not conform to the gender roles modeled by the culture, and some even push back against assigned roles. However, most of these children do not experience discomfort regarding their gender identity and, as a result, would not be identified as experiencing gender dysphoria. A more comprehensive description of gender dysphoria, including current treatments, will be discussed in the chapter on adolescence.

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Figure 8.8. "Adult Baby Beautiful Child Cute Daylight Fun Girl" by **pxhere** is in the **Public Domain**.

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Figure 8.10. Left: "**Store shelves filled with pink and purple colors and girls' toys**" by **Janet McKnight** is licensed under **CC BY 2.0**. Right: "**Store shelves filled with primary colors and boys' toys**" by **Janet McKnight** is licensed under **CC BY 2.0**.

8.7 Health and Wellness

Throughout this text, we have discussed many factors that influence development. In this section, we will focus on adverse childhood experiences (ACEs), child maltreatment, and preschool access.

Adverse Childhood Experiences

Although many studies have been conducted since then, the ACE study conducted in the late 1990s by CDC-Kaiser Permanente is one of the most notable studies to closely examine the effects of childhood trauma. As defined by the CDC, adverse childhood experiences (ACEs) are "potentially traumatic events that occur in childhood (0–17 years)" (CDC, 2022). Traumatic events include experiences related to violence, abuse, and neglect, witnessing violence in the home or community, and instability due to parental separation. ACEs have been linked to chronic health problems, mental illness, and substance use problems in adolescence and adulthood. Additionally, ACEs can negatively impact education outcomes, job opportunities, and earning potential (CDC, 2022).

Furthermore, although preventable, ACEs are common. About 61 percent of adults across 25 states reported they had experienced at least one type of ACE before reaching 18 years of age, and almost one in six reported they had experienced four or more types of ACEs. Unsurprisingly, ACEs are not experienced equally across the board. Some children, women, and many racial and ethnic minority groups are at a greater risk for experiencing four or more types of ACEs (CDC, 2022).

ACEs and related **social determinants of health** including living in low-income or racially segregated neighborhoods, unstable housing, and experiencing food insecurity, can cause toxic stress (experiencing stress for an extended or prolonged period). Toxic stress derived from ACEs

negatively impacts children's brain development, immune systems, and stress-response systems. Children that grow up with toxic stress may find it difficult to form healthy and stable relationships, therefore impacting their **social and emotional development**. Moreover, these effects can be generational, meaning they might be passed onto future generations. Some children experience toxic stress stemming from historical and ongoing systemic racism and poverty resulting from limited educational and economic opportunities (CDC, 2022).

Child Maltreatment

Child abuse is the physical, sexual, or emotional mistreatment or neglect of a child or children. Different jurisdictions have developed their own definitions of what constitutes child abuse for the purposes of removing children from their families and for prosecuting criminal charges. There are four major categories of child abuse: neglect, physical abuse, psychological/emotional abuse, and sexual abuse. Neglect is the most common type of abuse in the United States and accounts for over 60 percent of child abuse cases.

Figure 8.11. A child may be removed from their home if it is determined they are experiencing abuse.

Neglect is a passive form of abuse in which a perpetrator is responsible for providing care for a victim who is unable to care for themselves, but fails to provide adequate care. Neglect may include the failure to provide sufficient supervision, nourishment, or medical care, or the failure to fulfill other needs for which the victim is helpless to provide for themself. The term is also applied when necessary care is withheld by those responsible for animals, plants, and even inanimate objects. Neglect can have many long-term side effects, such as physical injuries, low self-esteem, attention disorders, violent behavior, and even death. In the United States, neglect is defined as the failure to meet the basic needs of children, including housing, clothing, food, and access to medical care. Researchers found over 91,000 cases of neglect in 1 year using information from a database of cases verified by protective services agencies.

Child **physical abuse** involves physical aggression directed at a child by an adult. Most nations with child abuse laws consider the deliberate infliction of serious injuries, or actions that place the child at obvious risk of serious injury or death, to be illegal. Beyond this, there is considerable variation. The distinction between child discipline and abuse is often poorly defined. Cultural norms about what constitutes abuse vary widely among both professionals and the wider public. Some professionals claim that cultural norms that sanction physical punishment are one of the causes of child abuse and have undertaken campaigns to redefine such norms.

Child **sexual abuse** is a form of child abuse in which a person abuses a child for sexual stimulation. Effects of child sexual abuse include guilt and self-blame, flashbacks, nightmares, insomnia, and fear of things associated with the abuse. Approximately 15 percent to 25 percent of women and 5 percent to 15 percent of men were sexually abused when they were children.

Out of all the possible forms of abuse, **emotional abuse** is the hardest to determine. Child emotional abuse involves a pattern of behavior in which a caregiver insults, humiliates,

instills fear in, or controls a child. It could include name-calling, ridicule, degradation, destruction of personal belongings, torture or killing of a pet, excessive criticism, inappropriate or excessive demands, withholding communication, and routine labeling or humiliation.

Preschool Access

Providing universal preschool has become an important lobbying point for federal, state, and local leaders throughout our country. In his 2013 State of the Union address, President Obama called upon Congress to provide high-quality preschool for all children. He continued to support universal preschool in his legislative agenda, and in December 2014, the President convened state and local policymakers for the White House Summit on Early Education (White House Press Secretary, 2014). However, universal preschool covering all 4-year-olds in the country would require significant funding. Furthermore, how effective preschools are in preparing children for elementary school, and what constitutes high-quality preschool, has been debated.

To set criteria for designation as a high-quality preschool, the National Association for the Education of Young Children (NAEYC) identifies 10 standards (NAEYC, 2016). These include:

- promotion of positive relationships among all children and adults
- a curriculum that supports learning and development in social, emotional, physical, language, and cognitive areas
- teaching approaches that are developmentally, culturally, and linguistically appropriate
- assessment of children's progress to provide information on learning and development
- promotion of the health and nutrition of children, as well as protection from illness and injury
- teacher possession of the educational qualifications, knowledge, and commitment needed to promote children's learning
- collaborative relationships with families that are established and maintained
- relationships with agencies and institutions in the children's communities that support the program's goals
- indoor and outdoor physical environments that are safe and well-maintained
- leadership and management personnel who are well qualified, effective, and maintain licensure status with the applicable state agency

Parents should review preschool programs using the NAEYC criteria as a guide for asking questions that will assist them in choosing the best program for their child. Selecting the right preschool is also difficult because there are so many types of preschools available. Journalist Anne Zachry, from the online resource parents.com, identified Montessori, Waldorf, Reggio Emilia, High Scope, Parent Co-Ops, and Bank Street as types of preschool programs that focus on children learning through discovery (Zachry, 2013). Teachers act as guides and create activities based on the child's developmental level.

Head Start: For children who live in poverty, Head Start has been providing preschool education since 1965, when it was established by President Lyndon Johnson as part of his War on Poverty. It currently serves nearly one million children and annually costs approximately $7.5 billion (United States Department of Health and Human Services, 2015). However, concerns about the effectiveness of Head Start have been ongoing since the program began. Armor (2015) reviewed existing research on Head Start and found there were no lasting gains, and the average child in Head Start had not learned more than children who did not receive preschool education.

A 2015 report evaluating the effectiveness of Head Start comes from the What Works Clearinghouse. The What Works Clearinghouse identi-

fies research that provides reliable evidence of the effectiveness of programs and practices in education and is managed by the Institute of Education Services for the United States Department of Education. After reviewing 90 studies on the effectiveness of Head Start, only one study was deemed scientifically acceptable, and this study showed disappointing results (Barshay, 2015). This study revealed that 3- and 4-year-old children in Head Start received "potentially positive effects" on general reading achievement, but no noticeable effects on math achievement or social-emotional development.

Non-experimental designs pose a significant challenge in evaluating the effectiveness of Head Start programs, as they require a control group to demonstrate group differences and educational benefits. For ethical reasons, low-income children are usually provided with some type of preschool programming in an alternative setting. Additionally, Head Start programs vary by location, with some offering longer school days or more qualified teachers. These differences make it difficult to examine Head Start as a single entity. Lastly, testing young children is difficult and strongly dependent on their language skills and comfort level with an evaluator, which further hinders the ability of researchers to analyze Head Start programs (Barshay, 2015).

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Figure 8.11. "**A Child Hiding**" by **Joint Base Elmendorf-Richardson Alaska** is in the public domain.

8.8 Conclusion

The preschool years are a special time of relationship building, exploration, and understanding oneself. Preschoolers are learning important skills, such as regulating their emotions and understanding others. They are also able to do many tasks independently. All of these skills will impact them throughout their lives. Children will continue to rely on their caregivers and the attachments formed during the first few years of life as they get ready to move on to the next stage of their lives—middle childhood.

Review of Learning Objectives

1. Identify the milestones of preschoolers' **social and emotional development**.
2. Explore the development of adaptive skills and identity formation.
3. Describe the role of play in relation to developmental importance.
4. Analyze the impact of caregivers and environmental influences on social, emotional, adaptive, and identity development.

Review of Key Terms

- **Child abuse**: the physical, sexual, or emotional mistreatment or neglect of a child or children.
- **Emotional abuse**: a pattern of behavior in which a caregiver insults, humiliates, instills fear in, or controls another person.
- **Initiative versus guilt**: the third stage of Erikson's theory of psychosocial development, in which a child establishes taking initiative and has a sense of power over what happens to them.
- **Neglect**: a form of abuse in which a caregiver fails to provide adequate care for someone they are responsible for.
- **Personality**: an individual's consistent pattern of feeling, thinking, and behaving.
- **Physical abuse**: a form of abuse that involves physical aggression directed at another person.
- **Protective factors**: circumstances or traits that help a child cope with stressful events.
- **Self-esteem**: an evaluative judgment about who we are.
- **Sexual abuse**: a form of abuse in which a person abuses another for sexual stimulation.
- **Social competence**: the ability to get along with others.

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CHAPTER

9

Middle Childhood Physical Development

9.1 Chapter Overview and Learning Objectives

Developmental domains are intricately interconnected, each influencing the other in a dynamic web of growth and maturation. For instance, consider the relationship between nutrition, brain development, and cognition. Poor nutrition can significantly impair **physical development**, including the brain, which is particularly vulnerable during early childhood. A malnourished brain may struggle to form necessary neural connections, hindering cognitive processes such as memory, attention, and problem-solving. Similarly, elevated cortisol levels, a physical response to stress, can disrupt executive function and emotional regulation. This physiological response to stress can overwhelm the brain's capacity to focus, plan, and regulate emotions effectively, thereby impeding overall cognitive and socio-emotional development.

These examples underscore the intricate interplay between physical, cognitive, and socio-emotional domains, highlighting the importance of addressing multiple facets of development for holistic well-being. Some of the aspects of physical development in this chapter will also have implications for subsequent chapters on other developmental domains. However, the information is included here because it directly relates to changes in the growing body.

In this chapter, we will focus on the major physical changes of this period in child development, how physical development influences other aspects of development, and how **sexual development** evolves as we grow and change.

Learning Objectives

After reading this chapter, you will be able to do the following:

1. Identify the major physical changes that occur in middle childhood.
2. Explain the connections between physical development and its impact on other developmental domains.
3. Describe the relationship between access to basic needs and physical development.
4. Describe the changes in sexual development and approaches to sexual education during middle childhood.

Key Terms

Throughout this chapter, you will be introduced to important key terms that will help deepen your understanding of middle childhood development:

- **Body mass index**: a numerical measure calculated from a person's weight and height, commonly used to assess body fatness and health status.
- **Growth spurt**: a rapid and significant increase in physical growth and development that occurs during certain stages of childhood and adolescence.
- **Obesity**: a medical condition characterized by an excessive accumulation of body fat that presents a risk to health.
- **Gross motor skills**: the ability to control large muscles and perform physical movements that involve the whole body or large muscle groups
- **Fine motor skills**: the coordination and control of small muscle movements, usually involving the hands, fingers, and wrists, as well as coordination between the eyes and hands
- **Hormones**: chemical messengers produced by various glands and tissues in the body that regulate numerous physiological processes and maintain homeostasis
- **mRNA**: a type of RNA molecule that carries genetic information from the DNA in the cell nucleus to the ribosomes in the cytoplasm
- **Secular trend in physical growth**: the long-term, systematic changes in physical development, particularly in terms of height and body size, observed across populations over successive generations

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9.2 The Growing Body

Middle childhood, which refers to the developmental period between ages 6 and 12, marks a period of remarkable **physical development** and growth, characterized by significant changes in size, strength, coordination, and overall health. As children transition from early childhood into the school-age years, their bodies undergo dynamic transformations that shape their abilities, behaviors, and experiences. The growing body of a child in middle childhood reflects not only biological maturation but also the interplay of genetic factors, environmental influences, and lifestyle choices. In this section, we delve into the intricacies of physical development during middle childhood, exploring the key milestones, challenges, and factors that contribute to the remarkable

changes observed in children's bodies during this pivotal stage of development. From the **growth spurts** that propel them upward to the burgeoning motor skills that enable newfound physical prowess, understanding the nuances of physical development in middle childhood is essential for promoting health, well-being, and optimal growth in children as they journey through this transformative phase of life.

Height and Weight Changes

During middle childhood, children experience significant height changes, but the rate of growth is slower than during infancy and early childhood. Between ages 6 and 12, children typically grow an average of 2–3 in. (5.1–7.6 cm) per year, but this can vary depending on factors such as genetics, nutrition, and overall health. Females generally have a growth spurt earlier than males. They may experience a growth spurt around age 9 or 10, while males may not have their growth spurt until age 11 or 12. Females tend to have their growth spurt before males due to several factors, including differences in hormonal activity and genetics. **Hormones** are chemical messengers produced by various glands and tissues in the body that regulate numerous physiological processes and maintain homeostasis. Estrogen, the hormone that is primarily responsible for female **sexual development**, stimulates the growth of long bones, which contributes to height. Females typically begin producing estrogen earlier than males, which means they enter their growth spurt earlier.

Children experience significant changes in weight as they grow and develop. On average, children gain about 4–7 lbs. (1.8–3.2 kg) per year during this stage of development. Factors such as genetics, nutrition, and physical activity levels can all influence weight changes during middle childhood. Children who are genetically predisposed to be heavier may gain more weight than their peers, even with a healthy diet and regular exercise. Similarly, children who have a poor diet or who are not physically active enough may be at risk for weight gain and related health problems.

Some weight gain is normal and necessary during middle childhood, as children need to gain weight to support their growing bodies and developing organs. Additionally, weight gain during middle childhood is not always an indicator of future weight problems or **obesity**, which is a medical condition characterized by an excessive accumulation of body fat that presents a risk to health. This is because many children grow out of their baby fat as they mature. **Body mass index** (BMI) is a common measurement used to assess weight status in children and adults. BMI takes into account both height and weight and provides a numerical score that can help determine whether a child is underweight, at a healthy weight, overweight, or obese. In middle childhood, a healthy BMI range can vary depending on the child's age and sex. The Center for Disease Control provides BMI-for-age growth charts that can help health-care providers and parents determine a child's weight status. For example, a BMI between the 5th and 85th percentiles is considered healthy or "normal" for most children. A BMI between the 85th and 95th percentiles is considered overweight, while a BMI at or above the 95th percentile is considered obese.

BMI is just one tool used to assess weight status, and it may not always be accurate for all children. BMI is calculated based on height and weight and does not take into account body composition or distribution of body fat. As a result, individuals with high muscle mass, such as athletes, may have a higher BMI even though they are not overweight or obese. Conversely, individuals with low muscle mass and high body fat may have a lower BMI, even though they are at risk for health problems related to excess body fat. Children who are particularly muscular or who have a larger-than-average bone structure may have a higher BMI

without being overweight or obese. Additionally, other factors such as nutrition, physical activity, and overall health should also be taken into account when assessing a child's weight status.

Though BMI is a commonly accepted tool for assessing weight as a health indicator, it has been criticized for its cultural and gender bias (e.g., Gutin, 2021). BMI was originally developed based on data from White populations, mostly middle-class males. As a result, it may not accurately reflect the body composition or health risks of individuals of other ethnicities or races. Furthermore, BMI may not account for age and sex differences.

The healthy BMI range can vary depending on age and sex, with children and adolescents having different healthy BMI ranges than adults. Therefore, using a single BMI cutoff point for all individuals may not be appropriate. In addition, BMI may not account for changes in body composition over time, as it may not be sensitive enough to detect changes in body composition that occur during periods of growth or changes in physical activity levels. As a result, children and adolescents who are experiencing changes in body composition due to growth and development may be misclassified as overweight or obese based on their BMI.

Parents and caregivers can help children maintain a healthy weight by encouraging healthy eating habits, regular physical activity, and positive body image. Regular check-ups with a pediatrician or health-care provider can also help ensure that children are growing and developing normally.

Bone and Muscle Mass

As bones lengthen and broaden and muscles strengthen, many children want to engage in strenuous physical activity and can participate for longer periods of time. In addition, the rate of growth for the extremities is faster than for the trunk, which results in more adult-like proportions. Long-bone growth stretches muscles and ligaments, which results in many children experiencing growing pains.

Muscle mass development is an important aspect of physical development during middle childhood. During this stage, children experience significant increases in muscle mass and strength as they become more physically active and engage in sports and other physical activities. Regular physical activity is essential for muscle development during middle childhood. Activities such as running, jumping, and climbing help to build muscle and improve strength, coordination, and balance. Strength training exercises, such as push-ups, sit-ups, and resistance exercises, can also be beneficial for building muscle mass in older children. Nutrition also plays a key role in muscle development during middle childhood. Children need adequate protein, carbohydrates, and other nutrients to support muscle growth and repair. A healthy, balanced diet that includes lean protein sources, such as chicken, fish, and beans, as well as whole grains, fruits, and vegetables, can help ensure that children have the nutrients they need for optimal muscle development.

Males and females typically have different amounts of muscle mass during middle childhood due to differences in hormonal activity and genetics. During this stage, males tend to have higher levels of testosterone, which is a hormone that promotes muscle growth and development. As a result, males typically have more muscle mass and greater muscle strength than females. However, individual differences can also play a role in muscle development. Some females may have more muscle mass and strength than males of the same age, particularly if they are physically active and engage in strength training exercises.

Additionally, cultural and societal factors can also influence muscle development. For example, in some cultures, boys may be encouraged to engage in physical activities that promote muscle

growth, while girls may be discouraged from such activities. These factors can contribute to gender differences in muscle mass and strength during middle childhood and beyond. Overall, while there are some sex differences in muscle mass during middle childhood, individual factors such as physical activity and nutrition can also play a significant role.

Gross Motor Skills

Children ages 6–9 show significant improvement in their motor skills. This growth allows children to gain greater control over the movement of their bodies and master many gross and fine motor skills that were beyond that of the younger child.

Gross motor skills refer to the ability to use large muscles of the body for movement and physical activities. During middle childhood, there is a significant development in gross motor skills as children become more physically active and participate in organized sports and activities. Some of the gross motor skills that children develop during middle childhood include:

- Running and jumping: Children's ability to run and jump becomes more coordinated and efficient during middle childhood. They are able to run faster, jump higher, and land with more stability.
- Climbing and balancing: Children become more skilled at climbing and balancing on objects such as monkey bars, trees, and balance beams. They develop better coordination and can perform more complex movements.
- Throwing and catching: Children develop the ability to throw and catch balls with greater accuracy and force. They can also track the trajectory of a ball more effectively, which helps them anticipate its movement and make better catches.
- Kicking and striking: Children become better at kicking and striking objects such as balls or shuttlecocks with greater accuracy and force. They develop more precise and coordinated movements, which allows them to perform better in sports such as soccer and tennis.
- Coordination and agility: Children's movements become more fluid and coordinated, allowing them to perform complex movements with greater ease. They become more agile and can change direction quickly, which helps them in sports such as basketball and hockey.

Overall, the development of gross motor skills during middle childhood is crucial for children's physical development and overall health. It enables them to participate in a range of activities and sports, promotes a healthy lifestyle, and helps build self-confidence and self-esteem. Sports and extracurricular activities may become a part of the lives of children during middle childhood due to their physical growth and capabilities. Children's gross motor skills develop at different rates, and some children may struggle more than others. However, with practice and encouragement, children can improve their gross motor skills and build confidence in their physical abilities. Parents and caregivers can support their children's gross motor development by providing them with opportunities to engage in physical activity, playing with them outside, and enrolling them in sports or recreational activities.

Fine Motor Skills

Fine motor skills involve the use of small muscles in the hands and fingers for tasks that require precision and control, such as writing, drawing, cutting, and manipulating small objects. During middle childhood, there is a significant development in fine motor skills as children become more

adept at using their hands and fingers for complex tasks. Some of the fine motor skills that children develop during middle childhood include:

- Writing and drawing: Children's ability to write and draw becomes more refined and precise during middle childhood. They develop better control over their hand movements and can produce smaller and more intricate shapes and lines.
- Cutting and pasting: Children become more skilled at using scissors and glue to create art projects and crafts. They develop better hand-eye coordination and can cut and paste with greater accuracy and precision.
- Manipulating small objects: Children become better at manipulating small objects such as beads, buttons, and coins. They develop better dexterity and can perform more complex movements with their fingers.
- Typing and using digital devices: As technology becomes more prevalent in daily life, children develop fine motor skills for using digital devices such as computers, tablets, and smartphones. They become more adept at typing, swiping, and tapping with their fingers.

Overall, the development of fine motor skills during middle childhood is crucial for children's academic, social, and emotional development. It enables them to perform complex tasks such as writing, drawing, and using technology, which are important for academic success. It also allows them to engage in creative activities and hobbies, which can promote self-expression and emotional well-being.

Physical Activity

Recess is a time for free play and physical education (PE) is a structured program that teaches skills, rules, and games. Both are a big part of physical fitness for school-age children. For many children, PE and recess are the key component in introducing children to sports.

CASE STUDY: ANTHONY

How can health issues at birth affect later health and wellness in kids?

Born prematurely, Anthony spent his first few months in the neonatal intensive care unit (NICU), where he received round-the-clock medical care to support his fragile health. His premature birth predisposed him to various health complications, including respiratory issues. At age 3, Anthony experienced his first asthma attack, which prompted his parents to seek medical attention.

Attending school poses additional challenges for Anthony. His parents have worked closely with school staff to develop an asthma action plan, outlining steps to take in case of an asthma emergency. Anthony's teachers are trained to recognize signs of respiratory distress and administer his medication as needed. Despite these precautions, Anthony sometimes feels different from his peers, especially when he has to excuse himself from activities due to his asthma.

Anthony's diagnosis of asthma was confirmed through a series of medical tests, including lung function tests and allergy assessments. His medical team prescribed a combination of long-term control medications, such as inhaled corticosteroids, and quick-relief medications, such as albuterol, to manage his symptoms. Additionally, Anthony's parents received education on asthma triggers and how to recognize and respond to asthma attacks promptly.

Anthony's experience highlights the profound impact that early life experiences, such as premature birth, can have on later life development. Being born prematurely not only predisposed Anthony to respiratory issues like asthma but also influenced various aspects of his growth and development. His story also underscores the critical role of early and regular access to medical care, facilitated by health insurance, in managing chronic conditions like asthma, especially in children born prematurely. From the moment of his premature birth, Anthony required specialized medical attention and ongoing support to address his health needs, which have continued to impact his physical development. Access to health insurance ensured that Anthony had timely access to medical interventions, including neonatal intensive care, diagnostic tests, and asthma management medications.

Exercise in Schools

PE is an important component of elementary and middle school education. It promotes physical fitness, healthy habits, and socialization skills, and helps children develop an appreciation for physical activity that they can carry into adulthood. In elementary school, PE programs typically focus on developing fundamental movement skills, such as running, jumping, throwing, catching, and balancing. These skills provide a foundation for more complex physical activities later in life. PE classes also introduce students to team sports, such as soccer, basketball, and volleyball, and may include individual activities like gymnastics or dance.

Middle school PE programs build on the fundamental skills developed in elementary school and introduce students to more advanced concepts and activities. For example, students may learn about sportsmanship, teamwork, and strategy in team sports, or they may focus on improving their cardiovascular endurance through running, swimming, or cycling. PE classes in middle school may also include health and wellness education, covering topics such as nutrition, stress management, and the risks associated with substance abuse.

After years of schools cutting back on recess and PE programs, there has been a turn around prompted by concerns over childhood obesity and related health issues. Despite these changes, as of 2016 only the state of Oregon and the District of Columbia meet PE guidelines of a minimum of 150 minutes per week of physical activity in elementary school and 225 minutes in middle school (SPARC, 2016).

Like PE, recess is an essential part of elementary school education as it promotes students' physical, social, emotional, and **cognitive development** in the following ways:

- Recess provides an opportunity for students to engage in physical activities such as running, jumping, and playing games, which promotes good health, physical fitness, and reduces the risk of obesity.
- Recess provides children with an opportunity to interact with each other, make friends, learn social skills, and practice communication, negotiation, and conflict resolution skills.

- Recess allows students to release their energy, reduce stress, and promote emotional regulation. By having a break from academic activities, students can recharge and refocus their attention.
- Recess can have a positive impact on academic performance, as it allows students to improve their attention and concentration, cognitive flexibility, and problem-solving skills.
- Recess provides children with an opportunity to use their imagination, explore their surroundings, and engage in creative and unstructured play.

Recess is a critical part of elementary school education that supports children's physical, social, emotional, and cognitive well-being.

Organized Sports

Many parents introduce children to organized sports in middle childhood. For example, nearly 3 million children play soccer in the United States (US Youth Soccer, 2022). This activity promises to help children build social skills, improve athletically, and learn a sense of competition. Youth sports can provide a range of benefits that contribute to a child's physical, social, and emotional development.

Participation in sports can improve a child's overall physical health by promoting regular exercise, improving motor skills, and developing endurance and strength (Eime et al., 2013). This can lead to reduced risk of obesity, heart disease, and other health problems. Team sports provide children with opportunities to develop important social skills, such as communication, collaboration, and leadership. They can also learn how to manage their emotions, build resilience, and work through challenges.

Success in sports can improve a child's self-esteem and confidence, leading to better academic performance and overall well-being. Studies have shown that students who participate in sports often perform better academically, as they learn to manage their time and prioritize responsibilities. Participation in sports can teach children important life skills such as teamwork, sportsmanship, discipline, and goal-setting. These skills can be applied in other areas of their lives, including school, work, and personal relationships. Participating in sports can be a fun and enjoyable experience for children, which can contribute to their overall well-being and happiness.

While organized sports can provide numerous benefits for children, there are also some challenges that can arise. The pressure to win can become overwhelming for both children and parents. This can lead to an unhealthy focus on winning at all costs, which can negatively impact a child's self-esteem and enjoyment of the sport (Brenner et al., 2019). Participating in sports comes with inherent physical risks, including the potential for injuries such as sprains, strains, and fractures. It's important for children to learn proper technique and safety precautions and for coaches to prioritize player safety. When children participate in sports at a highly competitive level, they can experience burnout due to the intense pressure and commitment required. This can lead to physical and emotional exhaustion and a loss of enjoyment in the sport. Sports can be dominated by certain demographics, which can lead to a lack of diversity and inclusion. This can limit opportunities for children from different backgrounds to participate and can create a culture of exclusion and discrimination.

It's important for parents, coaches, and organizations to address these challenges and work to create positive and inclusive environments for children to participate in sports. This can involve prioritizing safety, reducing the pressure to win, promoting diversity and inclusion, and ensuring

that sports remain fun and enjoyable for all participants. Gender, poverty, location, ethnicity, and disability can limit opportunities to engage in sports. There are several strategies that can be used to increase equitable access to youth sports, including:

- Financial assistance: Providing financial assistance can help to reduce the financial barriers that prevent some children from participating in sports. This can involve offering scholarships, reduced fees, or equipment loans to children from low-income families.
- Community partnerships: Working with community organizations, local businesses, and government agencies can help to expand access to sports programs in underserved areas. This can involve building new facilities, offering transportation, and providing resources to support sports programs.
- Inclusive policies: Developing inclusive policies that promote diversity and inclusion in all aspects of sports can help to reduce discrimination and bias. This can involve implementing policies that promote gender **equity**, racial and ethnic diversity, and accessibility for children with disabilities.
- Volunteerism: Encouraging volunteerism can help to expand access to sports programs in underserved areas. This can involve recruiting and training volunteers to serve as coaches, mentors, and program leaders.
- Awareness and education: Raising awareness and educating parents, children, and community members about the benefits of sports and the importance of equity can help to increase participation and support for sports programs. This can involve promoting the positive aspects of sports, sharing success stories, and addressing myths and misconceptions about sports.

Overall, increasing equitable access to youth sports requires a coordinated effort by parents, coaches, organizations, and communities. By working together and implementing strategies that prioritize inclusivity, we can help to ensure that all children have the opportunity to benefit from the positive aspects of sports.

Trends in Physical Growth Throughout History

The **secular trend in physical growth**, which refers to changes in growth trends over time, is most noticeable in the increase in height and weight of populations over time. For example, in the United States, the average height of men has increased by about 2 in. (5.1 cm) since the mid-19th century, and the average weight has increased by about 25 lbs. (11.3 kg) since the 1960s. Other physical changes associated with the secular trend include earlier onset of puberty, longer limbs, and larger head circumference. These changes are thought to be due to improvements in nutrition and health during infancy and childhood, as well as improvements in maternal health and care during pregnancy. Overall, the secular trend in physical growth has important implications for public health and social policy, as it highlights the importance of continued improvements in nutrition, health care, and living conditions to support the healthy development of future generations.

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9.3 Brain Development

Between 7 and 9 years old, the brain reaches its adult size. However, there is still plenty of brain development happening in the critical years of middle childhood.

The Prefrontal Cortex

The prefrontal cortex is a region of the brain located at the front of the frontal lobe, right behind the forehead. It's involved in a wide range of complex cognitive processes and plays a crucial role in higher-level functions, which are those cognitive abilities that enable us to plan, reason, problem-solve, and exert self-control, such as:

- Executive function: The prefrontal cortex is often described as the brain's "executive center" because it oversees and coordinates various cognitive processes. This includes tasks such as decision-making, goal-setting, prioritizing, and multitasking.
- Working memory: Working memory refers to the ability to temporarily hold and manipulate information in the mind for cognitive tasks, such as problem-solving or decision-making. The prefrontal cortex is heavily involved in working memory processes.
- Attention: The prefrontal cortex helps regulate attention, allowing us to focus on relevant information while filtering out distractions. It plays a role in both selective attention (focusing on specific stimuli while ignoring others) and sustained attention (maintaining focus over time).
- Inhibition and impulse control: The prefrontal cortex helps us regulate our emotions and impulses, allowing us to make decisions that are in line with our long-term goals and values.
- Social behavior and decision-making: The prefrontal cortex plays a role in social cognition, including understanding the thoughts, intentions, and emotions of others. It also contributes to social decision-making processes, such as considering the consequences of our actions on others and navigating social interactions.
- Personality and self-awareness: The prefrontal cortex helps us evaluate ourselves, monitor our own behavior, and adapt our actions based on feedback and self-reflection.

The prefrontal cortex is essential for many higher-order cognitive functions that are central to human behavior, personality, and decision-making. Its role extends beyond basic sensory and motor functions, contributing to our ability to navigate the complexities of everyday life and interact with our environment in a purposeful and adaptive manner.

During middle childhood, significant changes occur in the process of myelination in the brain. This period is characterized by continued refinement and maturation of neural circuits, as well as improvements in cognitive, motor, and social-emotional skills. Myelination is a crucial process in the development and functioning of the nervous system. It involves the formation of a fatty substance called myelin, which acts as an insulating sheath that wraps around the axons of neurons, allowing for faster and more efficient transmission of electrical signals along the nerve fibers. Myelination is a dynamic process that begins during prenatal development and continues into early adulthood. It is particularly rapid during infancy and childhood, corresponding to critical periods of brain development and learning. The process is influenced by genetic factors,

as well as environmental factors, such as sensory stimulation and experience.

Proper myelination is essential for normal neurological functioning. Disruptions in the myelination process can lead to neurological disorders and impairments in sensory, motor, and cognitive function. Disorders such as multiple sclerosis, for example, involve damage to the myelin sheath, resulting in impaired nerve conduction and neurological symptoms.

Myelination improvement is one factor responsible for these growths. From age 6–12, the nerve cells in the association areas of the brain where sensory, motor, and intellectual functioning connect become almost completely myelinated (Johnson, 2005). This contributes to increases in information processing speed and the child's reaction time. The hippocampus, which is responsible for transferring information from short-term to long-term memory, also shows increases in myelination resulting in improvements in memory functioning (Rolls, 2000).

Cortisol

Imagine you're hiking in the wilderness when suddenly you encounter a bear. In this life-threatening situation, your body needs to respond rapidly to ensure survival. This is where cortisol, often referred to as the "stress hormone," comes into play. As soon as your brain registers the danger, it signals the release of cortisol from your adrenal glands. Cortisol triggers a cascade of physiological responses designed to help you cope with the imminent threat. Your heart rate increases, delivering oxygen-rich blood to your muscles, and your senses sharpen, allowing you to assess the situation more accurately. Cortisol also prompts the release of glucose into the bloodstream, providing a quick source of energy for your muscles. These rapid changes enable you to react swiftly, potentially allowing you to outrun the bear or take evasive action to protect yourself. Once the danger has passed, cortisol levels gradually return to normal, and your body shifts back into a state of rest and recovery. This example illustrates how cortisol serves a crucial role in emergencies, facilitating the body's adaptive response to acute stressors.

Cortisol plays a crucial role in regulating various physiological processes in the body, including metabolism, immune response, and the sleep-wake cycle. Cortisol levels typically follow a diurnal rhythm, meaning they fluctuate throughout the day. One reason cortisol levels are highest when you wake up is due to the body's natural circadian rhythm. The circadian rhythm is an internal clock that regulates the sleep-wake cycle, among other biological processes. Cortisol levels begin to rise in the early morning hours, typically peaking within the first hour or so after waking up. This surge in cortisol helps promote alertness and prepares the body for the day ahead.

Another factor contributing to the elevated cortisol levels upon waking is known as the cortisol awakening response (CAR). This is a rapid increase in cortisol levels that occurs within the first 30 to 45 minutes after waking up. The CAR is thought to be influenced by anticipation of the day's challenges and the body's preparation for activity and stress. In addition to its role in promoting wakefulness and readiness for the day, cortisol also helps regulate blood sugar levels, metabolism, and immune function. By increasing cortisol levels in the morning, the body ensures that it has the energy and resources necessary to meet the demands of the day ahead.

Throughout the day, cortisol levels gradually taper off. This decline is a natural part of the body's circadian rhythm and typically continues until cortisol levels reach their lowest point in the late evening and early night hours. The gradual decline helps facilitate the transition from wakefulness to sleep by promoting relaxation and reducing arousal. Lower cortisol levels in the

evening also signal to the body that it is time to wind down and prepare for restorative sleep.

The Impact of Emotional Trauma on Brain Development

Trauma can have significant effects on executive function, which refers to a set of cognitive processes that enable individuals to plan, organize, strategize, focus attention, regulate emotions, and control impulses. Here's how trauma can impact executive function:

- Impaired attention and concentration: Trauma can lead to difficulties in maintaining attention and focusing on tasks. Individuals who have experienced trauma may have heightened sensitivity to potential threats in their environment, leading to distractibility and difficulty sustaining attention on non-threatening stimuli.
- Memory problems: Trauma can affect both short-term and long-term memory processes. Individuals may have difficulty encoding, storing, and retrieving information, particularly if the trauma is associated with intense emotional arousal. This can impact various aspects of executive function, such as planning and decision-making, which rely on the ability to access relevant information from memory.
- Poor impulse control: Trauma can impair the ability to regulate impulses and inhibit inappropriate behaviors. Individuals may react impulsively to perceived threats or stressors, without considering the consequences of their actions. This can lead to difficulties in decision-making and problem-solving, as well as challenges in maintaining social relationships.
- Emotional dysregulation: Trauma can disrupt the regulation of emotions, leading to heightened emotional reactivity and difficulty modulating affective responses. This can interfere with the ability to think clearly and make reasoned judgments, as well as impairing interpersonal communication and conflict resolution skills.
- Executive dysfunction: Trauma can result in general executive dysfunction, affecting the ability to plan, organize, and execute complex tasks. Individuals may struggle with setting goals, prioritizing tasks, and breaking tasks down into manageable steps. This can impact academic and occupational performance, as well as daily functioning in various domains.

When people experience chronic circumstances, such as poverty or trauma, their cortisol levels do not drop off as they should after the immediate threat has passed. Instead, the body remains in a state of heightened arousal, with cortisol levels staying elevated over extended periods. This chronic activation of the stress response can have profound consequences for physical and mental health. Over time, it can contribute to a range of health problems, including hypertension, cardiovascular disease, obesity, and weakened immune function. Furthermore, prolonged exposure to elevated cortisol levels can disrupt brain development, impair cognitive function, and increase the risk of mental health disorders, such as anxiety and depression. Thus, while cortisol is vital for survival in acute emergencies, its dysregulation in chronic stress situations underscores the importance of addressing underlying social and environmental factors to promote health and well-being.

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9.4 Sexual Development

Puberty is the period during which a child's body matures into an adult body capable of reproduction. Although we may think of puberty as beginning during adolescence, some of the first indicators of puberty actually occur during middle childhood.

During middle childhood, the hormonal changes that occur during puberty are the result of the activation of the hypothalamic-pituitary-gonadal (HPG) axis, which controls the release of hormones that regulate **sexual development**. In females, the HPG axis leads to an increase in the production of estrogen by the ovaries, which stimulates the growth and development of the breasts and other secondary sexual characteristics. It also leads to the development of the ovaries and uterus in preparation for menstruation. In males, the HPG axis leads to an increase in the production of testosterone by the testes, which stimulates the growth and development of the penis, testes, and other secondary sexual characteristics. It also leads to the development of muscle mass and the deepening of the voice.

The stages of puberty during middle childhood are characterized by a gradual development of secondary sexual characteristics. These stages include:

1. Prepubertal: In this stage, there are no visible signs of puberty. Children's bodies are still in the early stages of development.
2. The onset of puberty: In this stage, children start to develop secondary sexual characteristics, such as breast buds in females and testicular and scrotal enlargement in males. Females may also experience the onset of pubic hair growth.
3. Continued growth and development: During this stage, children continue to grow and develop. Females may experience breast development and the growth of pubic hair, while males may experience the growth of the penis and testicles.
4. Rapid growth and development: In this stage, children experience a rapid growth spurt, which may be accompanied by the development of additional secondary sexual characteristics. Females may experience the growth of pubic hair and the onset of menstruation, while males may experience voice changes and the growth of facial and body hair.
5. Final stages of puberty: In this stage, children reach their adult height and continue to develop additional secondary sexual characteristics. Females may experience the full development of breasts and pubic hair, while males may experience the full growth of facial and body hair.

The timing and pace of puberty can vary greatly between individuals, and some children may not experience the onset of puberty until their teenage years.

Sexual Identity Development During Puberty

The hormonal changes that begin to occur during middle childhood may affect sexual identity development. The two main hormones that are involved in sexual development are estrogen and testosterone. Estrogen is the primary hormone responsible for the development of female sexual characteristics, such as breast development and the onset of menstruation. In males, testosterone is responsible for the development of male sexual characteristics, such as the deepening of the voice and the growth of facial and body hair. While hormonal changes can contribute to physical changes

that are associated with sexual identity, it's important to note that gender identity is a complex and multifaceted process that is influenced by many factors, including genetics, culture, and socialization.

During middle childhood, children may become more aware of their own gender identity and may begin to identify as boys, girls, or nonbinary. This process is influenced by a variety of factors, including the child's upbringing, their exposure to different gender roles and expectations, and their interactions with peers and adults. It's important for parents, teachers, and caregivers to provide a supportive and inclusive environment for children as they explore and develop their sexual identity. This can involve respecting their gender identity and expression, providing opportunities for them to learn about different gender identities and sexual orientations, and promoting acceptance and understanding of diversity.

CASE STUDY: JESSE

What does it mean to be nonbinary?

Jesse is a 10-year-old with an ever-growing sense of self and finds themselves at a crossroads in their small, predominantly White, and conservative community. They have started to question the binary gender constructs that society has imposed upon them. As Jesse looks around, they notice how their classmates effortlessly fit into the prescribed roles of boy or girl, but it doesn't feel right for them. Confusion and isolation gnaw at Jesse's heart as they realize that the school curriculum doesn't align with their own understanding of gender identity. The lessons present a rigid view that perpetuates the notion of only two genders, leaving no room for Jesse's nonbinary identity to exist.

In a community where diversity is seldom discussed, Jesse struggles to find anyone who shares their experience. Conversations about gender are often hushed, leaving Jesse feeling invisible and alone in their journey. Jesse's journey is further complicated by the fact that their family belongs to the lower-income bracket, where mental health support and resources are scarce. In their community, seeking counseling or therapy carries a heavy stigma and is often seen as a luxury for those who can afford it. Jesse's parents, shaped by these societal attitudes, struggle with the idea of seeking professional help for their child. They believe that Jesse will eventually find their place within the confines of the binary gender norms.

As Jesse's journey of self-discovery unfolds, their academic progress becomes impeded by the intricate process of grappling with their gender identity. In a small, conservative community where conformity often overshadows individuality, Jesse finds it challenging to focus on their studies while navigating the complexities of their identity. This often leaves Jesse feeling overwhelmed and exhausted. Despite these obstacles, Jesse's intrinsic curiosity and thirst for knowledge remains intact, serving as a beacon of hope that one day their educational journey will find equilibrium, allowing them to fully embrace both their academic growth and their evolving gender identity.

Children as young as elementary school age are navigating and exploring gender identity. Because this developmental stage is a critical period of self-discovery and identity formation, it is important for the health and wellness curriculum to approach this topic in a supportive manner. By allowing children to explore and express their gender identity freely, we create an environment that fosters self-awareness, acceptance, and understanding of diversity. Restricting children's exploration of gender can lead to feelings of confusion, shame, or repression, hindering their emotional well-being and self-esteem. However, offering support and validation for children's gender exploration helps them develop a healthy sense of self-confidence and resilience, paving the way for positive mental health outcomes later in life.

Sex Education During Middle Childhood

Sex education is all about teaching individuals about sexuality, sexual health, and relationships. It's important because it provides people with accurate information and skills they need to make informed decisions about their own sexual health and well-being.

Sex education covers a wide range of topics, including anatomy and physiology, puberty, contraception and birth control, sexually transmitted infections (STIs), healthy relationships, consent, and sexual orientation. It's taught in a variety of settings, including schools, healthcare settings, and community organizations. There can be a lot of controversy around sex education, with some people disagreeing on what should be taught and how it should be taught. However, most experts agree that comprehensive, evidence-based sex education is essential for promoting sexual health and well-being. When done well, sex education can help individuals develop healthy attitudes toward sexuality, promote positive relationships and communication, and reduce the risk of unintended pregnancies, STIs, and other negative outcomes.

Sex education can be a sensitive topic. There are several approaches to educating people about changes to their body as it relates to maturing sexually.

Abstinence-Only Sex Education

Abstinence-only sex education is an approach to sex education that promotes abstinence as the only method for avoiding unwanted pregnancy, sexually transmitted infections (STIs), and other negative consequences of sexual activity. This approach typically focuses on teaching young people to delay sexual activity until marriage and to avoid sexual behavior outside of heterosexual marriage. Abstinence-only sex education programs typically do not provide comprehensive information about contraception, STIs, or other aspects of sexual health. Instead, they may emphasize fear-based messages about the risks of sexual activity, such as unwanted pregnancy and STIs.

Critics of abstinence-only sex education argue that it is ineffective and unrealistic, as many young people will engage in sexual activity regardless of the messages they receive. They also argue that it ignores the fact that young people have a right to accurate and comprehensive information about sexual health. Many experts recommend a comprehensive approach to sex education that includes information about abstinence as well as contraception, STIs, and other aspects of sexual health (Goldfarb & Lieberman, 2020). This approach acknowledges the reality that some young people will engage in sexual activity and aims to provide them with the knowledge and skills they need to make informed and responsible decisions.

Peer-Led Sex Education

Peer-led sex education is an approach to sex education in which young people, typically of a similar age or life stage as the target audience, lead and facilitate discussions and activities related to sex education. The goal of peer-led sex education is to create a safe and comfortable space for young people to discuss sex and relationships and to learn from their peers. Peer-led sex education programs may be structured in various ways, but they typically involve training for the peer educators, followed by group discussions or activities. Peer educators may also provide information about resources, such as healthcare services or community organizations.

Peer educators may be more relatable and approachable for young people, leading to increased engagement and participation. They may have a better understanding of the challenges and concerns faced by their peers and can provide advice and support based on their own experiences. They may also help break down stigma and create a more open and supportive environment for discussions about sex and relationships. Peer-led sex education should be supported by trained professionals who can provide guidance and ensure that accurate and appropriate information is being shared. Additionally, peer-led sex education should be inclusive of all identities and orientations and should not perpetuate harmful stereotypes or biases.

Sex-Positive Sex Education

Sex-positive sex education is an approach to sex education that promotes a positive and healthy attitude toward sexuality. It focuses on providing accurate information about sexual health and relationships, as well as promoting sexual autonomy, respect, and pleasure. In the context of middle childhood, sex-positive sex education may involve teaching children about the basics of anatomy, reproduction, and sexuality in a way that is age-appropriate and respectful. It may also involve teaching children about consent, boundaries, and healthy relationships, as well as promoting body positivity and diversity.

Sex-positive sex education aims to help children develop a healthy and positive attitude toward their own bodies and sexuality and to reduce the stigma and shame often associated with sexuality. It also aims to empower children to make informed and responsible decisions about their own sexual health and relationships.

Critics of sex-positive sex education argue that it may be too permissive toward sexual activity. However, proponents argue that it is essential for promoting sexual health and reducing the risks of negative consequences, such as unwanted pregnancies, STIs, and sexual violence. Overall, sex-positive sex education can be a valuable approach to helping children navigate their developing sexuality in a healthy and positive way, while also promoting respect, autonomy, and pleasure.

Equity Issues in Accessing Sex Education

Sex education in schools can sometimes be unfair because not all students have the same access to information and resources. As a result, some students might not get the information they need to make good decisions about their sexual health and relationships, which can affect their well-being. The lack of equal access to sex education can be due to a variety of factors, including the following:

- Access to comprehensive sex education: Not all students have access to comprehensive sex education that covers topics such as contraception, consent, and sexual health. Students from low-income families, students of color,

and LGBTQIA+ students may be particularly affected by this inequity.
- Representation: Sex education materials, resources, and curricula may not represent the diversity of identities and experiences among students. This can lead to feelings of exclusion and marginalization among certain groups of students.
- Cultural norms: Cultural norms and values can impact how sex education is taught in schools. For example, abstinence-only education may be more prevalent in communities with conservative values, which can lead to a lack of information about contraception and safe sex practices.
- Stigma and discrimination: Stigma and discrimination around certain identities and behaviors, such as LGBTQIA+ identities or teen pregnancy, can impact how sex education is taught in schools. This can lead to inadequate or biased information being provided to students.
- Language barriers: Students who do not speak the dominant language in the school or community may face barriers in accessing sex education materials and resources that they can easily understand.

To make sex education more fair and inclusive, schools can take different actions. To address **equity** issues in sex education, schools can take steps such as:

- providing comprehensive sex education to all students, regardless of their background or identity
- ensuring that sex education materials and resources are inclusive and representative of diverse identities and experiences
- engaging with families and communities to better understand cultural norms and values around sex education
- addressing stigma and discrimination through education and awareness building
- providing language support and translations for sex education materials and resources

By taking these steps, schools can help ensure that all students have access to accurate and inclusive sex education that promotes healthy relationships and behaviors. Let's take a closer look at specific gaps in sex education and their impact.

Race and Sex Education

Within sex education, racism can manifest in various ways, exacerbating inequalities and perpetuating harmful stereotypes that disproportionately impact communities of color and those from lower-socioeconomic communities.

Sex education programs may not adequately address the cultural differences and norms related to sexuality among different racial and ethnic groups. Ignoring or dismissing these differences can alienate students and contribute to a sense of cultural erasure.

Furthermore, the curriculum itself may contain biases that reflect racial stereotypes. For example, discussions about teenage pregnancy may disproportionately focus on minority communities, perpetuating the stereotype of irresponsibility among certain racial or ethnic groups. Discussions about STIs and HIV/AIDS may also reinforce negative stereotypes about certain racial or ethnic groups, leading to stigmatization and discrimination. For instance, the association of HIV/AIDS primarily with Black communities can perpetuate harmful myths and discrimination.

Minority communities often face disparities in access to comprehensive sex education resources. This can include limited access to educational materials, healthcare services, and contraception options, which can exacerbate existing inequalities in sexual health outcomes. In addition, sex

education materials often lack diversity in their representation of different races and ethnicities. This can lead to a lack of relatability for students from minority backgrounds and reinforces the idea that sex education is primarily for White individuals.

Language barriers and cultural differences can also make it difficult for students from minority backgrounds to fully engage with sex education materials. This can result in misunderstandings or misinformation about sexual health and reproductive rights.

Addressing these issues requires a comprehensive approach that involves incorporating diverse perspectives into sex education curricula, training educators to be culturally competent, and ensuring equitable access to resources and health-care services for all communities. It's essential to recognize and challenge the ways in which racism intersects with sex education to create more inclusive and effective programs.

Racism in sex education contributes to increased sexual violence in BIPOC communities. One of the most important ways that racism in sex education harms communities of color is how it impacts cultural representations of people of color, particularly individuals who identify as women. For example, hypersexualization of Black, Indigenous, and people of color (BIPOC) communities is a significant issue within sex education that stems from historical and cultural stereotypes. Inaccurate representation in the media can lead to biased assumptions about the sexual practices of BIPOC communities and ultimately result in dangerous disparities in protections against violence compared to White communities. Stereotypes influence curriculum and contribute to implicit bias among educators.

Addressing the hypersexualization of BIPOC communities within sex education requires a concerted effort to challenge stereotypes, provide culturally responsive education, and promote inclusivity and equity in all aspects of sexual health programming. This includes diversifying curriculum materials, training educators to recognize and address biases, and creating safe and inclusive spaces for discussing sexuality free from judgment and discrimination.

The Importance of LGBTQIA+ Inclusion in Sex Education

LGBTQIA+ sex education is important for middle childhood because it can help create a more inclusive and supportive environment for all students. Middle childhood is a time when children are starting to develop their own identities and are becoming more aware of social norms and expectations. This is also a time when children may start to experience feelings of attraction and develop romantic relationships with others.

For LGBTQIA+ students, this can be a particularly challenging time. They may feel isolated or marginalized if they don't see themselves represented in the sex education materials and resources provided in their schools. They may also face discrimination or stigma from their peers or teachers.

LGBTQIA+ sex education can help to address these issues by providing accurate and inclusive information about sexual health, relationships, and identity. It can also help to create a more welcoming and supportive environment for LGBTQIA+ students by fostering a sense of belonging and validation.

Moreover, LGBTQIA+ sex education can help to decrease stigma and bullying, which can have serious negative effects on mental health and academic performance. By teaching students about the diversity of sexual orientations and gender identities, schools can help to promote acceptance and understanding, which can ultimately lead to a more positive and healthy school climate for all students.

Overall, LGBTQIA+ sex education is an important step toward creating a more equitable and inclusive school environment where all students feel valued and supported.

Teaching Consent as Part of Healthy Sexual Development

Teaching children about consent before they become sexually active can help them develop healthy attitudes toward relationships and boundaries. One way to teach your child about consent is to start with basic concepts like respect for personal space and asking for permission before touching or hugging someone else. For example, you can encourage your child to always ask before giving someone a hug and to respect other people's boundaries if they say no. You can also use teachable moments to talk about consent in everyday situations. For example, if your child wants to borrow a toy from a friend, you can talk about the importance of asking for permission and respecting the friend's decision if they say no. As your child grows older, you can start to have more in-depth conversations about consent and how it relates to sexual activity. You can explain that it's important for both partners to agree to any sexual activity and that it's never okay to pressure someone into doing something they're not comfortable with.

Teaching consent during middle school builds on the foundation laid during elementary school and helps students develop a deeper understanding of consent, healthy relationships, and communication. During early childhood, teaching consent begins with discussions about personal boundaries, the importance of asking permission before touching, and age-appropriate vocabulary for body parts. As kids grow and mature, understanding consent becomes a little more complex. Here are some ways to teach consent during middle school:

- Teach students about power dynamics and how they can impact consent. For example, students can learn about how age, gender, social status, and other factors can affect someone's ability to give or withhold consent.
- As students become more aware of their own sexuality, it's important to teach them about consent in the context of sexual activity. This includes discussing sexual consent, boundaries, and communication.
- Emphasize the importance of enthusiastic consent, which means that both partners actively and enthusiastically agree to engage in sexual activity. This helps students understand that consent is not just the absence of a "no" but also the presence of an enthusiastic "yes." Hesitation before a "yes" should be treated as a "no."
- Teach students about the role of alcohol and drugs in affecting someone's ability to give or withhold consent. This includes discussing the risks of impaired judgment and the importance of not engaging in sexual activity under the influence of drugs or alcohol.
- Discuss sexual harassment and assault with students, including how to recognize it, how to report it, and how to support survivors.
- Teach students about healthy relationships, including the importance of communication, mutual respect, and setting boundaries.

Overall, teaching children about consent is about promoting healthy boundaries and respect for others. It can start with basic concepts, such as personal space and permission, and progress to more complex ideas, such as body awareness changes. By having ongoing conversations about consent as your child grows older, you can help them develop healthy attitudes toward relationships and sexuality.

Licenses and Attributions for Sexual Development

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9.5 Health and Wellness

Middle childhood, also known as the school-age period, is a crucial stage of development when children undergo significant physical changes. During this time, children begin to develop lifelong habits that can impact their health and wellness. As a parent, caregiver, or educator, it is essential to provide children with the necessary tools and resources to develop healthy habits that promote optimal growth and development. This health and wellness section will explore various topics related to middle childhood, including nutrition, physical activity, and safety, to help support children in leading healthy and happy lives.

Sleep Needs in Middle Childhood

Throughout childhood, sleep is an important part of thriving development. It is recommended that children between the ages of 6 and 12 get 9–12 hours of sleep per night. Middle childhood is a vibrant time of physical, cognitive, and social-emotional development. The physical changes in middle childhood require adequate rest to help children achieve and maintain healthy levels of physical activity. It's no surprise that well-rested children have more consistent academic performance and are more likely to reach grade-level academic benchmarks on time (Wheatman et al., 2016). After all, it would be hard to learn fractions if you couldn't stay awake.

Sleep patterns impact middle childhood development, but they also indicate later life health and wellness outcomes. Childhood sleep health may contribute to areas of adult wellness, such as mental health, maintaining healthy physical activities, and even weight management (Watson et al., 2017). Because sleep is so important to our overall health, it is also important to think about what may interfere with good sleep patterns. Periods of sleep disruption are normal, even among older children. Stressful situations, such as challenges in school or social relationships, and changes to family life, such as separation or divorce, may result in disrupted sleep. Physical growth spurts may cause some discomfort that interrupts sleep cycles.

While we sleep, our brains continue to work to make sense of information and ideas we have heard or thought about throughout the day. So you could say we literally get smarter while we sleep. Sometimes, our brains have trouble multitasking the work of learning and maintaining sleep rhythms. If we are really struggling to make sense of something, it may interrupt our sleep. All of these examples are normal experiences of sleep disruption and should not cause concern as they will typically resolve on their own. However, persistent sleep issues, or sleep issues that escalate in frequency and intensity, such as night terrors, could mean the underlying cause is more persistent and serious. In this case, it is best to consult a pediatrician.

The tapering off of cortisol levels in the latter part of the day allows other hormones, such as melatonin, to become more prominent. Melatonin is often referred to as the "sleep hormone" because

it helps regulate the sleep-wake cycle and promotes sleep onset. The decrease in cortisol and increase in melatonin work together to facilitate the onset of sleep and promote restful, rejuvenating rest during the night.

The physical, mental, and emotional growth of people of all ages requires good sleep. Therefore, access to safe places to sleep is an essential part of addressing issues of **equity**. Children who are unhoused or housing unstable are at greater risk of sleep deprivation. Children navigating poverty are more housing-vulnerable. For many, sleep is a routine-dependent process that is made harder without a consistent place to live. Good sleep patterns benefit from reliable and safe places to rest. For each child to thrive, it is critical to consider factors such as affordable housing, poverty, and neighborhood safety, all of which influence how safe and secure we feel when we lie down to sleep.

Bedwetting

Jesse has been struggling with bedwetting for several months. They are embarrassed to talk about it with friends and family, and afraid they'll be made fun of if others find out. Jesse, who is otherwise social with peers, often avoids sleepovers or camping trips because they worry about wetting the bed and being humiliated in front of others. They feel ashamed and alone and wish they could stop bedwetting. Jesse is also growing in their awareness that they don't feel like they fit into the gender binary of boy and girl, and their parents wonder if Jesse's experience of navigating gender may be contributing to this issue.

Bedwetting, also known as nocturnal enuresis, is a common condition among children in middle childhood, with about 10 percent of children experiencing it (Walker, 2019). While bedwetting can affect any child, there are some factors that may increase the likelihood of a child experiencing it. The causes of bedwetting can be both physical and psychological. Here are some possible factors that increase the likelihood of a child experiencing bedwetting:

- Delayed development: Sometimes, the bladder control mechanism of a child may not have fully developed, leading to bedwetting.
- Genetics: Bedwetting tends to run in families, so genetics may play a role in some cases.
- Urinary tract infections can cause bedwetting by increasing the frequency of urination and reducing the child's bladder capacity.
- Sleep disorders: Certain sleep disorders, such as sleep apnea, can cause bedwetting by disrupting the child's sleep.
- Constipation: When a child is constipated, it can put pressure on the bladder, causing bedwetting.
- Psychological issues: Bedwetting can also be caused by psychological issues, such as anxiety, stress, or trauma.
- Hormonal imbalances: In some cases, bedwetting can be caused by hormonal imbalances that affect the production of a hormone called vasopressin, which regulates the body's water balance.
- Gender: Bedwetting is more common in boys than in girls.

Bedwetting is a common condition and often resolves on its own. However, if it persists or is causing significant distress to the child or family, it's important to consult a healthcare provider for further evaluation and treatment options. There are several treatment options available for bedwetting, depending on the underlying cause and severity of the condition. Here are some possible treatment options:

- Bedwetting alarms: These are devices that sound an alarm when the child wets the bed, waking them up so they can go to the bathroom. Over time, this can help the child learn

to recognize the sensation of a full bladder and wake up to use the bathroom.
- Medications: There are several medications that can help reduce bedwetting, such as desmopressin, which reduces the amount of urine the body produces at night, and imipramine, which helps the bladder hold more urine.
- Bladder training: This involves a structured program of gradually increasing the amount of time between bathroom visits, with the goal of increasing the child's bladder capacity and reducing the frequency of bedwetting.
- Behavioral therapy: This may involve rewarding the child for dry nights, using positive reinforcement to encourage them to use the bathroom before bed, and addressing any underlying stress or anxiety that may be contributing to the bedwetting.
- Dietary changes: Reducing the amount of fluids the child consumes before bedtime and avoiding caffeine and sugary drinks can help reduce the likelihood of bedwetting.

Returning to Jesse's story, Jesse has been experiencing some anxiety or embarrassment because of bedwetting, and it may interrupt their social development. Jesse's parents can take several steps to support them through the struggles with bedwetting. First, they can create a safe and supportive environment by letting them know that bedwetting is a common issue and that they're there to support them. They can assure Jesse that they won't judge or criticize them and that they're committed to helping find a solution. Second, they can encourage open communication by listening to them without judgment and offering empathy and support. Third, they can seek medical advice to explore treatment options that may help reduce or eliminate bedwetting and mental health support to explore if Jesse is experiencing anxiety about the identity development process that is impacting the bedwetting. Fourth, they can use protective bedding, such as waterproof mattress covers and sheets, to help protect the bed and make cleanup easier. Finally, if Jesse is experiencing teasing or bullying related to their bedwetting, their parents can work with the school or other caregivers to address the issue and ensure that they feel safe and supported. With some preparation and support, Jesse can still enjoy social events like slumber parties without feeling embarrassed or ashamed. Overall, by creating a supportive and non-judgmental environment, seeking appropriate medical advice and treatment, and helping Jesse feel understood, accepted, and supported, Jesse's parents can play a vital role in helping them manage bedwetting and cope with any related challenges.

Nutrition

During middle childhood, a healthy diet facilitates physical and mental development and helps to maintain health and wellness. School-aged children experience steady, consistent growth but at a slower rate than they did in early childhood. This slowed growth rate can have a lasting impact if nutritional, caloric, and activity levels aren't adjusted in middle childhood. Maintaining levels from early childhood into middle childhood can lead to excessive weight gain early in life and to obesity in adolescence and adulthood. Making sure that children have proper nutrients will allow for optimal growth and development.

Millions of children grow up in food-insecure households with inadequate diets due to both the availability of food and the quality of food. In the United States in 2021, about 13 percent of households with children were food insecure to some degree (USDA, 2022). In half of those, only adults experienced food insecurity, while in the other half, both adults and children were considered to be food insecure. This means that a significant

percentage of American children do not have consistent access to adequate, nutritious meals.

Access to food and water is the foundation of Maslow's hierarchy of needs (see Chapter 2). Without clean water and adequate food, a person cannot survive. When a person has inadequate access to food and water, they may experience a number of negative health consequences. Deficiencies in iron, zinc, protein, and vitamin A can result in stunted growth, illness, and limited development. Federal programs, such as the National School Lunch Program, the School Breakfast Program, and Summer Feeding Programs, work to address the risk of hunger and malnutrition in school-aged children. They help to fill the gaps and provide children living in food-insecure households with greater access to nutritious meals.

Immunization and Disease Prevention

One way to protect a child's health and the health of those around them is through immunization. Immunization shots, or vaccinations, are essential. The vaccines, if given through injection, may hurt a little, but the diseases they can prevent can hurt a lot more. They protect against a variety of illnesses, including measles, mumps, rubella, hepatitis B, polio, diphtheria, tetanus, and pertussis (whooping cough).

Immunizations are important for adults as well as for children. The immune system helps the human body fight germs by producing antibodies to combat them. Once it does, the immune system remembers the germ and can fight it again. Some vaccines contain germs that have been killed or weakened. When given to a healthy person, the vaccine triggers the immune system to respond and build immunity. Other vaccines use genetic material called messenger RNA (**mRNA**) to instruct the body to build immunity against a virus and prepare it to fight off future infections. Unlike traditional vaccines, mRNA vaccines do not contain live or weakened viruses, which makes them safer to use. Additionally, mRNA vaccines can be developed more quickly than traditional vaccines since they don't require growing and culturing the virus.

Before vaccines, people only gained long-term immunity by actually getting a disease and surviving it. Immunizations are an easier and less risky way to become immune. Vaccines are the best defense we have against serious, preventable, and sometimes deadly contagious diseases. Vaccines are some of the safest medical products available, but like any other medical product, there may be risks. Accurate information about the value of vaccines and their possible side effects helps people to make informed decisions about vaccination. For the most accurate, up-to-date information, it is important to consult a healthcare provider.

Vision Development

The most common vision problem in middle childhood is being nearsighted, otherwise known as myopic, with 25 percent of children being diagnosed by the end of middle childhood (Theophanous et al., 2018). Being nearsighted can be corrected by wearing glasses with corrective lenses.

Vision problems can interfere with academic progress for children during elementary school. Poor vision has been linked to delays in reading and handwriting skill development. Because vision is important in academic success, many public schools partner with county health departments to provide free vision screenings for children. Vision screenings are an opportunity for early detection and intervention.

Dental Development

Children in middle childhood will start or continue to lose teeth. They experience the loss of deciduous, or "baby," teeth and the arrival of permanent teeth, which typically begins at age 6 or 7. It is important for children to continue seeing a dentist twice a year to be sure that these teeth are healthy. Children's dental health needs continuous monitoring as children lose teeth and new teeth come in. Many children have some malocclusion (when the way upper teeth aren't correctly positioned slightly over the lower teeth) or malposition of their teeth, which can affect their ability to chew food, floss, and brush properly. Dentists may recommend that children with these conditions see an orthodontist to maintain proper dental health. Dental health is exceedingly important as children begin to make their own food choices and take over flossing and brushing. Parents can ease this transition by promoting healthy eating and proper dental hygiene.

Hearing Development

Hearing development during middle childhood is characterized by improved auditory processing, **language development**, sound localization, auditory sensitivity, and musical ability. Children in middle childhood have more refined auditory processing abilities than younger children. They are better able to distinguish between different sounds and filter out background noise, allowing them to focus on relevant auditory information. As children continue to refine their language skills during middle childhood, their ability to process and understand speech also improves. They become more adept at interpreting complex sentences and understanding the nuances of language. Children in middle childhood develop better sound localization skills, which means they can determine the direction and distance of a sound source. This is important for safety and understanding the environment. Children's auditory sensitivity continues to develop during middle childhood. They become better at hearing softer sounds and detecting subtle differences in pitch, loudness, and timbre.

Equity Gaps in Vision, Dental, and Hearing Care

Vision, dental, and hearing are all important for helping children grow in their academic and social skills. Although schools provide screenings, the ability to access services to treat a vision or hearing impairment may be impacted by a child's access to health insurance. Children who rely on programs such as the Children's Health Insurance Program (CHIP) may have fewer resources available for obtaining glasses or hearing aids. The dental care provided through Medicaid, the public health insurance option for low-income families, often severely limits or excludes services such as orthodontia. The current health insurance system contributes to disparities in access to vision, dental, and hearing care for low-income school-aged children.

One effort to address the equity gap in access to vision and dental care involves colocating the county health department with public schools. In Corvallis, Oregon, a recently built elementary school has an office of the county health department adjacent, where vision, dental, and basic health care, such as immunizations, are provided at no charge. Because the school serves predominantly low-income families, the location of the health clinic makes health care more accessible for the most economically vulnerable community members. It's a good example of how communities can promote thriving development by removing barriers to essential services.

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9.6 Physical Development and Neighborhoods

Safe communities play a pivotal role in nurturing **physical development** among residents, particularly children and adolescents. These neighborhoods typically boast well-maintained parks, playgrounds, and recreational facilities, providing ample opportunities for outdoor play and exercise. Furthermore, they often feature infrastructure that supports active transportation, such as sidewalks and bike lanes, thus encouraging residents to engage in physical activity as part of their daily routines.

Community programs, events, and sports leagues further promote physical activity and social interaction. These organizations foster a sense of belonging and encourage residents of all ages to stay active and engaged. Importantly, the safety of these environments enables parents to feel comfortable allowing their children to play outside unsupervised, facilitating the development of gross motor skills, coordination, and confidence in young children.

Additionally, healthy food options are often more readily available in safe neighborhoods. Access to healthy food supports proper growth and development, while reducing the risk of obesity and related health problems.

Overall, by prioritizing safety and creating environments conducive to physical activity and healthy lifestyles, communities contribute to the well-being and physical development of their residents, fostering healthier, more resilient generations.

Neighborhoods and Bicycle Safety

Imagine a sunny afternoon in a suburban neighborhood. The school day has just ended, and a group of middle school kids are out riding their bikes. They're a mix of boys and girls, ranging in age from 11 to 14 years old. They're all wearing helmets and brightly colored shirts, and they're chatting and laughing as they ride. The group is riding in a pack, taking turns leading the way and shouting out directions. They're weaving in and out of driveways and cul-de-sacs, performing small jumps and tricks as they go. They're all riding different types of bikes, from shiny new mountain bikes to old, rusty hand-me-downs, but everyone seems to be having a good time.

As they ride, the kids stop occasionally to take a break or to check out something interesting. They might stop to pick up a stray stick or to examine a flower growing in someone's yard. Occasionally, a parent or neighbor will wave as they ride past, but the kids are otherwise left to their own devices. Despite their different backgrounds and interests, the kids all seem to have a common bond in their love for riding bikes. They're enjoying the freedom and independence that comes with being out on their bikes, and they're relishing the feeling of the wind in their hair and the sun on their faces.

Bicycling is an important skill for several reasons. First, it is a great way for children to get exercise and stay active. Biking is a low-impact form of exercise that can improve cardiovascular health, strengthen muscles, and help maintain a

healthy weight. By developing cycling skills at a young age, children are more likely to continue cycling throughout their lives and enjoy the many health benefits that come with it. Second, cycling is a form of transportation that is both environmentally friendly and cost-effective. By promoting cycling as a mode of transportation, we can help reduce traffic congestion, air pollution, and greenhouse gas emissions. This is especially important in urban areas where traffic can be a major problem.

Finally, bicycling is a fun and enjoyable activity that can help children develop independence, confidence, and social skills. Cycling can be a great way for children to explore their neighborhood, spend time with friends, and enjoy the outdoors. By developing cycling skills, children can gain a sense of independence and self-sufficiency that will serve them well throughout their lives.

Unfortunately, there are often inequities in bicycle safety in communities. Certain communities may not have access to safe cycling infrastructure, such as bike lanes or protected paths, which can make it more dangerous for people to ride their bikes. This can be especially true in low-income or minority neighborhoods where infrastructure investment may not be a priority.

In addition, children in wealthier communities may have access to bicycle safety education programs or more resources for purchasing helmets or bicycles, while children in low-income communities may not. Furthermore, people of color and individuals in low-income communities may face additional challenges related to traffic enforcement and policing. For example, police may be more likely to target people of color for traffic stops or other enforcement actions, which can create a hostile environment for cyclists.

When it comes to teaching bicycle safety to elementary school children, there are a lot of ways that schools can help. For example, they can offer bicycle safety education programs that teach children about safe cycling practices and the importance of wearing helmets. They can also provide resources for parents, like brochures or pamphlets, that outline safe cycling practices and tips for choosing the right helmet. Another great idea is for schools to host bike rodeos, which are fun events where children can practice safe cycling skills and learn about bicycle safety. By making it engaging and enjoyable, children are more likely to remember the important safety tips.

Promoting active transportation is also a great way for schools to encourage bicycle safety. Encouraging children to ride their bikes to school can help them develop good cycling habits and can also help reduce traffic congestion around schools. Plus, it's a great way for children to get exercise and fresh air before school. Schools can also promote safe cycling practices by setting a good example. This can include ensuring that school buses and cars follow safe driving practices around cyclists, providing secure bike parking facilities, and encouraging staff to wear helmets when riding bikes. By modeling safe cycling practices, schools can help instill good habits in their students.

All of these ideas can be effective in teaching bicycle safety to elementary school children. By working together, we can help ensure that children are safe when riding their bikes and develop good habits for a lifetime of safe cycling.

Swimming Pools

Access to swimming pools for youth encompasses a multifaceted issue involving availability, affordability, and safety. Many communities prioritize providing swimming facilities for young people, recognizing their numerous benefits. However, disparities exist in access to pools, with factors such as geographic location, socioeconomic status, and cultural barriers influencing who can easily access these facilities.

Addressing access to swimming pools for youth requires a comprehensive approach that considers not only physical infrastructure, but also financial resources, education, and cultural sensitivities. Efforts to improve access often involve initiatives from governments, nonprofit organizations, and private businesses. These can include building new public pools in underserved areas, providing transportation for youth to reach swimming facilities, and offering subsidized or free swimming programs. Swim lesson programs are crucial for teaching water safety skills and swimming proficiency and are especially important in communities where drowning rates are higher. By ensuring equitable access to swimming opportunities, communities can promote health, safety, and social inclusion among young people.

Inequities in access to community pools are a significant challenge that reflects broader social and economic disparities. Several factors contribute to these inequities:

- Geographic location: Community pools are often concentrated in more affluent areas, leaving those in low-income neighborhoods with limited or no access to nearby facilities. This lack of proximity can pose significant barriers, especially for families without reliable transportation.
- Socioeconomic status: Affordability is a major barrier to access. Membership fees, admission costs, and the expense of swim gear can be prohibitive for families with limited financial resources. Subsidized or free programs are essential for making swimming accessible to all youth regardless of income level.
- Cultural barriers: Cultural attitudes and norms surrounding swimming can also impact access. For example, communities with diverse cultural backgrounds may have varying levels of familiarity and comfort with swimming, leading to disparities in participation rates.
- Infrastructure and maintenance: Inadequate infrastructure and maintenance can affect the quality and safety of community pools, particularly in marginalized areas. This can deter families from using these facilities even if they are available.
- Policy and funding priorities: Government funding and policy decisions play a crucial role in determining where and how community pools are built and maintained. Inequitable distribution of resources can perpetuate disparities in access.

Addressing these disparities requires targeted interventions that address the specific needs and barriers faced by marginalized groups. This includes financial assistance programs, culturally sensitive outreach and programming, improvements in infrastructure and accessibility, and policy changes to promote equitable distribution of resources. By ensuring that all individuals have access to community pools, regardless of socioeconomic status, race, ethnicity, ability, or geographic location, communities can promote health, well-being, and social inclusion for everyone.

Safety in Sports

Sports safety for elementary kids is important for preventing injuries and ensuring that they have a positive experience with physical activity. There are some key factors to consider.

The equipment needed will depend on the sport. For example, if the child is playing soccer, they will need shin guards to protect their lower legs, and if they are riding a bike, they will need a properly fitted helmet. Equipment that is too big or too small can be ineffective and potentially dangerous. It's also important to ensure that the equipment is in good condition. For example, a bike helmet with cracks or other damage may not

be able to protect the child in the event of a fall. Finally, it's important to make sure that the child wears the appropriate equipment every time they participate in the sport. Even if they are just practicing or playing with friends, the risk of injury is still present. Encouraging children to wear their equipment consistently can help them develop good safety habits that will stay with them throughout their lives.

A proper warm-up is essential for preventing injury in sports for elementary kids. A warm-up prepares the body for physical activity by increasing blood flow, raising body temperature, and loosening up the muscles, tendons, and ligaments. A good warm-up should be tailored to the specific sport and the child's level of fitness. It should typically include a combination of low-intensity aerobic exercise, such as jogging or jumping jacks, and dynamic stretching, which involves movements that mimic the movements of the sport. The warm-up should gradually increase in intensity and duration and should never be rushed. Rushing through a warm-up or skipping it altogether can increase the risk of injury, especially for children who are still developing their physical coordination and control. When the workout is complete, a cool-down ensures the muscles are given enough time to transition to a state of rest. It can help to reduce muscle soreness, prevent injury, promote recovery, and regulate body temperature. Children should be encouraged to take their time and never rush through a warm-up or cool-down or skip them altogether.

Supervision is a critical component of sports safety for elementary kids. Children at this age are still developing their physical coordination and may not have the experience to recognize and avoid potentially dangerous situations. A responsible adult should be present during all sports activities to ensure that the children are following the rules of the game, playing safely, and staying hydrated. The adult can also step in if there is a dispute between players or if a child becomes injured or ill. In some sports, such as contact sports, the presence of a responsible adult is particularly important to ensure that proper safety procedures are followed. For example, in football, coaches and referees are trained to recognize the signs of concussion and take appropriate action if a player is injured. In the absence of adult supervision, children may not recognize the signs of a concussion or may not report it to their parents or guardians. Finally, supervision can help prevent bullying or other forms of negative behavior that can occur in sports. A responsible adult can recognize and intervene in situations when a child is being mistreated and work with the child and other players to resolve the issue.

Proper nutrition and hydration are crucial for elementary kids' sports safety. During physical activity, the body uses energy and fluids to maintain performance. Without proper nutrition and hydration, children may experience fatigue, dehydration, and a decreased ability to concentrate, which can increase their risk of injury. It's important to encourage children to eat a balanced diet that includes plenty of fruits, vegetables, whole grains, and lean proteins. These foods provide the necessary vitamins, minerals, and nutrients that help support healthy growth, energy, and overall health. Certain sports, such as gymnastics or wrestling, may require children to maintain a specific weight or body type. In these cases, it's important to work with a healthcare professional or registered dietitian to develop a safe and healthy eating plan that supports optimal performance without compromising health or safety.

In addition to eating well, children should also stay hydrated before, during, and after physical activity. Dehydration can lead to fatigue, dizziness, and muscle cramps, which can increase the risk of injury. Children should be encouraged to drink water or a sports drink containing electrolytes before and during activity, particularly in hot weather or when they are engaging in high-intensity activities.

Proper rest helps prevent injury in sports for elementary kids. Rest allows the body to recover from the physical demands of the previous activity and prepares the body for the next activity. This allows the body to recover from the repetitive motions and stresses of physical activity, which can help to reduce the risk of overuse injuries, such as tendinitis, stress fractures, and muscle strains. Proper rest can also help to prevent fatigue, which can reduce a child's ability to concentrate and respond to their environment, increasing their risk of injury. Furthermore, rest promotes mental recovery by allowing a child to decompress and recharge between activities. The amount of rest needed between activities can vary depending on the intensity and duration of the activity, as well as the child's age and physical condition. As a general rule, children should be encouraged to take breaks every 60 minutes of physical activity and to engage in different types of physical activity to avoid overuse injuries.

Proper technique can help to minimize the risk of sports-related injuries by reducing the stress and strain placed on the body during physical activity. Specifically, using proper technique can help to reduce the strain on joints by maintaining proper alignment and reducing the amount of force placed on the joints. This can help to prevent overuse injuries, such as tendinitis, as well as acute injuries, such as sprains or dislocations. Using proper technique can also improve balance and coordination, reducing the risk of falls or collisions with other players. Finally, using proper technique can help to prevent compensations, which occur when the body tries to compensate for a weakness or imbalance by shifting the stress to another area of the body. This can lead to injuries such as muscle strains or sprains.

Safety in sports is crucial for elementary kids. While participating in sports can provide numerous benefits, such as physical fitness, socialization, and improved mental health, it's essential to prioritize safety to prevent injuries. A safe sports environment includes proper equipment, adequate supervision, proper nutrition and hydration, appropriate warm-up and cool-down, and rest between activities. Additionally, teaching proper technique and promoting a culture of safety can also help to prevent injuries. By implementing these measures, we can ensure that children can enjoy the many benefits of sports while minimizing the risk of injury.

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9.7 Conclusion

The **physical development** of middle childhood is a critical period characterized by steady growth and maturation, with the child experiencing significant changes in body size, weight, and strength. Additionally, children in middle childhood typically experience significant improvements in their motor skills, including hand-eye coordination, balance, and agility. As such, it is essential for parents, educators, and caregivers to provide children with opportunities to engage in physical activity and exercise to support their physical development during this critical period. Overall, the physical changes that occur during middle childhood can have a lasting impact on a child's overall health and well-being, making it

important to prioritize physical activity and healthy habits during this developmental stage.

The physical changes that take place during middle childhood can also have a significant impact on a child's **cognitive development**. As children become more physically adept, they are also better able to explore and interact with their environment, which can facilitate their cognitive growth and development. In the next chapter, we will explore how the physical and cognitive domains of development are intricately connected and how this connection influences children's learning and academic success. Understanding the link between physical and cognitive development is crucial for parents, educators, and caregivers who want to support children's holistic development during the critical period of middle childhood.

Review of Learning Objectives

1. Identify the major physical changes that occur in middle childhood.
2. Explain the connections between physical development and its impact on other developmental domains.
3. Describe the relationship between access to basic needs and physical development.
4. Describe the changes in **sexual development** and approaches to sexual education during middle childhood.

Review of Key Terms

- **Body mass index**: a numerical measure calculated from a person's weight and height
- **Growth spurt**: a rapid and significant increase in physical growth and development that occurs during certain stages of childhood and adolescence
- **Obesity**: a medical condition characterized by an excessive accumulation of body fat that presents a risk to health
- **Gross motor skills**-: the ability to control large muscles and perform physical movements that involve the whole body or large muscle groups
- **Fine motor skills**-: the coordination and control of small muscle movements, usually involving the hands, fingers, and wrists, as well as coordination between the eyes and hands

- **Hormones**: chemical messengers produced by various glands and tissues in the body that regulate numerous physiological processes and maintain homeostasis
- **mRNA**: a type of RNA molecule that carries genetic information from the DNA in the cell nucleus to the ribosomes in the cytoplasm
- **Secular trend in physical growth**: the long-term, systematic changes in physical development, particularly in terms of height and body size, observed across populations over successive generations

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CHAPTER
10

Middle Childhood Cognitive and Language Development

10.1 Chapter Overview and Learning Objectives

In middle childhood (between 6 and 12 years old), a child's environment and sources of direct influence begin shifting beyond family and caregivers to include school settings. This contributes to **language development**. Logical, organized thought processes also begin emerging. In this chapter, we'll focus first on theoretical contributions in **cognitive development**, then we'll discuss cognitive and language development, and lastly we'll apply our understanding of cognitive development to the context of school and educational settings.

Learning Objectives

After reading this chapter, you will be able to do the following:

1. Identify the stages of cognitive development in middle childhood.
2. Compare and contrast key theories related to understanding cognitive development in middle childhood.
3. Examine how biological and social factors influence the school experience.
4. Analyze the impact of environmental influences on cognitive and language development.

Key Terms

Throughout this chapter, you will be introduced to important key terms that will help deepen your understanding of middle childhood cognitive development:

- **Bandwidth tax**: the cognitive load or mental effort required to manage multiple tasks or information streams simultaneously.
- **Classification**: the process of grouping items, data, or information into categories or classes based on their characteristics, properties, or attributes.
- **Concrete operational stage**: a stage of cognitive development described by Jean Piaget that typically occurs between the ages of 7 and 11 and is characterized by the development of logical thinking and the ability to perform mental operations on concrete objects or events.
- **Conservation**: the ability to understand that an object or quantity remains the same despite changes in its appearance, shape, or arrangement.
- **Emotional regulation**: the ability to acknowledge an emotion and be able to handle emotional reactions and behaviors in useful ways.
- **Executive function**: a set of cognitive processes that are responsible for controlling and regulating behavior, thoughts, and emotions.
- **Inductive reasoning**: reasoning in which conclusions are drawn from specific observations or evidence rather than from general principles or assumptions.
- **Learning disorder**: a neurodevelopmental disorder that affects the way an individual processes information, learns new skills, and communicates with others, and is characterized by difficulties in one or more areas of academic, social, or occupational functioning.
- **Neurodivergence**: the natural variation in neurological and cognitive functioning among individuals that is not necessarily a deficit or abnormality.
- **Reversibility**: the ability to understand that things can be changed back to their original state.
- **Seriation**: the cognitive ability to arrange objects or concepts in a particular order or sequence.
- **Social learning theory**: a psychological theory that suggests that people learn through observation, imitation, and modeling the behavior of others in social settings, and that the consequences of these behaviors (such as rewards and punishments) influence whether or not the behavior is repeated in the future.
- **Sociocultural theory**: a psychological and educational theory that emphasizes the role of social and cultural factors in shaping individual development and learning.
- **Transitivity**: the ability to understand and logically deduce relationships between items in a series or set.
- **Zone of proximal development**: the difference between what a learner can do independently and what they can do with assistance from a more knowledgeable other.

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10.2 Theories

Throughout the developmental period referred to as middle childhood, cognitive processes continue expanding. As with any theory, a cognitive theory provides an empirically tested perspective to the understanding of how children's **cognitive development** occurs.

Refer to Chapter 2 to read more about what theory is and major theories in **human development**.

Vygotsky

Chapter 2 introduced Lev Vygotsky (1896–1934) and his sociocultural theory. In middle childhood, **sociocultural theory** emphasizes the importance of culture and social interaction in cognitive development. During this developmental period, many children begin leaving home to attend school. Social experiences expand to include classmates, teachers, and other adults, such as a friend's caregivers or adults leading extracurricular events.

Take a minute to think about how cultural and social experiences may have shaped your cognitive development in middle childhood. Maybe a classmate introduced you to a particular religion, or perhaps you can recall social interactions at school or extracurricular clubs that influenced your thinking or language (figure 10.1).

Figure 10.1. Social experiences with everyone in a child's life shape their cognitive development.

Vygotsky believed that a teacher or peer could help guide the learning process with just the right amount of support, also known as scaffolding. Scaffolding promotes the development of cognitive skills within a certain range known as the zone of proximal development (see Chapter 2 for

more on scaffolding and the zone of proximal development).

The expanding social experiences of middle childhood provide children with opportunities to acquire new skills and capabilities. Adults such as caregivers and teachers can assist through a process that Barbara Rogoff (1990) refers to as *guided participation*. Guided participation is when a learner actively acquires new, culturally valuable skills and capabilities through a meaningful, collaborative activity with an assisting, more experienced adult (see figure 10.2). Guided play is another useful pedagogical approach using the same concept (Hirsh-Pasek, Golinkoff, Nesbitt, Lautenbach, Blinkoff, Fifer, 2022). In guided play, the caregiver or teacher curates a playful experience that is child-centered and scaffolds the experience for learning, where socially-shared activities inform individual processes that expand cognitive development (Weisberg et al., 2016; John-Steiner & Mahn, 1996).

Figure 10.2. In guided play, the teacher or instructor can create a socially shared experience to expand cognitive development.

Piaget

Whereas Vygotsky viewed social interactions as playing an active role in development, Piaget viewed children as having an active role in their development. For more information on Piaget's theory of cognitive development, see Chapter 2, and for more information on the stages of cognitive development before middle childhood, see Chapters 5, 7, and 9.

Concrete Operational Stage

According to Piaget, children are in the **concrete operational stage** of cognitive development during middle childhood, which is approximately

ages 7–11. Cognition at this stage of development incorporates logic. Throughout middle childhood, children will develop toward mastery of using logic in very concrete ways. Children presumed to be at this stage of development can investigate the physical world around them and apply logic to principles of cause and effect. Additionally, they can build on their experiences by applying inductive reasoning and problem-solving to the physical world around them. **Inductive reasoning** represents the concrete reasoning abilities at this stage and is a type of reasoning in which conclusions are drawn from specific observations or evidence rather than from general principles or assumptions. For example, if a child rides a bus to school and only sees their friends riding the bus to school, then using inductive reasoning, the child might assume that all students ride a bus to school. Building on current schemata, especially concrete schemas (i.e., those that have been developed based on what children have seen, touched, or directly experienced), concrete operational thinkers can also classify and organize objects by size, distance, and various other physical properties. Figure 10.3 lists skills that children are working to master during the concrete operational stage.

Skill	Definition
Classification	As children's experiences and vocabulary grow, they build schemata and can organize or classify objects in many different ways. Classification can include new ways of arranging information, categorizing information, or creating classes of information. They understand hierarchies and can arrange objects into a variety of classes and subclasses.
Identity	One feature of concrete operational thought is the understanding that objects have an identity or qualities that do not change even if the object is altered in some way. For instance, the mass of an object does not change if it is rearranged. A piece of chalk is still chalk, even when the piece is broken in two.
Reversibility	Children are also mastering the ability to think through steps logically, such as being able to work backward to the beginning of a process or understanding that objects can be altered and then returned to a previous state. For example, water can be frozen and then thawed to become liquid again, but eggs cannot be unscrambled. Arithmetic operations are reversible as well: 2 + 3 = 5 and 5 – 3 = 2.
Seriation	Children in this stage are also able to arrange items quantitatively, such as by length or weight, in a methodical way. For example, a child in the concrete operational stage can systematically arrange a set of different-sized sticks in order by length, while children who have not yet reached this stage would not approach the task systematically.
Conservation	Concrete operational thinkers are also able to understand the concept of conservation, meaning that changing one quality can be compensated for by changes in another quality. For example, water in a tall, narrow container is equal to water in a shorter but wider container.
Transitivity	Being able to understand how objects are related to one another is referred to as *transitivity*. This means that if one understands that a dog is a mammal and that a boxer is a dog, then a boxer must be a mammal.

Figure 10.3. Concrete Operational Stage Skill Development

There are many criticisms of Piaget and his methodological approaches. Despite Piaget's contributions to the field of child development, a major limitation of his theory of cognitive devel-

opment is that it fails to acknowledge cultural influences on cognitive development.

Culturally Responsive Approaches to Piaget

Readiness is an important element of Piaget's work, meaning that children should be taught certain concepts when they are ready. Beyond the previously mentioned criticisms, there have been empirical studies contradicting Piaget's conclusions. For example, Dasen (1994), in a cross-cultural study, noted that development for Aboriginal children differed when it came to the ability to conserve and their spatial awareness. This suggests that development may not be completely dependent on maturation but that cultural influences also play a role. Within the classroom, a culturally responsive approach that also takes into account cognitive development, according to Piaget, would be a student-centered approach using differentiated instruction (Hamza & Hernandez de Hahn, 2012).

Bronfenbrenner's ecological model provides further context for developing cognitive processes as children enter school, expanding their microsystem and creating new connections in the mesosystem between their teachers and caregivers (Berk, 2000). Additionally, as a child's world expands, they experience realizations concerning mortality and may encounter new fears and potential phobias. Fears, in particular, tend to follow a developmental trajectory, an indication that they may be associated with cognitive development. For example, in infancy, fears tend to be associated with maternal separation, whereas, in middle childhood, fears are often associated with getting injured physically (LoBue et al., 2019; Muris & Field, 2011).

Optional resources to further explore the above developing skills in middle childhood according to Piaget's theory of cognitive development can be found at the following links:

- **Concrete Operations (Davidson Films, Inc.) [Streaming Video]**
- **Seriation – A Developmental Issue | Monograph Matters 84.4 [Streaming Video]**

Bandura

Albert Bandura (1925–2021), a leading contributor to **social learning theory**, felt that internal mental states play a role in learning and that observational learning (modeling) is much more complex than just imitating others (1977) (see Chapter 2). Adolescents struggling with their identity rely heavily on their peers to act as role models, observing their behaviors. Sometimes we do things because we've seen it pay off for someone else, and we hope it will pay off for us as well. Bandura (1986) suggests that reinforcement from the environment demonstrates that we are not only the product of our environment, but also influence our surroundings. See Chapter 2 for more information on Bandura's social learning theory.

What does Bandura's social learning theory mean for development during middle childhood and academic learning? It is important for parents, caregivers, teachers, and other adult role models to consider and acknowledge what they are modeling, how the environment may be influencing learning, and the child's motivation and self-efficacy related to a goal. If you want your children to read, then read to them. Let them see your interest in books and reading. Keep books in your home.

Talk about your favorite books. The same holds for qualities like kindness, courtesy, and honesty. The main idea is that children observe and learn from the world around them, so be consistent and toss out the adage "Do as I say, not as I do," because children tend to copy what you do instead of what you say. Besides parents, many public figures, such as Martin Luther King Jr. and Mahatma Gandhi, are viewed as prosocial models who can inspire social change (figure 10.3). Can you think of someone who has been a prosocial model in your life?

Figure 10.4. Dr. Martin Luther King, Jr. was a pro-social model who inspired social change. Here he delivers a speech on racial equity in San Francisco, June 30, 1964.

The antisocial effects of observational social learning are also worth mentioning. There are certainly cases of intergenerational cycles of maltreatment within families. However, the research is inconclusive, and there exists a wide range of outcomes for individuals who have witnessed or experienced abuse (Child Welfare Gateway, 2016). We can assume that empirically-based interventions to support families and mandatory reporting have assisted in breaking these cycles.

Beyond witnessing in-person aggressive behavior, some studies suggest that violent television shows, movies, and video games may also have antisocial effects. However, current research looks primarily at the mechanisms underlying this phenomenon. Further research needs to be done to understand the correlational and causational aspects of media violence and behavior (Bender et al., 2018).

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Figure 10.1. "**School Children in Guatemala, Try a 'Go with Gus' Tour**" by **moonjazz** is licensed under **CC BY-NC-ND 2.0.**

Figure 10.2. **Image** by **USAG- Humphreys** is licensed **CC BY 2.0**.

Figure 10.4. "**Martin Luther King, Jr. San Francisco June 30 1964**" by **geoconklin2001** is licensed under **CC BY-NC-ND 2.0**.

10.3 Cognitive Development in Middle Childhood

Cognitive skills continue to expand in middle and late childhood. According to Piaget's stages of **cognitive development** theory, children in middle childhood are in the concrete operational stage of cognitive development. During this stage, children demonstrate thought processes that become more logical and organized when dealing with concrete information. Abstract thought has yet to develop. Children at this age understand concepts such as past, present, and future, giving them the ability to plan and work toward goals. Additionally, they can process complex ideas, such as addition and subtraction and cause-and-effect relationships. The following section will further explore the expanding cognitive processes related to middle childhood, including executive function, attention, and how environmental stressors can impact cognitive processing.

Executive Function

We all have moments when we struggle to pay attention or process information. This struggle could happen for a variety of reasons, including diet, particular distractions, or genetics. Focus attention is one of the skills within the umbrella of executive function. **Executive function** refers to the mental processes that enable a person to manage tasks and includes the ability to control attention, manage emotional reactions and behaviors, keep track of information, be self-aware, and organize thinking. Children need support to develop these skills. The range of support they need and receive varies based on environmental and personal factors. As children enter school, they have increased opportunities to develop these skills. At the same time, children with low executive function skills often struggle in school settings due to their inability to control behaviors essential for learning.

Impulse Control

Impulse control is an executive function skill that is essential in enabling children to function independently in social settings and learning environments. Impulse control allows children to prioritize tasks and manage certain behaviors. Most children in middle childhood would prefer to play instead of doing homework, but the ability to control the impulse to play makes it possible to sit down and focus on homework. For safety reasons, children typically begin practicing impulse control in early childhood. For example, a 4-year-old who stops themself from running into the street while chasing after a ball is practicing impulse control. Executive function skills, such as impulse control, continue to develop through middle childhood and beyond adolescence as processes in the brain develop from the back to the front. The prefrontal cortex, the last area to develop, is the area of the brain that handles the ability to control impulses (Sebastian et al., 2014). This can be challenging for parents and caregivers, and it is important for adults to remember the critical role they contribute in supporting these developing cognitive skills through scaffolding and modeling (Bandura, 1993).

A child who has not yet developed impulse control may exhibit certain behaviors or characteristics, including an inability to sustain attention, poor time management, and becoming easily distracted. Children with difficulty controlling impulses may also be labeled hyperactive, which is characterized by excessive movement, fidgeting, getting up out of their seat when they are expected

to be sitting, blurting out or speaking over others, and having difficulty waiting their turn.

Emotional regulation

Healthy **emotional regulation** is the ability of a child to acknowledge an emotion and be able to handle emotional reactions and behaviors in useful ways. Several areas of the brain work together to help with emotional regulation, including the amygdala, prefrontal cortex, cingulate cortex, hippocampus, and basal ganglia (Raschel et al., 2016). Emotional regulation is still developing during middle childhood, and children will need support to successfully develop this skill. This is not a cognitive skill that can be perfected without practice. One way to support the development of skillful emotional regulation is to model and encourage healthy coping strategies, such as practicing or preparing for a situation, breathing exercises, or visualization techniques. Coping strategies are often connected to particular emotions and contexts. For example, a coping strategy at school may be to find an adult to help navigate the fear of a school bully, but at home, the coping strategy for the same fear may include playing outside with a pet. In addition to positive coping strategies, emotional intelligence, including the ability to recognize and understand emotions, is important in developing the ability to manage emotions in healthy, useful ways.

It is important to remember that children who have trouble controlling their emotions are having a challenging time and are not bad kids. All children in middle childhood have executive function skills that are still developing. This can be challenging for teachers, caregivers, parents, and peers, and taxing on their emotional regulation. Even adults must practice healthy coping strategies. Reaching for a bowl of ice cream when you feel overwhelmed may be a coping strategy, but it is not a healthy long-term strategy.

Adults modeling positive coping strategies can promote the development of healthy emotional regulation in children. However, the opposite is also true. Unhealthy coping strategies modeled by adults, or dysregulated emotional environments, can negatively influence the development of healthy emotional regulation. This explains why children from adverse experiences or environments can be especially overwhelmed and challenged by executive function skills, including emotional regulation (Milejovich, Machlin, and Sheridan, 2020). Providing a safe and predictable environment and modeling positive coping strategies can help children use the executive function skills they have at any particular moment.

Take a moment and think about what your coping strategies might be (figure 10.5). Do you have different strategies for when you are sad, frustrated, or overwhelmed? Are the strategies only available at home? Are these strategies healthy or unhealthy?

This interactive content is not available in this version of the text. It can be accessed online here:
https://www.youtube.com/watch?v=cpR9Ft0R_9M

Figure 10.5. **Why Practicing Can Help with Emotional Regulation [Streaming Video]**. Emotion researcher Marc Brackett has led the scientific research team that helped develop an app to help track and understand emotions. To find out more or download the free app: **https://howwefeel.org [Website]**. **Transcript.**

Working Memory

During middle childhood, children improve the capacity of their working memory and their use of memory strategies. Illustrated in figure 10.6, working memory is the ability to temporarily hold a small amount of information for cognitive tasks (Cowan, 2014). This is different from long-term memory, which is a large bank of information

saved from one's life. Research suggests that both the increase in processing speed and the ability to keep irrelevant information from entering memory contribute to greater efficiency of working memory during middle childhood (de Ribaupierre, 2002). Changes in myelination and the increased synaptic pruning within the cortex that occur during preschool and middle childhood are likely behind the increase in processing speed. and the ability to filter out irrelevant information (Kail et al., 2013).

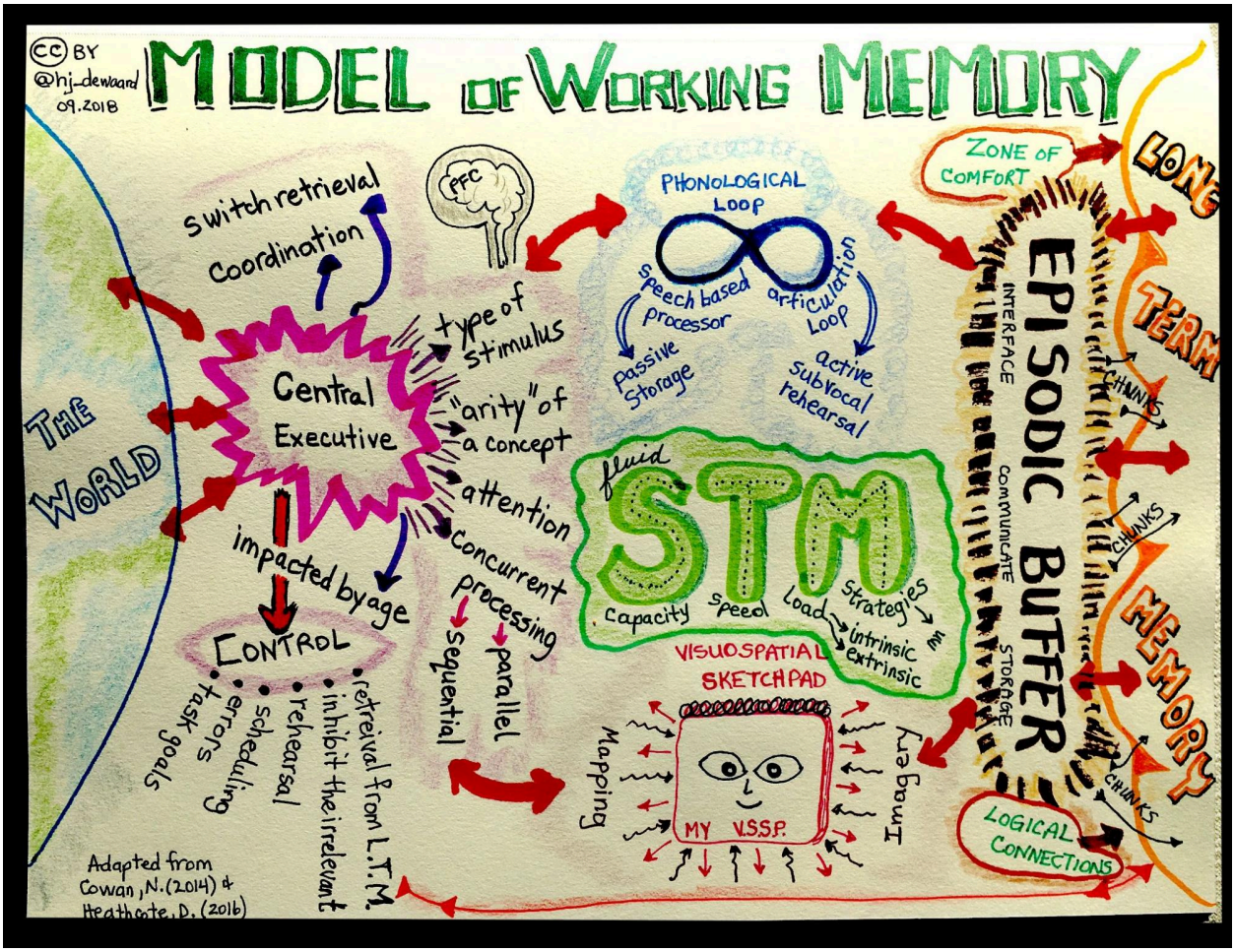

Figure 10.6. Working memory expands during middle and late childhood. **Image description.**

Children with learning disabilities in math and reading often have difficulties with working memory (Alloway, 2009). They may struggle with following the directions of an assignment. When a task requires multiple steps, children with poor working memory may overlook steps because they lose track of their place in the task. Adults can support children who are struggling with working memory by using more familiar vocabulary, using shorter sentences, repeating task instructions more frequently, and breaking more complex tasks into smaller, more manageable steps. Some studies have also shown that using more intensive working memory strategies, such as dividing larger learning and memory tasks into smaller activities, or chunking, can aid in improving the capacity of working memory (Alloway et al., 2013).

Self-Awareness

Children in middle and late childhood have increased self-awareness. Children at this stage of development have a better understanding of the level of difficulty and their abilities in task performance. As school-aged children become more realistic about their present abilities and the time required to accomplish a task, they can adapt their studying strategies accordingly. Children with a lack of self-awareness will still need support. For example, in preparation for a spelling bee, a child with increased self-awareness may spend more time practicing words they do not know how to spell, whereas a child with less self-awareness would not prioritize based on ability (or lack of). This ability to gauge which tasks are important to focus on versus those that are not is an example of self-awareness or metacognition.

Self-awareness is the knowledge we have about our thinking and our ability to use this awareness to regulate our cognitive processes. Critical thinking, or a detailed examination of beliefs, courses of action, and evidence, involves teaching children how to think. The purpose of critical thinking is to evaluate information in ways that help us make informed decisions. Critical thinking involves a better understanding of a problem through gathering, evaluating, and selecting information, and by considering many possible solutions. These skills are useful in critical thinking: analyzing arguments, clarifying information, judging the credibility of a source, making value judgments, and deciding on an action (Ennis, 1987). Self-awareness is essential to critical thinking because it allows us to reflect on the information as we make decisions.

Optional Resource:
According to Bruning et al. (2014), there is a debate in American education as to whether schools should teach students what to think or how to think. The video **How Thinking Works [Streaming Video]** is from a researcher who focuses on thinking and knowledge. He has some criticisms about direct instruction, meaning lectures or demonstrations rather than active engagement or problem-solving. Based on middle childhood cognitive development and this video, what are solutions for "over-engineered education"?

Information Processing

During middle childhood, children become better at learning and remembering because their brains are better at processing and storing information. At this age, they develop more categories for concepts and learn more efficient strategies for storing and retrieving information. They are also able to learn from past experiences. New experiences are similar to old ones or remind children of something else they already know. This helps them process new experiences more easily. Information processing theory compares how the mind processes memories to the way that computers store, process, and retrieve information. There are three levels of memory: sensory memory, working memory, and the knowledge base.

Sensory memory is a short-term storage of sensory information that is acquired from the environment, for example, how something feels, looks, smells, or tastes. Information first enters our sensory memory. Stop reading and glance around the room very quickly. (Yes, really. Do it!) What do you remember? Chances are, not much. In that quick glance, everything you saw and heard was entered into your sensory memory. Although you might

have heard yourself sigh, caught a glimpse of your dog walking across the room, or smelled the soup on the stove, you did not store those sensations. Sensations are always entering your brain, and yet most of these sensations are never stored there. They are lost because your brain immediately filters them out as irrelevant. If the information is not perceived or stored, it is discarded quickly. If not discarded, information may be encoded in long-term memory, such as the knowledge that stop signs are red.

If information is meaningful, it enters our working memory. All of the things on your mind at this moment are part of your working memory. There is a limited amount of information that can be kept in the working memory at any given time, and any extra information can be lost. Have you ever missed information in class because the instructor spoke too quickly for you to get it all in your notes? Information in our working memory must be stored effectively in our knowledge base to be accessible for later use.

Knowledge base memory, also known as long-term memory, has an unlimited capacity and stores information for days, months, or years. It is where you ultimately want information to be stored. Effectively storing memory requires organizing information in a meaningful way for later retrieval.

Attention

Beginning at birth, our reflexes allow us to respond and attend to environmental stimuli. These primitive reflexes are the beginning of higher-order executive functions like attention. Attention, holistically, is a person's cognitive ability to process or inhibit information in their environment. Attention continues to develop in middle childhood, including a sharp improvement in selective attention from age 6 into adolescence (Vakil et al., 2009). Selective attention is the ability to focus on specific information even if there is other information being processed at the same time. For example, a student who can listen to a teacher reading a story to the class while other students seated behind them are giggling is using selective attention to remain focused on the story and ignore the giggling.

Children in middle childhood also improve their ability to shift their attention between tasks or different features of a task (Carlson et al., 2013). A child in preschool who is asked to sort objects into piles based on type of object may struggle if you switch to asking them to sort based on color, because they'd have to forget the previous rule of sorting by type. A middle school-aged child often has less difficulty making the switch because they are more flexible in their ability to divide or alternate attention. These changes in attention and working memory contribute to children having more strategic approaches to challenging tasks. Children can become more efficient learners and be able to tolerate classroom instruction for longer periods.

What Is "Normal"?

Not all children in middle childhood experience the same expansion of attention capacity. Attention is more complex than the ability to sustain focus. Research is revealing more about the variances in attention and differences in cognition every day. Rather than assuming a "normal" amount of sustained attention, it is best to recognize that there is a wide range of abilities when it comes to attention. Also, the environment plays an important role in the capacity for attention at any given moment.

Understanding Variations in Attention

There is variation in the ability to multitask or pay attention to the smallest of details. While there is research to support that attention increases with age (Hagen & Hale, 1973), it is also true that the range of and variation in attention is wide. As with all children, individuals with attention-deficit/hyperactivity disorder (ADHD), anxiety, obsessive-compulsive disorder (OCD), or those who are on the autism spectrum may benefit from a variety of environmental or task-oriented supports. Such supports may include visual schedules, visual timers, checklists, or focus-enhancing tools that children can fidget with, such as modeling clay, silly putty, or exercise balls to sit on. Often, these cognitive differences are attributed to a lack of attention. However, for some individuals, there may be a tendency for hyper-attention versus a lack of attention.

Strategies for Success

As school-aged children become more aware of their thinking and cognitive abilities, there is also a progression in the development and use of memory strategies (Bjorklund, 2005). Examples of memory strategies include rehearsing information you wish to recall, visualizing and organizing information, creating rhymes, or inventing acronyms. Children in elementary school have a steady increase in the use of memory strategies, though there can be considerable individual differences at each age (Schneider et al., 2009). Children who utilize more strategies have been found to have better memory performance than their peers of the same age (Schneider et al., 2009). Yet, some school-aged children may experience difficulties or deficiencies in their use of memory strategies. Therefore, understanding why school-age children may have difficulty using a memory strategy can be helpful in supporting their ability to recall important information. Memory strategy deficiencies to be aware of are described below.

A **mediation deficiency** occurs when a child fails to grasp the strategy being taught, resulting in a lack of benefit from its use. For example, if they do not understand why using an acronym might be helpful or how to create an acronym, the strategy is not likely to help them.

In a production deficiency, the child does not spontaneously use a memory strategy and must be prompted to do so. In this case, children know the strategy and are capable of using it, but they fail to "produce" the strategy on their own. For example, children might know how to make a list but may fail to do this to help them remember what to bring on a family vacation.

A utilization deficiency occurs when a child uses an appropriate strategy, but it fails to aid their performance. Utilization deficiency is common in the early stages of learning a new memory strategy (Schneider & Pressley, 1997; Miller, 2000). Until the use of the strategy becomes automatic, it may slow down the learning process, as space is taken up in memory by the strategy itself. Initially, children may get frustrated because their memory performance may seem worse when they try to use the new strategy. Once children become more adept at using the strategy, their memory performance will improve. Sodian and Schneider (1999) found that new memory strategies acquired before age 8 often show utilization deficiencies accompanied by a gradual improvement in the child's use of the strategy. In contrast, strategies acquired after this age often followed an "all-or-nothing" principle in which improvement was not gradual, but abrupt.

Additional strategies to help restore, increase, or sustain attention include:

- care for overall health, including sleep and nutrition (**Kirszenblat & van Swinderen, 2015 [Website]**)

- mindfulness exercises (Norris et al., 2018 [Website])
- spending time outside (Amicone et al., 2018; Moran, 2019 [Website])
- avoidance of multitasking (Srna et al., 2018 [Website])

Licenses and Attributions for Cognitive Development in Middle Childhood

"Cognitive Development in Middle Childhood" remixed from Weiss, *Understanding the Whole Child,* Introduction to Cognitive Development in Middle Childhood.

Figure 10.4. Why Practicing Can Help with Emotional Regulation. Oregon Cognitive Supports.

Figure 10.6. model of STM by Helen DeWaard is licensed CC BY 2.0.

10.4 Language Development in Middle Childhood

The development of language is complex. Language involves both the ability to process and understand spoken and written words and to communicate when we speak or write. Most languages are spoken. Speaking involves a variety of complex cognitive, social, and biological processes, including the operation of vocal cords and the coordination of breath with movements of the throat, mouth, and tongue. Other languages are unspoken sign languages, which use hand movements. The most common of these is American Sign Language (ASL). ASL is currently used by more than 500,000 people in the United States alone (Mitchell et al., 2006).

Growing Minds, Expanding Language

Beyond communication with others, language also makes it possible to access existing knowledge, draw conclusions, set and accomplish goals, and understand complex social relationships. Language is fundamental to our ability to think, and without it, we wouldn't be as intelligent as we are.

Language can be conceptualized in terms of sounds, meaning, and the environmental factors that help us understand it. Understanding how language works means reaching across many branches of psychology—everything from basic neurological functioning to high-level cognitive processing. Language shapes our social interactions and brings order to our lives. Complex language is one of the defining factors that make us human.

Complex Syntax

Children in middle childhood can classify objects in many ways because of their expanded vocabulary. By fifth grade, a child's vocabulary has grown to 40,000 words. Vocabulary grows at a faster rate during middle childhood than during any other developmental period. This language explosion differs from early childhood since school-age children are able to associate new words with those already known. Kids in middle and late childhood are also able to think of objects in less literal ways. For example, if asked for the first word that comes

to mind for "pizza," the younger child is likely to say "eat" or another word that describes what is done with a pizza. However, the older child is more likely to place pizza in the appropriate category and say "food." Older children also love to tell jokes. They may use jokes that involve wordplay, such as knock-knock jokes or jokes with punchlines. Young children do not understand wordplay and tell jokes that are literal or slapstick, such as "A man fell in the mud! Isn't that funny?"

Metalinguistic Development

Language is such a special topic that there is an entire field called linguistics that is devoted to its study. Linguistics views language objectively, using the scientific method and rigorous research to form theories about how humans acquire, use, and sometimes abuse language. There are a few major branches of linguistics useful for understanding language from a psychological perspective. Figure 10.7 illustrates the various subfields of linguistics, including phonetics, phonology, morphology, syntax, semantics, and pragmatics.

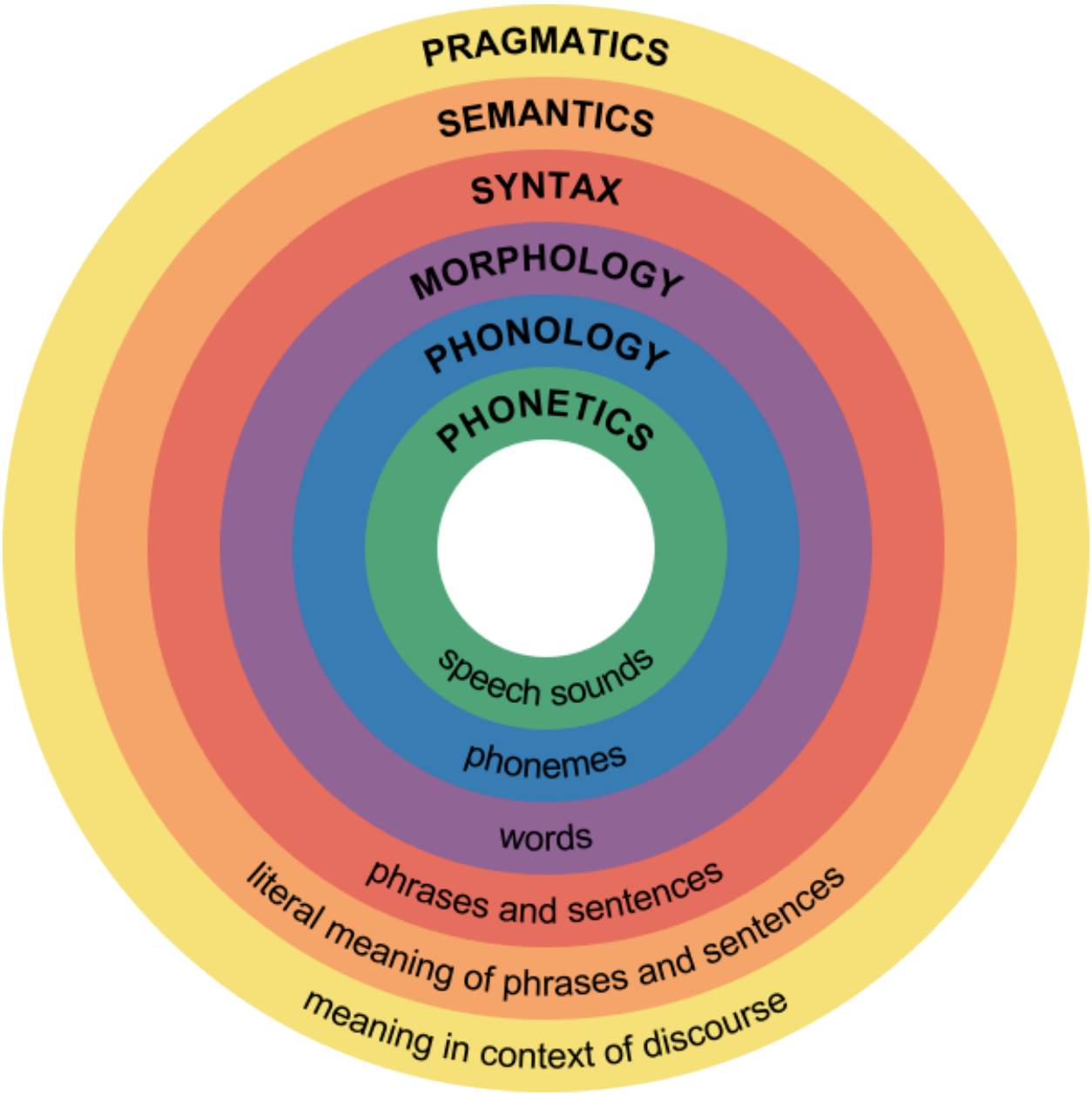

Figure 10.7. The major branches of linguistics and their subfields are useful for understanding language. **Image description.**

When learning languages in middle childhood, children understand that communication includes many complex elements, such as comprehension, fluency, and meaning. Every language has rules that act as a framework for meaningful communication. People fill this framework with words. Every human language has a lexicon, which is the total of all of the words in that language. By using grammatical rules to combine words into logical sentences, humans can convey an infinite number of concepts.

While every language has a different set of rules, all languages obey grammar rules. Speakers of a language have internalized the rules and exceptions for that language's grammar. There are rules for every level of language that include word formation, phrase formation, and sentence formation. For example, native speakers of English have

internalized the general word formation rule that "-ed" is the ending for past-tense verbs, so even when they encounter a brand-new verb, they automatically know how to put it into the past tense. Additionally, when you use the verb "buy," you know because of phrase formation that the verb needs a subject and an object; "She buys" is wrong, but "She buys a gift" is okay. Older children can learn new rules of grammar with more flexibility. While younger children are likely to be reluctant to give up saying "I goed there," older children are quick to adjust to fit the rules of their spoken language.

Words don't have fixed meanings but change based on the spoken context. We use contextual information that surrounds the language to help interpret meaning. Context includes tone of voice, body language, and the words being used. For example, when said with a big smile, the word "awesome" means the person is excited about a situation. When said with crossed arms, rolled eyes, and a sarcastic tone, "awesome" means the person is not thrilled with the situation. In middle childhood, many children are aware of which contextual clues are important in communication and are expanding their **language development**. Additionally, many students are expanding their language development through more than one language.

Dual-Language Instruction

Although one-language speakers often do not realize it, more than half of the world's population is bilingual (Grosjean, 2020), meaning that they understand and use two languages. While the United States is still largely monolingual, with English defining the norm in the classroom (Cioè-Peña, 2021), the diversity of languages other than English spoken at home has increased to 20 percent of the U.S. population (Dietrich & Hernandez, 2022). Three-quarters of bilingual students are Hispanic, but the remaining quarter represents more than 100 different language groups from around the world. In larger communities throughout the United States, it is common for a single classroom to contain students from several language backgrounds at once. In classrooms, as in other social settings, bilingualism exists in different forms and degrees. The student who speaks both languages fluently has a definite cognitive advantage. A fully fluent bilingual student is in a better position to express concepts or ideas in more than one way and to be aware of doing so (Jimenez et al., 1995; Francis, 2006). Having a large vocabulary in a first language has been shown to save time in learning vocabulary in a second language (Hansen et al., 2002).

Cultures and ethnic groups differ not only in languages but also in how languages are used. Since some of the patterns differ from those typical of modern U.S. classrooms, they can create misunderstandings between teachers and students (Cazden, 2001; Rogers, et al., 2005). Consider these examples and imagine how they might be interpreted in the classroom:

- It may be considered polite or even intelligent not to speak unless you have something important to say. Small talk is considered immature in some cultures (Minami, 2002).
- Eye contact varies by culture. In many Black and Latinx communities, it is considered inappropriate for a child to make direct eye contact with an adult who is speaking to them (Torres-Guzman, 1998).
- Social distance varies by culture. It may be common to stand relatively close when having a conversation in some cultures, but not in others (Beaulieu, 2004).
- Wait time varies by culture. Wait time is the gap between the end of one person's comment or question and the next person's reply or answer. In some cultures, wait time is relatively long, as long as 3 or 4 seconds (Tharp &

Gallimore, 1989). In others, it is a negative gap, meaning that it is acceptable, even expected, for a person to interrupt before the end of the previous comment.

CASE STUDY: GABRIELA

How can language development impact a sense of belonging in school?

Gabriela comes from a culturally rich, Spanish-speaking family. At home, Spanish is the primary language spoken, providing her with a strong foundation in her mother tongue. However, upon entering elementary school, she was immersed in an English-speaking environment, where she had to quickly adapt to a new language and culture. Now entering middle school, one of the primary challenges Gabriela faces is the language barrier. While she excels in Spanish, she struggles to communicate effectively in English, leading to difficulties in understanding classroom instructions, expressing herself, and engaging in peer interactions.

Growing up in a Spanish-speaking household, Gabriela is proficient in her native language but faces challenges in adapting to an English-speaking school environment. However, her enrollment in a dual immersion program provides her with a distinctive opportunity to develop proficiency in both Spanish and English simultaneously, fostering cognitive growth and linguistic dexterity. The program provides instruction in both languages, helping Gabriela gradually transition to English while maintaining her proficiency in Spanish.

To help Gabriela feel more comfortable in her school environment, cultural integration activities are organized to celebrate diversity and promote inclusivity. These activities allow Gabriela to share her cultural heritage with her peers and learn about other cultures, fostering mutual understanding and respect. The collaborative learning environment of Gabriela's dual immersion school promotes peer interactions and cooperative learning experiences, enriching Gabriela's learning journey.

The inclusion of her native language and cultural traditions in the dual immersion school's curriculum and activities affirms Gabriela's identity, instilling a sense of pride and belonging in her cultural background. The diverse student body of Gabriela's dual-immersion school reflects a tapestry of linguistic and cultural diversity. Interacting with peers who share similar bilingual experiences and others from different linguistic backgrounds fosters a sense of acceptance and belonging. Collaborative learning experiences in both Spanish and English create bonds of camaraderie and mutual support among students, enhancing Gabriela's sense of belonging.

The intersection of developmental domains, particularly **cognitive development** as a dual-language learner, can significantly impact children's social-emotional development and sense of belonging. For emerging bilingual and dual-language learners, the process of acquiring a new language often involves navigating complex cognitive tasks, such as language comprehension, vocabu-

lary acquisition, and grammatical structures, which can require considerable mental effort and concentration. This cognitive load may divert attention and resources away from social interactions, leading to feelings of frustration, isolation, or self-consciousness in social settings. Additionally, language barriers can hinder effective communication and limit opportunities for meaningful social connections, which are essential for fostering a sense of belonging and emotional well-being. As a result, bilingual learners may experience heightened levels of stress, anxiety, or insecurity, further exacerbating challenges in social-emotional development. Addressing the intersection of cognitive and social-emotional domains for bilingual learners requires holistic support that considers both language acquisition and socio-emotional needs, including culturally responsive teaching practices, peer support networks, and inclusive learning environments that validate and celebrate linguistic diversity.

Emerging bilingual and dual-language learners may also experience cognitive dissonance when spending all day in an environment with different cultural constructs of language. This dissonance arises from the contrast between the linguistic and cultural norms of their native language and those of the second language they are acquiring. As these learners navigate between these contrasting cultural frameworks, they may encounter conflicting expectations, communication styles, and social cues, leading to cognitive tension and confusion. This cognitive dissonance can further complicate social-emotional development by creating a sense of disconnection or alienation from both the native culture and the new cultural context. Thus, addressing the intersection of cognitive development and social-emotional well-being for bilingual learners requires not only supporting language acquisition but also fostering cultural competence, self-awareness, and a sense of belonging in diverse linguistic and cultural communities.

This intersection of cognitive development, language acquisition, and social-emotional well-being among bilingual learners serves as a poignant example of why, even as we examine individual developmental domains, we must always remember that development is a complex and interconnected process. Each domain does not exist in isolation; rather, they intersect and influence each other in profound ways. Understanding the interplay between cognitive, linguistic, and socio-emotional domains is crucial for providing holistic support and fostering optimal development in diverse learners. By recognizing and addressing the multifaceted nature of development, educators and caregivers can create environments that promote growth across all domains, empowering learners to thrive academically, socially, and emotionally.

Theories of Language Development

Humans, especially children, have an amazing ability to learn a language. Within the first year of life, children will have learned many of the necessary concepts to have functional language, although it will take years for their capabilities to develop fully. As we just explained, some people learn two or more languages fluently and are bilingual or multilingual. Here is a recap of the theories that have been proposed to explain the development of language and related brain structures in children.

Skinner and Operant Conditioning

B. F. Skinner believed that children learn language through **operant conditioning**; in other words, children receive "rewards" for functionally using a language. For example, children learn to say the word "drink" when they are thirsty. They are then given something to drink, which reinforces their

use of the word for getting a drink, and thus they will continue to do so. This follows the four-term contingency that Skinner believed was the basis of language development—motivating operations, discriminative stimuli, response, and reinforcing stimuli. Skinner also suggested that children learn language through imitation of others, prompting, and shaping.

Chomsky and Language Acquisition

Noam Chomsky's work discusses the biological basis for language and claims that children have innate abilities to learn a language. Chomsky terms this innate ability the "language acquisition device." He believes children instinctively learn a language without any formal instruction. He also believes children have a natural need to use language and that children will develop a system of communication to meet their needs in the absence of formal language. He has observed that all children make the same type of language errors, regardless of the language they are taught. Chomsky also believes in the existence of a "universal grammar," which posits that there are certain grammatical rules all human languages share. However, his research does not identify areas of the brain or a genetic basis that enables humans' innate ability for language.

Piaget and Assimilation and Accommodation

Jean Piaget's theory of language development suggests that children use both assimilation and accommodation to learn language. **Assimilation** is the process of changing one's environment to place information into an existing schema (or idea). **Accommodation** is the process of changing one's schema to adapt to the new environment. Piaget believed children need to first develop mentally before language acquisition can occur. According to him, children first create mental structures within the mind (schemas), and from these schemas, language development happens.

Vygotsky and the Zone of Proximal Development

Lev Vygotsky's theory of language development focused on social learning and the **zone of proximal development (ZPD)**. The ZPD is a level of development obtained when children engage in social interactions with others; it is the distance between a child's potential to learn and the actual learning that takes place. Vygotsky's theory also demonstrated that Piaget underestimated the importance of social interactions in the development of language. Piaget's and Vygotsky's theories are often compared with each other, and both have been used successfully in the field of education.

Licenses and Attributions for Language Development in Middle Childhood

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Figure 10.7. **Image** is a derivative by **McSush** from Wikimedia Commons and is in the public domain.

10.5 Middle Childhood and School

School becomes a very important component of children's lives during middle and late childhood. Caregivers and the culture contribute to children's experiences in school as indicated by the ecological systems model. This model helps us understand an individual by examining the contexts in which the person lives and the direct and indirect influences on that person's life (Bronfenbrenner, 1979).

Factors That Influence School Experiences

While school has a large impact on a child's life, it is also true that aspects of a child's life, such as family or caregivers, also have a major influence on the child's school experience. Parents may unintentionally influence a child's perception of their academic abilities based on stereotypes. For children attending school, especially outside of the home, parental involvement can have a significant impact on a child's academic engagement. Furthermore, cultural factors may influence how children assimilate into the classroom environment.

Stereotypes

The stereotypes held by parents and teachers can influence children's self-efficacy in various domains. For example, teachers who hold the view that girls are better at reading (Retelsdorf et al., 2015) or boys are better at math (Plante et al., 2013) often find that their students' performance in these areas mirrors these stereotypes. This happens despite the children's actual ability or the ability of children in the classrooms of teachers who do not hold such stereotypes. While not all children will internalize the views of others, those who do are more likely to show declines in their performance consistent with the stereotypes (Plante et al., 2013; Retelsdorf et al., 2015). Additionally, teachers' stereotypes or biases can influence students of color. For example, Black students receive more out-of-school suspensions than White students (National Center for Education Statistics, 2019). It is important to recognize that we all have biases. By being aware of what our biases might be, parents and teachers can work at examining and fighting these implicit biases and stereotypes.

Parental Involvement

Parental involvement can have a big impact on a child's school experience. Teachers often complain that they have difficulty getting parents to participate in their child's education and devise a variety of techniques to keep parents in touch with their student's progress. For example, parents may be required to sign a behavior chart each evening to be returned to school or may be given information about the school's events through websites and newsletters. There are considerations to take into account when looking at parental involvement. Ask yourself if all parents who enter the school with concerns about their child will be received in the same way.

Teachers seek a particular type of involvement from particular types of parents (Horvat, 2004). Teachers are often most receptive to support, praise, and agreement coming from the parents who are most similar to themselves (i.e., race, social class). Additionally, parents with higher income levels or particular careers have family capital that influences decisions and teacher-parent interactions. Conversely, parents who criticize the school or its policies are less likely to be given a

voice, and parents who do not have the same kind of capital as other parents have may find it more difficult to be effectively involved (Horvat, 2004). Just as teachers need to examine their implicit bias toward students, they must also closely examine their biases against parents. Schools may also need to examine their ability to communicate with parents about school policies in a variety of ways.

Student Perspectives

Imagine being in 3rd grade in public school. What would the typical daily routine include, and how much say do you think you would have in it? Would you be expected to be "on task"? What parts of the day would you find difficult? Chances are, recess would be the highlight of your day.

A student's typical day is often filled with constrictive and unnecessary rituals that decrease student motivation (McLaren, 1999). **Cognitive development** leads to increased goal-orientation during middle childhood. However, students must navigate between time spent working toward academic goals and time spent on their interests. The majority of the day requires students to focus on a task or try to stay focused on a task. Additionally, students are often required to be passive, quiet, and compliant. Less time is spent in playful, energetic activities that allow children to express themselves and socialize. Teachers sometimes reward students with playful, energetic, social opportunities. However, when students socialize during "on-task" time, they may risk losing important recess time.

Since students seem to have so much enthusiasm and energy for personal interests, what would happen if goal-oriented tasks and personal interests overlapped more often? Many educators feel concerned about the level of stress children experience in school. Some stress can be attributed to problems in friendships, and some can be linked to the emphasis on testing and grades (Tyre, 2006). So why do schools continue what are often unnecessary school-day rituals? A look at cultural influences on education may provide some answers.

Cultural Influences

The cultural values, concepts, behaviors, and roles that students encounter in school play a huge part in their experience. Yet, these elements are not part of the formal curriculum. Rather, they are part of the hidden curriculum. The hidden curriculum includes ideas of patriotism, gender roles, the ranking of occupations and classes, competition, and other values. Cultural training begins early (Gracy, 2004). Kindergarten is an "academic boot camp" in which students are prepared for their future student roles. They learn to comply with an adult-imposed structure, and they learn a routine that will become central to their future lives as students. A typical day is filled with structure, ritual, and routine that often allow for little creativity or direct, hands-on contact.

Let's examine a kindergarten class schedule taken from a website found by going to Google and typing in "kindergarten schedule." You can find more of these on your own. Most look similar to the one seen in figure 10.8.

Morning Schedule	Activities and Routines
7:55–8:20	Math tubs (manipulatives) and small group math lessons
8:20–8:35	Class meeting/restroom and drinks
8:35–8:55	Math board/calendar
8:55–9:10	Whole class math lesson
9:10–9:20	Daily news chart
9:20–9:50	Shared reading (big books/poem and song charts)
9:50–10:15	Language arts centers
10:15–10:30	Morning recess
10:30–10:50	Alphabet/phonics lesson and paper
10:50–11:10	Reading workshop (more centers)
11:10–11:20	Picture and word chart
11:20–11:40	Writing workshop (journals)
Afternoon Schedule	**Activities and Routines**
11:40–12:20	Lunch and recess
12:20–12:50	Rainbow Reading Lab (sequenced file folder activities), or computer lab, or internet computers. Children are divided into two groups and do one of these activities each day. One teacher is in my room at this time.
12:50–1:20	Theme-related activity or art class 1 day per week
1:20–1:35	Afternoon recess (or still in art 1 day per week)
1:35–2:10	Nap/rest time
2:10–2:50	Special classes (music, counseling, PE, or library)
2:50–3:05	Show and tell, and get ready to go home

Figure 10.8. A Kindergarten Class Schedule

To what extent do you think that students are being prepared for their future student role? What are the pros and cons of such preparation? Look at the curriculum for kindergarten and the first few grades in your school district. Emphasizing math and reading in preschool and kindergarten classes is becoming more common. It is not without controversy, however. Some suggest that emphasis is

necessary to help students learn math and reading skills that will be needed throughout school and in the world of work. This will also help school districts improve their accountability through test performance. Others argue that students are being taught only to focus on performance and test-taking. Students are experiencing the stress felt by teachers and school districts focused on test scores, which teaches them that their worth comes from their test scores. How might you revise the schedule to combine playful, energetic social interests with children's growing goal-oriented abilities to stay on task? How might this foster a genuine interest and appreciation for the learning process?

CASE STUDY: DYANI

How does "whitewashing" the American history curriculum contribute to cognitive dissonance for students and communities of color?

Dyani found herself at a crossroads in her middle school journey when confronted with the representation of her heritage as an Alaskan in the American history curriculum. Born and raised in a small Alaskan village, Dyani grew up immersed in her Indigenous culture and surrounded by traditions passed down through generations.

She learned about the significance of storytelling, the importance of respecting nature, and the interconnectedness of all living beings. However, as she progressed through her education, Dyani began to realize that the history taught in school often overlooked or misrepresented the contributions and experiences of Indigenous peoples, including her own community.

The turning point for Dyani came during her American history class, where the curriculum primarily focused on the perspectives and achievements of Euro-American settlers. As she listened to lectures and read textbooks, Dyani couldn't help but feel a sense of disconnect between the narratives presented in the classroom and the lived experiences of her ancestors.

One particular instance stands out in Dyani's memory: a discussion about the exploration and colonization of Alaska by Russian and American settlers. While the textbook described these events as triumphs of discovery and progress, Dyani couldn't shake the feeling of discomfort. She knew that the arrival of outsiders had brought about profound changes to her community, including displacement, cultural erosion, and loss of traditional lands.

Determined to reconcile the conflicting narratives she encountered, Dyani embarked on a journey of self-discovery and education. She spent hours researching primary sources, seeking out books written by Indigenous authors, and engaging with elders in her community to learn about their experiences firsthand. Through her exploration, Dyani uncovered a wealth of

untold stories and perspectives that had been marginalized or silenced in mainstream historical accounts. She learned about the resilience of her ancestors in the face of adversity, their deep connection to the land, and their ongoing struggles for sovereignty and recognition.

Armed with this newfound knowledge, Dyani felt empowered to challenge the status quo and advocate for a more inclusive and accurate representation of Indigenous history in her school's curriculum. She organized discussions with her classmates, met with teachers to share her insights, and collaborated with local Indigenous organizations to develop supplementary educational materials.

Over time, Dyani's efforts began to yield results. Her school implemented changes to the history curriculum, incorporating more diverse perspectives and narratives that reflected the experiences of Indigenous peoples. Dyani's journey not only transformed her own understanding of history but also sparked meaningful dialogue and change within her school community.

Cognitive dissonance is a psychological phenomenon that occurs when an individual experiences internal conflict or tension as a result of holding contradictory beliefs, attitudes, or behaviors. This discomfort arises when there is a discrepancy between one's thoughts, feelings, or actions, leading to a sense of unease or confusion. Resolving cognitive dissonance often involves either adjusting one's beliefs or behaviors to align with each other or rationalizing the inconsistency to reduce the discomfort.

Dyani's experience highlights the pervasive impact of cognitive dissonance on Indigenous students navigating educational systems that often fail to acknowledge their heritage and experiences. Through her journey of self-discovery and advocacy, Dyani not only challenged historical narratives but also reclaimed her identity and empowered others to do the same. Her story serves as a powerful reminder of the importance of representation and the potential for positive change when voices that have been marginalized are heard and honored.

Neurodivergence and the Classroom

When children don't seem to be developing or learning in the typical pattern, they might be assessed for a disorder or disability. **Neurodivergence** is a term used to describe a spectrum of differences in cognitive functioning. While differences from what is considered typical development can create challenges, there are also strengths to neurodivergence. Labels related to functioning do little to support students. Instead, the focus should be on understanding potential challenges and students' individual strengths and needs. Neurodivergence may or may not be associated with mental illness or a learning disorder/disability. In this section, you'll learn about the spectrum of disorders and how they may impact many areas of a child's life.

A **learning disorder** is a classification of disorders in which a person has difficulty learning in a typical manner within one of several domains. Types of learning disorders include difficulties in reading (dyslexia), mathematics (dyscalculia), and writing (dysgraphia). These disorders are diagnosed with certain criteria. The term **learning disability** is an umbrella term used in school set-

tings and legal documents to describe learning challenges.

Children with learning challenges are often identified in school because this is when their academic abilities are tested, compared, and measured. Using the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM-5*), a qualified person such as a neuropsychiatrist, psychologist, or specialized therapist will make a diagnosis, identify causes, and create a treatment plan. The diagnosis of Specific Learning Disorder was added to the *DSM-5* in 2013. The *DSM-5* does not require that a single domain of difficulty be identified, like reading, mathematics, or written expression. Instead, it is a single diagnosis that describes a collection of potential learning challenges that include detailed specifications for the areas of reading, mathematics, and writing. Assessment must indicate that the individual is below average in at least one of these areas, and the symptoms may also interfere with daily life or work. In addition, the learning difficulties cannot be attributed to other sensory, motor, developmental, or neurological disorders. The next section will discuss specific learning disorders as diagnosed by the *DSM-5*.

Learning Disorders or Disabilities

Dyslexia, sometimes called "reading disorder," is the most common learning disorder. Of all students with specific learning disorders, 70–80 percent have deficits in reading (Shaywitz et al., 2021). Dyslexia is just one of several types of reading disorders. A reading disorder can affect any part of the reading process, including word recognition, word decoding, reading speed, prosody (oral reading with expression), and reading comprehension.

Dyscalculia is a form of math-related learning disorder that involves difficulties with learning math-related concepts, such as quantity, place value, and time. Challenges may also include memorizing math-related facts, organizing numbers, and understanding how problems are organized on the page.

The term dysgraphia is often used as an overarching term for all learning disorders of written expression. Challenges related to dysgraphia can involve grammar, punctuation, paragraph organization, spelling, and handwriting.

Dyspraxia is a neurodevelopmental disorder impacting movement and coordination between the brain and muscles. Dyspraxia is also referred to as developmental coordination disorder (DCD). Students with dyspraxia do not have the motor skills expected based on their age. Acquired dyspraxia can occur as a result of an illness or, more commonly, as a result of a brain injury. Dyspraxia may also be referred to as childhood apraxia of speech (CAS), developmental verbal dyspraxia, or speech apraxia. There are a few types of dyspraxia and associated challenges:

- Motor dyspraxia creates challenges for students when writing, getting dressed, manipulating buttons or zippers, or doing activities like skipping and running.
- Verbal dyspraxia creates challenges in fluency and clarity of speech.
- Oral dyspraxia creates challenges related to the movements of the mouth and tongue and may impact eating and speech.

Sensory processing disorders affect how your brain processes information from the environment. Auditory processing disorder (APD) is a sensory processing disorder that affects a person's ability to interpret sounds, especially speech. Challenges related to APD include difficulty with verbal directions, inability to distinguish sounds in noisy environments, and difficulty following conversations with peers.

Visual processing disorder (VPD) is a sensory processing disorder that affects a person's ability to interpret visual information. Challenges related

to VPD include difficulty reading, telling the difference between shapes and symbols, and focusing or finding a specific piece of information on a page.

Speech and Language Disorders

In education, speech and language disorders can impact how students understand or work with information, potentially creating additional learning challenges without beneficial support. Several disorders specifically affect speech and language function. The human brain has a few areas that are specific to language processing and production. When these areas are damaged or injured, the individual's capabilities for speaking or understanding can be lost, which is a disorder known as aphasia. These areas must function together for a person to develop, use, and understand language.

An articulation disorder refers to the inability to correctly produce speech sounds because of imprecise placement, timing, pressure, speed, or flow of movement of the lips, tongue, or throat (NIDCD, 2016). Sounds can be substituted, left off, added, or changed. These errors may make it hard for people to understand the speaker. They can range from problems with specific sounds, such as lisping, to more severe challenges, such as the ability to recognize, organize, or use particular sounds or words. Most children have problems pronouncing words early on while their speech is developing. However, by age 3, at least half of what a child says should be understood by a stranger. By age 5, a child's speech should be mostly intelligible. Parents should seek help if by age 6 the child is still having trouble producing certain sounds. It should be noted that accents are not articulation disorders (Medline Plus, 2016a).

Fluency disorders affect the rate of speech. Speech may be labored and slow, or too fast for listeners to follow. The most common fluency disorder is stuttering. Stuttering is a speech disorder in which sounds, syllables, or words are repeated or last longer than usual. These problems cause a break in the flow of speech, which is called dysfluency (Medline Plus, 2016b). About 5 percent of children ages 2–5 will develop some stuttering that may last from several weeks to several years (Medline Plus, 2016c). Approximately 75 percent of children recover from stuttering. For the remaining 25 percent, stuttering can persist as a lifelong communication disorder (NIDCD, 2016). This is called developmental stuttering and is the most common form of stuttering. Brain injury and, in very rare instances, emotional trauma may also trigger developing stuttering problems. In most cases of developmental stuttering, other family members share the same communication disorder. Disorders of the voice involve problems with pitch, loudness, and quality of the voice (American Speech-Language and Hearing Association, 2016). It only becomes a disorder when problems with the voice make the child unintelligible. In children, voice disorders are significantly more prevalent in males than in females. Between 1.4 percent and 6 percent of children experience problems with the quality of their voice. Causes can be due to structural abnormalities in the vocal cords and/or larynx; functional factors, such as vocal fatigue from overuse; and, in rarer cases, psychological factors, such as chronic stress and anxiety.

Inclusive Educational Practices

Since the 1970s, political and social attitudes have moved increasingly toward including people with disabilities in a wide variety of activities. In the United States, the shift is illustrated clearly in federal legislation. Three major laws were passed that guaranteed the rights of persons with disabilities and the rights of children and students with disabilities in particular. The third law to be passed has had the most significant impact on education.

The Rehabilitation Act of 1973

The Rehabilitation Act (1973) required that individuals with disabilities be accommodated in any program or activity that receives federal funding (PL 93-112, 1973). Although this law was not intended specifically for education, in practice it has protected students' rights in the classroom, in some extracurricular activities for older students, and in some child care or after-school care programs for younger students. Under the act, if a program receives federal funding of any kind, it is not allowed to exclude children or youths with disabilities and must find reasonable ways to accommodate the individuals' disabilities. Section 504 of the Rehabilitation Act refers to the accommodations provided to students for equal access to the curriculum. These accommodations are documented in a 504 plan.

Americans with Disabilities Act of 1990

The Americans with Disabilities Act (ADA) prevents discrimination based on disability. Its provisions are more specific and stronger than those of the Rehabilitation Act. In particular, the ADA extends to all employment and jobs, not just those organizations receiving federal funding. It also specifically requires that accommodations be made in public facilities, such as buses, restrooms, and telephones. The ADA is also responsible for accessibility improvements in schools, including wheelchair-accessible doors, ramps, and restrooms.

Individuals with Disabilities Education Act

Passed in 1975, the Individuals with Disabilities Act (IDEA) applies specifically to accessibility in education. It has been amended several times since, including most recently in 2004 (PL 108–446, 2004). In its current form, the law guarantees five core rights related to education for anyone with a disability from birth to age 21. The first two rights influence schooling in general, but the last three directly affect the work of classroom teachers:

- Free, appropriate education: An individual or an individual's family should not have to pay for education simply because the individual has a disability, and the educational program should be truly educational (i.e., not merely caretaking or babysitting).
- Due process: In case of disagreements between an individual with a disability and the schools or other professionals, there must be procedures for resolving the disagreements that are fair and accessible to all parties, including the individual or their representative.
- Fair evaluation of performance despite disability: Tests or other evaluations should not assume test-taking skills that a person with a disability cannot reasonably be expected to have, such as holding a pencil, hearing or seeing questions, working quickly, or understanding and speaking orally. Evaluation procedures should be modified to allow for these differences. This provision of the law applies both to evaluations made by teachers and to school-wide or state-wide assessments.
- Education in the "least restrictive environment": Education for someone with a disability should provide as many educational opportunities and options for the person as possible, both in the short and long term. In practice, this requirement has meant including students in regular classrooms and school activities as much as possible.
- An individualized educational plan (IEP): Given that every disability is unique, instructional planning for a person with a disability

should be unique or individualized as well. In practice, this provision has led to classroom teachers planning individualized programs jointly with other professionals, such as reading specialists, psychologists, or medical personnel.

Academic opportunities for children to access and develop cognitive skills are important for a child's overall development. The bioecological model (Bronfenbrenner, 1979) illustrates how the relationship between parents, schools, and policy systems, such as the acts mentioned above, interacts to influence a child's development. Quality education supports development by fostering cognitive processes and overall health and wellness.

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10.6 Health and Wellness

Stressors that Impact Information Processing

Two major stressors that impact children's ability to process information are the **bandwidth tax** and trauma. Bandwidth tax refers to the cognitive capacity for attention, making decisions, or planning. The bandwidth tax impacts children and their information-processing abilities when they are in a scarcity mindset, facing an unmet need that consciously or unconsciously occupies their attention (Mullainathan & Shafir, 2014; Ong et al., 2019). A need for sleep, food, safety, or even environmental comforts such as temperature or seating preoccupies the mind and makes it hard to sustain attention, process information, or make decisions. Scarcity impacts individuals' executive functions and overall ability to process information. What does this mean for middle childhood? What might this mean for students? Listen to the video clip in figure 10.9 to hear the application of scarcity in decision making and the accrual of disadvantages over time, given this tax on bandwidth.

This interactive content is not available in this version of the text. It can be accessed online here: https://www.youtube.com/watch?v=gV1ESN8NGh8

Figure 10.9. TEDxMidAtlantic 2011 – Eldar Shafir – Living Under Scarcity [Streaming Video]. Transcript.

Trauma is another stressor that can impact information processing. Trauma can be any physical or emotional threat or harmful event that a child experiences. Traumatic experiences create both physiological and psychological responses. Any time the brain perceives a traumatic event, the stress hormone cortisol is released and triggers a primitive stress response that is often called fight, flight, or freeze. While this stress response is a survival mechanism, it is not preventative or deter-

minative of how trauma will impact individuals in the future.

Trauma is generally categorized as either acute or chronic. Acute trauma is a single traumatic incident that can have lasting effects. For example, a child who experiences a car accident may show fear of being in a vehicle for many years. While acute trauma occurs once, chronic trauma occurs repeatedly or is ongoing, as is the case with domestic violence or war. Chronic trauma can also have lasting effects. Complex trauma is a type of chronic trauma that involves repeated traumatic experiences that may be varied and are inflicted by a caregiver. This includes, but is not limited to, physical abuse, sexual abuse, and verbal or emotional abuse, also known as psychological abuse. Complex trauma leaves a child confused and conflicted because of the personal nature. The person who inflicted harm was supposed to be the one protecting them and keeping them safe. When that trust is violated, the child is left feeling unsafe, alone, and scared.

Experiencing trauma does not guarantee the occurrence of lasting physical or psychological impacts. Resilience, or the ability to withstand or bounce back from traumatic experiences, may mitigate the occurrence and severity of physical and psychological impacts related to trauma (APA, 2017). Therefore, promoting resilience is key to children having the tools needed to better cope with traumatic experiences and potential future trauma.

Several factors promote the development of resilience. The most critical factor is connection with a safe and supportive adult. Additionally, helping children build confidence by providing opportunities to strengthen and promote resilience in the face of adversity. Beyond promoting resilience, a trauma-informed approach can support individuals who have experienced trauma. The National Center for Trauma-Informed Care, in conjunction with the Centers for Disease Control and Prevention's Center for Preparedness and Response, co-developed a trauma-informed public health approach guided by six principles.

These six guiding principles include:

1. ensuring physical and psychological safety
2. employing transparency in decision-making and the building and maintenance of trust
3. fostering peer support that empowers, builds trust, and establishes safety
4. sharing power and decision-making appropriately
5. recognizing individual experiences and building on strengths rather than focusing on deficits
6. leveraging the value of cultural connections, as well as recognizing and addressing stereotypes and biases

Optional Resources Related to Trauma

- The organization Futures without Violence provides a video that explains the effects of trauma on the brain and provides many recommendations for how one can help others who have experienced trauma: **Changing Minds: Listen [Streaming Video]**.
- Harvard University's Center on the Developing Child greated a **Guide to Resilience [Website]**.
- The National Child Traumatic Stress Network provides additional information about child trauma via the **NCTSN Resources page [Website]**.

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10.7 Conclusion

Research into **cognitive development** has shown that minds don't simply form according to a uniform blueprint or innate intellect. Rather, they are shaped by a combination of influencing factors. For instance, if we want our kids to have a strong grasp of language, we might concentrate on phonemic awareness early on. If we want them to be good at math and science, we might engage them in numerical games and activities early on. Perhaps most importantly, research has shown that we should not think of brains as empty vessels waiting to be filled with knowledge, but as adaptable organs that develop through early adulthood.

Review of Learning Objectives

1. Identify the stages of cognitive development in middle childhood.
2. Compare and contrast key theories related to understanding cognitive development in middle childhood.
3. Examine how biological and social factors influence the school experience.
4. Analyze the impact of environmental influences on cognitive and **language development**.

Review of Key Terms

- **Bandwidth tax**: the cognitive load or mental effort required to manage multiple tasks or information streams simultaneously.
- **Classification**: the process of grouping items, data, or information into categories or classes based on their characteristics, properties, or attributes.
- **Concrete operational stage**: a stage of cognitive development described by Jean Piaget that typically occurs between the ages of 7 and 11 and is characterized by the development of logical thinking and the ability to perform mental operations on concrete objects or events.
- **Conservation**: the ability to understand that an object or quantity remains the same despite changes in its appearance, shape, or arrangement.
- **Emotional regulation**: the ability to acknowledge an emotion and be able to handle emotional reactions and behaviors in useful ways.
- **Executive function**: a set of cognitive processes that are responsible for controlling and regulating behavior, thoughts, and emotions.
- **Inductive reasoning**: reasoning in which conclusions are drawn from specific observations or evidence rather than from general principles or assumptions.
- **Learning disorder**: a neurodevelopmental disorder that affects the way an individual

processes information, learns new skills, and communicates with others, and is characterized by difficulties in one or more areas of academic, social, or occupational functioning.
- **Neurodivergence**: the natural variation in neurological and cognitive functioning among individuals that is not necessarily a deficit or abnormality.
- **Reversibility**: the ability to understand that things can be changed back to their original state.
- **Seriation**: the cognitive ability to arrange objects or concepts in a particular order or sequence.
- **Social learning theory**: a psychological theory that suggests that people learn through observation, imitation, and modeling the behavior of others in social settings, and that the consequences of these behaviors (such as rewards and punishments) influence whether or not the behavior is repeated in the future.
- **Sociocultural theory**: a psychological and educational theory that emphasizes the role of social and cultural factors in shaping individual development and learning.
- **Transitivity**: the ability to understand and logically deduce relationships between items in a series or set.
- **Zone of proximal development**: the difference between what a learner can do independently and what they can do with assistance from a more knowledgeable other.

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CHAPTER
11

Social and Emotional Development in Middle Childhood

11.1 Chapter Overview and Learning Objectives

During middle childhood, children continue to build on the foundation of social and emotional skills established during early childhood, while also facing new challenges and opportunities for growth. This chapter will explore the various aspects of **social and emotional development** in middle childhood, including the development of self-concept and identity, relationships with peers and adults, emotional regulation, and moral reasoning.

Throughout middle childhood, children are increasingly able to understand and express their thoughts, feelings, and preferences, leading to the development of a more complex sense of self. They begin to recognize their strengths and weaknesses and may compare themselves to others to better understand their abilities and limitations. At the same time, children become more aware of social norms and expectations and may adjust their behavior to fit in with their peers or gain adult approval.

Peer relationships become increasingly important during middle childhood as children spend more time interacting with their peers outside of school and engage in more complex forms of play and social interaction. They begin to form close friendships based on shared interests and experiences and develop a greater understanding of the perspectives and feelings of others. At the same time, children may also experience social challenges, such as bullying or exclusion, that can have significant impacts on their emotional well-being.

Emotional regulation is another key aspect of social and emotional development during middle childhood. Children become more skilled at recognizing and managing their own emotions. They may begin to use coping strategies, such as talking to friends or engaging in relaxation techniques to deal with stress or anxiety. They also become

more attuned to the emotions of others and may develop greater empathy and sensitivity to the needs of others.

Finally, middle childhood is a time when children begin to develop a more complex understanding of moral reasoning and ethical behavior. They begin to understand the concepts of fairness, justice, and responsibility, and they may apply these concepts to their own behavior as well as to the behavior of others. As they navigate new social and emotional challenges, children continue to build on the skills and abilities established during earlier stages of development and prepare for the complex social and emotional landscapes of adolescence and adulthood.

Learning Objectives

1. Identify the stages of social and emotional development in middle childhood.
2. Compare and contrast theories of **moral development**.
3. Examine the complex nature of gender identity in middle childhood.
4. Analyze the impact of caregivers, peers, and environmental influences on social emotional and moral development in middle childhood.

Key Terms

Throughout this chapter, you will be introduced to important key terms that will help deepen your understanding of human development.

- **Gender identity**: a person's deeply held sense of their own gender, which may be different than the sex they were assigned at birth.
- **Moral development**: the process through which individuals acquire and internalize moral values, beliefs, and principles and develop the ability to distinguish right from wrong.
- **Nature versus nurture**: the ongoing debate in psychology and other fields about the relative contributions of genetics (nature) and environment (nurture) in shaping human behavior, traits, and development.
- **Peer group**: a social group composed of individuals who are similar in age, social status, interests, and other characteristics and who interact with one another regularly.
- **Self-concept**: the cognitive and perceptual understanding that an individual has of themselves, including the beliefs, perceptions, thoughts, and evaluations that a person holds about their own identity, abilities, characteristics, and worth.
- **Self-esteem**: the subjective evaluation and perception that an individual has of their own worth, value, and overall sense of self.

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11.2 Self-Concept and Understanding

During middle childhood, children also develop a more complex and nuanced understanding of their identities. They may explore and experiment with different roles, interests, and social groups, which can lead to shifts in their self-concept over time. As children better understand their own values, beliefs, and goals, they may become more self-aware and reflective.

Overall, the development of self-concept during middle childhood is a complex and multifaceted process influenced by various social, cognitive, and emotional factors. Through social comparison, feedback from others, and exploration of their identities, children gradually form a more complete and nuanced understanding of themselves and their place in the world.

Self-Concept and Self-Esteem

Self-concept and self-esteem are two related but distinct psychological concepts.

Self-concept refers to how individuals see themselves, including their beliefs, attitudes, and values about their abilities, personality traits, physical appearance, and social identity. It involves an overall perception of oneself and can be influenced by factors such as experiences, feedback from others, and social comparisons. In contrast, self-esteem is a person's overall evaluation of their own worth or value as a person. It is an important aspect of psychological well-being and can impact various areas of life, such as relationships, academic and work performance, and mental health. During middle childhood, children's self-esteem can be influenced by various factors, including their interactions with others, their accomplishments, and their ability to meet the demands and challenges of their environment.

In short, while self-concept refers to an individual's beliefs and attitudes about themselves, **self-esteem** is more focused on the emotional and evaluative component of self-perception. In other words, self-esteem reflects how an individual feels about their self-concept.

Cognitive Influences on Self-Concept

Cognitive development plays an important role in shaping **social and emotional development** during middle childhood. As children enter this period, they experience significant cognitive changes, including improvements in memory, attention, reasoning, and problem-solving skills (Harter, 2012). These cognitive changes can influence social and emotional development in several ways. One way cognitive development influences social and emotional development during middle childhood is by expanding children's perspective-taking abilities. As children's cognitive abilities improve, they become better able to take the perspective of others and to understand the thoughts and feelings of those around them. This can help children develop empathy and compassion for others, which is an important component of social and emotional development. Another way cognitive development influences social and emotional development during middle childhood is by improving children's self-regulation abilities. As children become better at controlling their attention, thoughts, and emotions, they can better regulate their behavior in social situations. This can help children navigate social interactions more effectively and form positive relationships with their peers.

Another important role of cognitive development is in the development of problem-solving

skills during middle childhood. As children become better at thinking abstractly and reasoning logically, they become better able to solve complex social problems and negotiate conflicts with their peers. This can help children develop more effective communication and problem-solving skills, which are essential for positive social and emotional development. Finally, cognitive development can influence social and emotional development by shaping children's understanding of social norms and values. As children become better able to understand abstract concepts such as fairness, justice, and equality, they develop a more nuanced understanding of social norms and values. This can help children develop a sense of social responsibility and form positive social identities.

Cognitive development plays a critical role in shaping social and emotional development during middle childhood. Improvements in perspective-taking abilities, self-regulation abilities, problem-solving skills, and understanding social norms and values can help children navigate social interactions more effectively and develop positive relationships with family members as well as peers.

Cultural Influences on Self-Concept and Self-Esteem

Cultural influences can play a significant role in shaping a child's self-concept during this stage of development. One cultural influence on self-concept during middle childhood is family. Children often develop a sense of self through interactions with family members and cultural backgrounds. For example, some cultures emphasize collectivism, and group needs are prioritized over individual needs. This can result in children developing a more communal sense of self in which their sense of identity is tied to their family and community.

Peers represent another cultural influence on self-concept during middle childhood. Children may compare themselves to their peers and seek their approval and validation. In some cultures, social hierarchies may be more rigid, and social status may be more important. This can result in children developing a more competitive sense of self in which their sense of identity is tied to their success and status among their peers.

Education and media can also influence children's self-concept during middle childhood. For example, exposure to positive role models who are from their cultural background can help children develop a sense of pride in their heritage and identity (Markus & Kitiyama, 2010). However, exposure to negative stereotypes and discrimination can also harm children's self-concept and lead to feelings of inferiority. By understanding these influences, parents, educators, and caregivers can help support children's development of a positive and healthy sense of self.

Family Influences on Self-Esteem

Families have a significant impact on a child's self-esteem. The quality of the parent-child relationship and the parenting style can shape a child's self-esteem in different ways (Steinberg et al., 1992). A warm and affectionate family environment where children feel supported and loved can contribute to higher self-esteem. Children who receive positive feedback, encouragement, and validation from family members are more likely to develop a positive self-image. Parents who model healthy self-esteem behaviors, such as self-acceptance, self-care, and positive self-talk, can help children learn healthy self-esteem habits. Fair and consistent discipline contributes to positive self-image because it reinforces a sense of security and stability. Parents who set realistic expectations for their children and provide opportunities for success can help children feel competent and confi-

dent. On the other hand, overly high expectations and critical feedback can lower self-esteem and create anxiety. Finally, open and supportive communication within families can help children feel heard and valued, which can contribute to positive self-image.

The family environment can provide a foundation for healthy self-esteem development that can support children throughout their lives. However, families are not the only factor influencing self-esteem. Children's experiences outside the family, such as interactions with peers, teachers, and the broader community, can also play a role.

Peer Influences on Self-Esteem

Peers play a significant role in shaping and influencing self-esteem during middle childhood. During this developmental stage, children become increasingly aware of their social interactions and seek acceptance and approval from their peers. Peers can provide social and emotional support through friendship, which contributes to a positive sense of self-worth. Having friends who value and support them can enhance children's self-esteem.

Children compare themselves to their peers to evaluate their own abilities, achievements, and social standing (Rubin et al., 2011). This process is called social comparison. If they perceive themselves as being less competent or less popular than their peers, it can negatively impact their self-esteem. Being accepted by peers and having a sense of belonging within a **peer group** is crucial for developing a positive self-image. In fact, the benefits of finding a peer group to which a youth can belong improves life outcomes into later adult life (Trzesniewski et al., 2006). Rejection or exclusion can significantly damage self-esteem. Social comparison may also include an increased awareness of physical appearance. As children become more aware of physical appearance, peers' opinions and comparisons can affect self-esteem. Negative comments or comparisons related to physical attributes may lead to body image issues and lower self-esteem.

Middle childhood is also a critical period in social skills development. Interacting with peers allows children to develop and refine their social skills. If children struggle with making friends or face frequent social difficulties, it can lead to lower self-esteem (Parker & Asher, 1993). One important social skill that is still emerging during this developmental period is giving and receiving feedback. Peers provide feedback and validation through social interactions. Positive feedback and encouragement can boost self-esteem, while negative feedback or criticism can lower it. Constructive criticism can be helpful for growth, but constant negative feedback can erode self-esteem.

Peers can influence how children perceive themselves. If they are consistently praised or criticized for specific traits or behaviors, it can shape their self-concept. For example, if peers consistently compliment a child's athletic abilities, they may develop a positive self-concept related to sports. However, if they receive negative feedback, that may also inform their self-concept and contribute to feelings of inferiority or inadequacy. Creating a supportive environment that encourages positive peer interactions, promoting self-acceptance, and teaching resilience can help children develop healthy self-esteem during middle childhood.

Cultural and Media Influences on Self-Esteem

Cultural values and beliefs play a significant role in shaping a child's self-esteem. Different cultures may emphasize certain qualities or attributes that are considered important for self-worth. For example, individualistic cultures may focus on personal achievements and independence, while

collectivist cultures may emphasize social harmony and cooperation. Children growing up in different cultural contexts may internalize these values, affecting their perception of self-worth accordingly. Cultural experiences help children develop a sense of cultural identity and belonging. When children feel connected to their cultural heritage and experience positive aspects of their culture, it can contribute to a sense of pride and self-esteem. Cultural practices, traditions, and celebrations provide opportunities for children to feel valued and recognized within their cultural group, which can positively impact their self-worth.

CASE STUDY: DYANI AND GABRIELA

Why do we need BIPOC representation in the media?

Dyani and Gabriela, two middle school students who identify as Black, Indigenous, and people of color (BIPOC), grapple with the challenge of finding themselves represented in media. Despite their young age, they keenly observe the lack of diversity in cartoons, movies, and TV shows. This limited representation leaves them feeling overlooked and marginalized, struggling to find characters who resemble them. When BIPOC characters do appear in media, they are often stereotypes or tokenized portrayals, reinforcing harmful narratives and societal biases. Dyani and Gabriela find this disheartening, as it further perpetuates misconceptions about their communities. Growing up without seeing positive reflections of themselves in media takes a toll on their self-confidence and self-image, prompting them to question their own identity and place in the world.

Despite these challenges, Dyani and Gabriela actively seek out alternative media sources such as books, comics, and online content created by and featuring BIPOC voices. They immerse themselves in stories that celebrate the diversity and richness of their cultures, finding joy and inspiration in narratives that resonate with their experiences. Additionally, they engage in creative expression through writing, art, and digital media, using their platforms to showcase diverse perspectives and challenge stereotypes.

With the help of adults in their schools, Dyani and Gabriela also connect with like-minded peers who share their concerns about representation in media. They participate in discussions, clubs, and projects aimed at promoting diversity and inclusion. They recognize the importance of educating others and take on the role of educators, sharing their insights and experiences with friends, family, and classmates to foster awareness and empathy within their community. Despite the obstacles they face, Dyani and Gabriela remain steadfast in their quest for authentic and inclusive narratives, inspiring others to join them in shaping a media landscape that reflects the diversity and richness of human experiences.

Peers and social groups provide an important context for self-esteem development during middle childhood. Peer acceptance and social comparisons can affect how children perceive themselves

in relation to others. Cultural diversity and inclusivity within peer groups can introduce children to different perspectives and norms and contribute to a broader understanding of self-worth and promote positive self-esteem.

The media and popular culture also play a significant role in shaping children's self-perception. Cultural representations in media can contribute to stereotyping, unrealistic beauty standards, and social comparisons. Exposure to these influences can impact a child's self-esteem, particularly if they perceive themselves as not fitting the ideals presented (Leung & Kwan, 2019).

The development of self-esteem in children is impacted by several **equity** issues that revolve around fairness, justice, and equal opportunities. Socioeconomic disparities can hinder a child's self-esteem, as limited access to resources and opportunities may create feelings of inferiority or inadequacy. Educational inequities, such as unequal access to quality education, can limit a child's academic progress and personal growth, leading to diminished self-worth. Cultural and ethnic diversity can contribute to equity issues, as marginalized or minority children may face discrimination, prejudice, and exclusion, which negatively impact their self-esteem. Gender inequality perpetuates societal expectations and biases, affecting the self-perception and self-esteem of both girls and boys. Children with disabilities encounter barriers to accessibility, discrimination, and lack of accommodations, leading to feelings of exclusion and low self-worth (Myers & Vollmer, 2018). **Intersectionality** further compounds these equity issues, as children with multiple marginalized identities may face compounding challenges that affect their self-esteem and overall well-being. Addressing these equity issues requires creating inclusive environments, promoting equal access to resources and opportunities, challenging stereotypes and biases, and fostering a sense of belonging and acceptance for all children, regardless of their backgrounds.

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11.3 Relationships in Middle Childhood

As in earlier periods of life, relationships are a critical part of **social and emotional development** in middle childhood. During this phase, several important relationships emerge and evolve, playing a crucial role in shaping children's overall well-being and growth. Friendships take on a newfound significance as children navigate the complexities of peer interactions, seeking acceptance and forming connections with like-minded individuals. These friendships provide emotional support, shared experiences, and a sense of belonging that help children develop their identities. Additionally, teachers become influential figures in middle school, fostering mentorship and guidance beyond the academic realm. These relationships offer a safe space for learning, encouragement, and personal development. Finally, familial bonds continue to be fundamental, as parents and siblings provide love, stability, and guidance during the often tumultuous middle-school years. Together, these relationships form a vital web of support that helps children navigate the challenges and opportunities of this transitional period in their lives.

Middle Childhood Friendship

Friendship formation in middle childhood is influenced by several factors, including shared interests, proximity, and social skills (Parker & Asher, 1993). Children often gravitate toward peers who have similar hobbies, preferences, or activities, as these shared interests provide a basis for connection and shared experiences. Whether it's playing sports, engaging in artistic endeavors, or exploring common hobbies, these shared activities provide opportunities for interaction and bonding.

Proximity also plays a significant role in friendship formation during this stage. Children tend to develop friendships with those who are physically close to them, such as classmates or neighbors. Daily interactions in school or within the community enable them to spend more time together, fostering familiarity and increasing the chances of forming friendships.

Furthermore, social skills become increasingly important in middle childhood friendships. Children begin to develop more advanced communication and conflict-resolution skills, allowing for more effective and meaningful interactions. They learn to share, take turns, negotiate, and empathize, which helps to build trust and strengthen their relationships. Developing these social competencies is crucial for navigating the complexities of friendship, resolving conflicts, and maintaining positive connections.

In middle childhood, friendships also start to take on more complex characteristics. Children become capable of forming reciprocal relationships in which they actively seek emotional support, engage in cooperative play, and demonstrate a deeper understanding of their friends' feelings and perspectives. They begin to recognize and value qualities such as trust, loyalty, and kindness, which contribute to the formation of more enduring and meaningful friendships. These friendships not only provide emotional support, but also contribute to the development of crucial social competencies that will continue to shape their social lives throughout adolescence and adulthood.

Gendered Patterns in Friendships

Gender influences friendship formation in middle childhood, as children often exhibit gender-based preferences and behaviors in their social interactions. During this stage, children tend to gravitate toward peers of the same gender, seeking out friends who share their interests, play styles, and activities. Additionally, gender differences in play preferences become more pronounced, with boys engaging in rough-and-tumble play and competitive games and girls leaning toward cooperative play and imaginative activities.

Socialization and adherence to gender roles also play a role, as children are influenced by societal expectations. Those who conform to traditional gender norms may find it easier to be accepted by same-gender peers, shaping their friendships. Moreover, gender stereotypes and biases can affect friendship formation, as children internalize societal beliefs about gender and make assumptions about potential friends based on these stereotypes. However, individual differences and personal preferences also influence friendship formation, and not all children conform to gender stereotypes.

Family Formations

For many, the term "family" evokes images of a heterosexual, two-parent family, with two kids and a dog. Of course, although this image, often referred to as the nuclear family, may dominate the accepted cultural construct of family, family formations are much more diverse. Middle childhood may witness the formation of blended families when parents form new relationships,

resulting in the integration of stepparents and stepsiblings into the family unit. Single-parent families, in which one parent takes on the primary caregiving responsibilities, are also prevalent. Extended families, which involve close relatives such as grandparents, aunts, uncles, and cousins living together or playing active roles in the child's life, are also common, particularly in some cultures. Furthermore, some families have two parents of the same gender, more than two parents, adoptive children, or no children at all. Family formations reflect the diversity and complexity of modern family structures and have a significant impact on children's social and emotional development.

Divorced Families

Divorced families are a common family structure during middle childhood, resulting from the dissolution of a marriage between the parents. Children in divorced families often experience a significant adjustment period as they adapt to the new family dynamics and navigate the challenges that arise from the separation. During middle childhood, children are becoming more aware of their surroundings and capable of understanding complex emotions. Consequently, the divorce of their parents can evoke a range of emotions, including sadness, confusion, anger, and anxiety. Children may struggle with loyalty conflicts and feel torn between their parents or experience feelings of guilt. Parental conflict and communication patterns can also impact children's well-being during this time. However, divorced families can also provide opportunities for growth and resilience. With proper support and communication, children can learn effective coping mechanisms, develop resilience, and form strong bonds with both parents.

Blended Families

Blended families occur when two adults with children from previous relationships come together to form a new family unit. This process can have both positive and negative impacts on children in middle childhood. Here are some ways in which blended families can affect children during this developmental stage:

- Adjusting to new family dynamics: Middle childhood is a time when children are developing a greater understanding of family relationships and roles. Forming a blended family can require children to adjust to new family dynamics, such as stepparents, step-siblings, and potentially step-grandparents. These changes can initially cause stress and confusion as children navigate their roles and relationships within the blended family structure.
- Emotional challenges: Children in middle childhood may experience a range of emotions as they adapt to the changes brought about by a blended family. They may feel a sense of loss or grief due to changes in their living arrangements or reduced time with one or both biological parents. They may also struggle to resolve conflicted feelings about staying loyal to their biological parents and embracing the new stepparent or stepsiblings.
- Building new relationships: Blended families require children to establish new relationships with stepparents and stepsiblings. Developing trust and rapport with new family members can take time and effort. Children may also need to adjust to differences in parenting styles, rules, and expectations between their biological parents and stepparents.
- Sibling dynamics: In blended families, children may have to negotiate and navigate relationships with both biological and stepsiblings. The formation of new sibling relationships can involve competition, jeal-

ousy, and conflict. Parents and caregivers play a crucial role in helping children develop positive sibling dynamics and resolving any conflicts that may arise.
- Benefits of increased support: Blended families can also provide children with increased emotional and social support. If the relationships within the blended family are positive and nurturing, children may benefit from having additional caring adults in their lives. They may gain new perspectives, experiences, and opportunities for personal growth.

Single Parent Families

Single-parent families are characterized by one parent taking on the primary caregiving responsibilities for the child or children. There are various reasons for the formation of single-parent families, including divorce, separation, the death of a spouse, or a choice to parent alone. Middle childhood can be a challenging time for children in single-parent families, as they may experience the absence of the other parent and a significant adjustment to a new family structure. The single parent often faces unique challenges, such as balancing work and parenting responsibilities, managing financial pressures, and providing emotional support to their children. Despite these challenges, single-parent families can also foster strength and resilience in children as they learn to adapt to new circumstances and develop strong bonds with their single parent. Additionally, support systems and resources, such as extended family, friends, and community organizations, can play a crucial role in helping single-parent families thrive and provide a nurturing environment for children during middle childhood.

Families Experiencing the Loss of a Parent

The loss of a parent during middle childhood can have a profound impact on a child's well-being. Emotionally, children may experience grief, sadness, anger, and confusion as they grapple with the loss. They may also face challenges in expressing their emotions and require support to process their feelings effectively. The changes in family dynamics and structure that occur as a result of the loss can disrupt the child's sense of stability and security. Academically, the child may struggle with concentration, motivation, and engagement in school due to emotional distress and grief. Socially, maintaining relationships with peers may become challenging, and a sense of isolation or withdrawal can arise. The loss of a parent can also influence a child's sense of identity and self-concept as they question their role within the family and their own identity in relation to their deceased parent. The availability of support systems and coping mechanisms is crucial in helping children navigate the loss.

Cohabiting Families

Cohabiting families can face unique challenges. Here are some common challenges associated with cohabiting families:

- Legal and financial protections: Unlike married couples, unmarried partners do not benefit from the same legal protections and financial rights. In the event of separation or the death of one partner, the legal framework may not provide the same level of support and division of assets as it would for married couples. This can lead to uncertainty and potential financial hardships for both partners and any children involved.

- Perceived lack of commitment: Cohabiting relationships may be viewed as being less committed than relationships involving marriage. This perception can affect the level of dedication and long-term planning within the relationship. The absence of a formal commitment can sometimes result in a lack of stability and uncertainty, which can impact the emotional well-being of all family members, including children.
- Social stigma and lack of recognition: Cohabiting families may face social stigma and a lack of recognition from certain segments of society. Traditional cultural or religious beliefs may view marriage as the only acceptable form of family structure. This can result in feelings of marginalization and judgment and a sense of not being fully accepted as a legitimate family unit.
- Limited legal parental rights: Some cohabiting families include a partner who is not the biological or adoptive parent of any of the children in the family. These partners may face challenges regarding their legal rights and responsibilities as parents. In some jurisdictions, the non-biological or non-adoptive parent may have limited or no legal rights to the child, making decisions regarding education, health care, or other important matters more complex. These legal uncertainties can cause additional stress and potential conflicts within the family.
- Lack of social support: Cohabiting couples may have limited access to the support networks and resources typically available to married couples, such as family benefits, community programs, and social services. This can place additional strains on the family, particularly during times of financial or emotional need.

LGBTQIA+ Families

Youth in LGBTQIA+ families during middle childhood can have unique experiences that are shaped by their family structure and the social context in which they live. In these families, children may have same-sex parents, transgender parents, or parents who identify as part of the LGBTQIA+ community. Middle childhood is a period when children become more aware of their own identity and start to understand societal norms and expectations related to gender and sexuality.

The experiences of youth in LGBTQIA+ families can be influenced by several factors. Acceptance and support within the family are crucial. Children who grow up in a loving and affirming environment where their parents' sexual orientation or gender identity is celebrated tend to have positive experiences. They may develop a strong sense of self-acceptance, inclusivity, and empathy toward others. However, challenges may arise due to external factors. Stigma, prejudice, and discrimination can impact children's well-being and sense of belonging. They may encounter misconceptions or bias from peers, educators, or community members regarding their family structure. Such experiences can lead to feelings of isolation, lower self-esteem, and emotional distress.

Supportive communities and access to resources are essential for youth in LGBTQIA+ families. When surrounded by accepting communities, inclusive schools, and supportive social networks, children can feel more affirmed and secure in their identities. Involvement in LGBTQIA+ organizations, community events, or support groups can provide opportunities for connection, mentorship, and positive role models. Parental support and communication also play crucial roles. When parents openly discuss topics related to gender and sexuality, address any concerns or questions their child may have, and advocate for

their child's well-being, it can foster a healthy and empowering environment.

Overall, the experiences of youth in LGBTQIA+ families during middle childhood vary based on the level of acceptance, support, and the presence of inclusive environments. By promoting inclusivity, education, and supportive resources, society can create an environment where all children, regardless of their family structure, can thrive and feel valued.

Adoptive Families

Adoptive families are formed when parents choose to bring a child into their family through legal adoption. Middle childhood is a stage when children have a growing awareness of their family origins and may seek a deeper understanding of their adoption story. As a result, children in adoptive families may begin to have more questions about their adoption, their birth parents, and their own identity. It is crucial for adoptive parents to provide an open and supportive environment where children feel comfortable discussing their adoption journey. Middle childhood is also a time when children develop a greater sense of belonging and social connections. Adoptive families can provide a nurturing and loving environment, helping children form secure attachments and develop a positive sense of self. Additionally, adoptive families may choose to maintain connections with birth families through open adoption, facilitating a deeper understanding of their heritage and providing a sense of identity.

Families Navigating Poverty

Children growing up in families navigating poverty can face a range of challenges that can impact their overall well-being and development. Poverty often limits a family's access to basic necessities, such as adequate nutrition, health care, housing, and educational opportunities. Insufficient access to nutritious food, health-care services, and stable housing can negatively impact a child's physical health, growth, and overall development. Lack of resources and opportunities may also limit their access to quality education, extracurricular activities, and enrichment programs, potentially affecting their academic achievement and future prospects.

Children in poverty may experience increased stress, anxiety, and a sense of insecurity due to economic hardships. Financial instability, frequent moves, and exposure to family conflict related to financial strain can create emotional burdens for children. They may also witness their parents' stress and worry, which can further impact their own emotional well-being and development.

Poverty can create barriers to educational success. Limited access to resources, such as books, technology, and educational support, may hinder a child's academic progress. The lack of stable housing or frequent moves can disrupt their schooling, leading to educational gaps and difficulties in building relationships with peers and teachers.

Children from economically disadvantaged families may experience higher rates of health problems and have limited access to health care. This can lead to untreated medical conditions, delayed or inadequate health care, and challenges in maintaining overall well-being. Poor nutrition, limited access to safe recreational spaces, and exposure to environmental risks can further contribute to health disparities.

Poverty can lead to social stigmatization and marginalization, which can impact a child's self-esteem and social interactions. They may face stereotypes and biases from peers, leading to feelings of shame, embarrassment, or exclusion. The lack of financial resources to participate in social activities or acquire the material possessions that

their peers may have can also contribute to social isolation.

Children's experiences in families navigating poverty can vary depending on a variety of factors, including the duration of poverty, the presence of support networks, and access to government or community assistance programs. Nonetheless, addressing the impact of poverty on children requires a comprehensive approach that involves providing access to basic needs, quality education, health care, and social support systems. Creating opportunities for economic mobility, reducing inequality, and promoting inclusive policies can help alleviate the challenges faced by children growing up in poverty.

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11.4 Gender Identity Development

Gender identity development is a complex process. It is impacted by physical and cognitive changes, as well as **social and emotional development**. In many ways, gender identity influences and is influenced by all developmental domains. Because gender in and of itself is a construct, the concept is often understood and experienced through relationships with self and others. Therefore, we have chosen to nest the topic in social and emotional development.

In the developmental stage of middle childhood, children begin to develop a stronger understanding of their gender identity. Gender identity development refers to the process through which children acquire a sense of their own gender and align themselves with the cultural and societal expectations associated with each gender. During this period, children become more aware of gender roles, stereotypes, and the biological differences between the sexes. They may also exhibit a greater interest in engaging in gender-typed activities, preferences for same-gender friendships, and an increased awareness of their own gender-related behaviors and appearance. This is a critical stage during which children navigate their own gender identity within the broader social context, and it sets the foundation for their future understanding and expression of gender as they move into adolescence and beyond. Parents, educators, and caregivers play an important role in supporting healthy gender identity development by providing a safe and accepting environment that encourages exploration, questions, and discussions around gender, while also challenging rigid gender stereotypes and promoting gender equality.

Gender as a Construct

Gender is a social construct that refers to the roles, behaviors, expectations, and identities that society attributes to individuals based on their perceived sex. While sex is determined by biological factors, such as reproductive organs and chromosomes, gender is a set of cultural and societal norms that dictate how individuals should act, dress, and relate to others based on their perceived sex. These norms and expectations vary across cultures and historical periods, demonstrating that gender is not fixed or inherent but rather a product of socialization and learned behaviors. The concepts of masculinity and femininity, as well as the division of labor and responsibilities, are

examples of gender constructs that differ across societies. Recognizing gender as a social construct allows us to understand that gender roles and expectations are not universal or biologically determined but are instead influenced by social, cultural, and historical factors. This understanding enables us to critically examine and challenge rigid gender norms, strive for gender equality, and create more inclusive and accepting societies for individuals of all gender identities.

Gender Stereotyping

Gender stereotypes in childhood are shaped by various factors, including the family and home environment, media and popular culture, peer influence, the educational setting, and cultural and societal norms. Within the family, children observe and internalize gender-related messages through behaviors, expectations, and the division of household tasks. Media plays a significant role in perpetuating stereotypes, as children are exposed to gender-specific portrayals in television, movies, and advertisements. Peers and social interactions also contribute to the formation of gender stereotypes, as children learn and conform to gender norms within their peer groups. The educational environment, including teachers and curriculum materials, can either challenge or reinforce gender stereotypes. Finally, cultural and societal norms influence children's understanding of gender roles, as prevailing beliefs and expectations shape their perceptions. Recognizing and challenging these stereotypes is essential for fostering gender equality and promoting individual expression and identity development in children.

As previously mentioned, families play a crucial role in the development and perpetuation of gender stereotypes. Through their words, actions, and expectations, parents and caregivers transmit societal norms and reinforce traditional gender roles within the family environment. This influence begins early in a child's life and continues throughout their formative years.

Parents often provide gendered cues and messages to their children. They may assign specific toys, clothing, and activities based on their child's gender, inadvertently reinforcing stereotypes. For instance, boys may be encouraged to play with trucks and engage in rough play, while girls are steered toward dolls and nurturing activities. These subtle cues can shape children's understanding of what is appropriate or expected for their gender. Additionally, parents may unintentionally reinforce gender stereotypes through differential treatment. They may praise and encourage certain behaviors or interests based on gender, inadvertently promoting and perpetuating traditional gender norms. For instance, boys may receive more recognition for being assertive, while girls are praised for being cooperative or polite. These differential responses can influence children's self-perception and shape their behavior accordingly.

Children also observe how their parents and other family members model traditional gender roles. For example, fathers may be engaged in more instrumental tasks, such as fixing things, while mothers take on nurturing and caregiving responsibilities. These behaviors serve as powerful examples for children and contribute to their perception of gender roles and expectations.

Furthermore, family discussions and conversations can reinforce gender stereotypes. Conversations about societal expectations, career choices, or gender-related topics can unknowingly perpetuate existing biases. The language used, the examples provided, and the beliefs expressed within the family can all contribute to the formation and maintenance of gender stereotypes.

Not all families adhere to traditional gender norms, and some actively challenge stereotypes. Many families work to provide their children with equal opportunities, encourage diverse interests, and promote individual expression. However, the

influence of societal and cultural norms can still exert pressure on families, making it essential to raise awareness and foster discussions that challenge gender stereotypes within the family unit.

Gender Identities

Gender identity refers to an individual's deeply felt sense of their own gender, which may or may not correspond to the sex they were assigned at birth. Increasingly, there is an awareness that gender identity is a more complex process. The binary understanding of gender is inadequate to capture the lived experiences of many individuals (Butler, 1990).

Cisgender

Cisgender is a term used to describe individuals whose gender identity aligns with the sex they were assigned at birth. For example, someone who was assigned female at birth and identifies and lives as a woman is considered cisgender. The term "cis-" is derived from the Latin word meaning "on the same side." Cisgender individuals typically have a sense of being comfortable with the gender identity that aligns with societal expectations and the gender roles associated with their assigned sex.

While cisgender individuals make up the majority of the population, it is important to recognize that cisgender identity is not the only valid or normal way of experiencing gender. Understanding cisgender as a distinct term helps highlight the diversity of gender identities and encourages inclusivity by acknowledging that there are different ways individuals experience and relate to their gender.

Gender Fluid

People who identify as gender fluid may experience different gender identities at different times or in different contexts. For gender-fluid individuals, their gender identity may be influenced by factors such as personal feelings, social environments, or personal growth. They may identify as a man, a woman, a combination of genders, or as having a gender that is outside the traditional binary system at different points in their lives. Gender fluidity can manifest as fluctuations between masculinity and femininity or as a nonbinary identity that transcends the binary concept of gender. Gender-fluid individuals may express their gender through various means, such as clothing choices, grooming styles, or changes in name and pronouns, depending on how they feel at any given time.

Nonbinary

Gender nonbinary, also referred to as nonbinary or enby, is a gender identity that exists outside the traditional binary understanding of male and female. Individuals who identify as nonbinary do not exclusively identify as either male or female and may experience their gender identity as a combination, as fluid, or as having a gender that is completely distinct from the binary system. Nonbinary individuals may express their gender in various ways, which can include a combination of masculine and feminine traits or an expression that is not easily categorized within traditional gender norms. They may use gender-neutral pronouns such as "they/them," although pronoun preferences can vary from person to person.

The concept of a nonbinary gender challenges the societal assumption that gender is strictly binary and highlights the diversity of gender identities beyond the man-woman dichotomy. It acknowledges and affirms the experiences and

identities of those who do not fit within the traditional gender framework. Nonbinary individuals may face unique challenges, including navigating social expectations, accessing appropriate health care, and gaining legal recognition of their gender identity.

Respecting and validating nonbinary identities is essential for creating an inclusive and affirming society. It involves using correct pronouns and names, listening to individuals' experiences and self-identifications, and advocating for their rights and well-being. Embracing and celebrating gender diversity helps foster an environment that values and supports the full spectrum of human identity.

Transgender

Transgender is a term used to describe individuals whose gender identity differs from the sex assigned to them at birth. It encompasses a wide range of experiences and identities. For example, someone who was assigned male at birth but identifies and lives as a woman is considered a transgender woman, while someone assigned female at birth who identifies and lives as a man is considered a transgender man. Transgender individuals may experience a deep and persistent disconnect between their gender identity and the sex they were assigned at birth (Beemyn & Rankin, 2011). This misalignment often leads to feelings of gender dysphoria, which refers to the distress or discomfort caused by the incongruence between one's gender identity and assigned sex.

Many transgender individuals undergo a process called transitioning, which can involve social, medical, and legal aspects. Social transitioning involves living and presenting oneself as their affirmed gender, which may include changes in the individual's name, pronouns, clothing, and appearance. Medical transitioning may involve hormone therapy or various gender-affirming surgeries to align one's physical characteristics with their gender identity. Legal transitioning involves updating official documents, such as identification cards and legal gender markers, to reflect one's affirmed gender. Some individuals who identify as transgender may participate in multiple aspects of transitioning, while others may not formally participate in any of them. Each person may choose a different pathway based on what is desired and what seems accessible and supported. There is no single, correct way to navigate identity as a transgender person; each person deserves the support and the resources to choose what is best for them.

It is essential to approach transgender identities with respect, empathy, and acceptance. Acknowledging and affirming individuals' self-identified gender is crucial for their well-being and inclusion in society.

Two-Spirit

The term "two-spirit" is rooted in Indigenous cultures in North America and refers to individuals who embody both masculine and feminine qualities within their gender identity. It is a distinct cultural and spiritual identity that often goes beyond the Western understanding of gender. In Indigenous communities, two-spirit people are seen as having a special place within their societies, often holding important roles as healers, mediators, or spiritual leaders (Jacobs, Thomas & Lang, 1997).

The concept of two-spirit recognizes that gender is not solely determined by biological sex or confined to a binary understanding of male or female. Instead, it acknowledges the existence of a diverse range of gender expressions and identities. Two-spirit individuals may embrace and embody both masculine and feminine characteristics, recognizing the fluidity and interconnectedness of these aspects within themselves.

The specific meaning and understanding of two-spirit identity may vary among different

Indigenous cultures and communities, as each has its own distinct traditions and beliefs. However, at its core, two-spirit represents a celebration of gender diversity and a reminder of the cultural wisdom and acceptance that Indigenous communities have long held regarding gender identities beyond the man-woman binary.

Understanding and respecting two-spirit identity is an essential step toward recognizing and valuing the richness and diversity of gender expressions and identities that exist within and beyond Western frameworks. It is crucial to listen to and learn from Indigenous communities themselves to gain a deeper understanding of two-spirit experiences and foster inclusivity and respect for all gender identities.

Agender

Agender is a term used to describe individuals who do not identify with any gender or have a genderless identity. Agender individuals may experience a lack of connection to the concept of gender altogether, feeling a sense of neutrality or absence of gender within themselves (Haefele-Thomas, 2020). They may not resonate with the societal expectations, roles, or characteristics traditionally associated with being a man or woman. For agender individuals, their self-identity is not defined or influenced by gender. They may have a deep sense of being neither a man nor a woman, or they may view themselves as outside the gender binary altogether. Agender people may express their gender identity through a variety of means, often embracing a gender-neutral appearance or adopting pronouns such as "they/them" or neopronouns like "ze/zir" or "xe/xem." Respecting and validating agender identities involves acknowledging and accepting an individual's self-identified gender and using appropriate pronouns and language that align with their genderless identity. It also means creating inclusive spaces where agender individuals feel seen, heard, and affirmed.

Genderqueer

Genderqueer individuals often embody and embrace a non-normative or fluid gender identity that exists outside the confines of the gender binary (Halberstam, 2012). People who identify as genderqueer may experience their gender identity as a combination of the binary genders, as having a gender that fluctuates or changes over time, or as a unique and distinct gender identity that is beyond the binary. They may express their gender through a diverse range of appearances, styles, and pronouns that challenge societal expectations and norms.

Genderqueer individuals often advocate for the recognition and acceptance of a broader spectrum of gender identities. They may actively resist or challenge traditional gender roles and expectations, seeking to create spaces that are more inclusive and affirming of diverse gender expressions. It is important to note that genderqueer experiences can vary greatly from person to person, as genderqueer identities are deeply personal and individualistic. Respecting genderqueer identities involves using correct pronouns and names as per an individual's preferences, being open to their self-expressions and experiences, and recognizing the validity of their gender identity.

Gender Expression and the Alignment of Gender Performance

Gender expression refers to the outward presentation of one's gender identity. It encompasses the behaviors, mannerisms, clothing, hairstyles, and other forms of self-expression that individuals use to communicate their gender to others. Gender expression is highly personal and can vary greatly

from person to person. In society, gender expression is often associated with societal norms and expectations related to masculinity and femininity. These norms can vary across cultures and change over time. For example, traditionally feminine gender expression might include wearing dresses, having long hair, or engaging in nurturing behaviors, while traditionally masculine gender expression might involve wearing pants, having short hair, or displaying assertiveness.

Gender behavior alignment refers to situations in which a person's gender identity aligns with societal expectations and norms regarding their behaviors, interests, and expressions. In such cases, individuals feel a sense of comfort and congruence between their internal gender identity and the external behaviors associated with their gender.

On the other hand, gender behavior dissonance occurs when there is a disconnect or incongruity between a person's gender identity and the societal expectations placed upon them. This dissonance arises when individuals feel that their internal sense of gender does not align with the behaviors, interests, or expressions typically associated with their assigned sex at birth.

Gender behavior dissonance can lead to feelings of discomfort, frustration, and conflict. For example, a person assigned female at birth who identifies as a man may experience dissonance if societal expectations for femininity do not resonate with their internal sense of self. Similarly, a person assigned male at birth who identifies as a woman may experience dissonance when societal expectations for masculinity clash with their authentic gender identity.

Gender Expression and Self-Esteem

Gender expression can have a significant impact on self-esteem as children develop a stronger sense of self and begin to explore and understand their gender identity. During middle childhood, they may start to exhibit behaviors, preferences, and interests that align with societal expectations for their gender.

When children's gender expression aligns with societal norms, they often receive positive reinforcement and acceptance from their peers and adults, which can contribute to higher self-esteem. For example, a girl who enjoys playing with dolls and dressing in traditionally feminine clothing might receive compliments and encouragement, which can enhance her self-esteem.

However, when a child's gender expression deviates from societal norms, they may face challenges that can impact their self-esteem. This can occur when children express their gender identity in ways that do not conform to societal expectations or when their gender identity differs from their assigned sex at birth.

Children who express their gender in nonstereotypical ways may experience social stigma, discrimination, teasing, and bullying from their peers. For example, a boy who prefers playing with dolls or dressing in traditionally feminine clothing may face ridicule or exclusion. These negative experiences can lead to lower self-esteem and feelings of inadequacy.

Furthermore, children who identify as transgender or gender nonconforming may experience internal conflicts and struggle with their self-esteem. They may feel a disconnect between their gender identity and the expectations placed upon them by society or their families. This can lead to feelings of isolation, anxiety, and low self-worth.

Self-esteem is influenced by various factors, including family support, peer relationships, and cultural contexts. Supportive and accepting environments, where individuals are encouraged to express their gender identity authentically, can positively impact children's self-esteem. Open-mindedness, education, and fostering inclusivity can help create an environment where children

feel accepted and valued for who they are, regardless of their gender expression.

Gender Expression and Romantic Relationships

Gender expression can influence how children navigate early attractions and friendships. Societal expectations and gender stereotypes may play a role in shaping children's understanding of what is considered appropriate or acceptable behavior within these relationships. For example, boys may feel pressured to exhibit more assertive or dominant behaviors, while girls may feel encouraged to be nurturing or accommodating.

Children who deviate from traditional gender norms in their expression may encounter challenges or biases in their interactions with peers. For instance, a boy who expresses femininity or a girl who exhibits masculinity might face teasing, exclusion, or misunderstanding from their peers. These negative experiences can affect their self-esteem and social interactions, potentially influencing their ability to form and maintain friendships, including those that could evolve into romantic relationships later on. Youth who do not identify as cisgender may also find it difficult to see themselves represented in social-emotional and sex education curricula, creating a barrier to equitable education and further marginalizing their identities.

By challenging gender stereotypes and promoting acceptance, children can feel more comfortable and confident in their interactions with others. This, in turn, can contribute to healthier and more positive relationships during middle childhood and beyond.

Differences Between Gender Expression and Sexual Orientation

Gender expression and sexual orientation are distinct aspects of human identity, although they are often intertwined. Gender expression refers to how individuals present and express their gender identity through behaviors, clothing, hairstyles, and other external characteristics. It encompasses the ways in which people choose to express their sense of being masculine, feminine, or nonbinary. In contrast, sexual orientation refers to an individual's enduring pattern of emotional, romantic, and/or sexual attraction, or lack thereof, to individuals of a particular gender or genders. For example, a person might identify as being heterosexual, homosexual, bisexual, pansexual, asexual, or none of these. It is essential to recognize and respect both gender expression and sexual orientation as unique and personal aspects of an individual's identity.

Having gender-inclusive sex education in middle school is important for several reasons:

- Inclusivity and diversity: Gender-inclusive sex education acknowledges and respects the diversity of gender identities and expressions. It ensures that all students, regardless of their gender identity or sexual orientation, feel seen, valued, and included. This fosters a sense of belonging and helps create a safe and supportive learning environment for all students.
- Comprehensive understanding: Gender-inclusive sex education goes beyond binary perspectives of gender and recognizes the existence of transgender, nonbinary, and gender nonconforming individuals. It provides students with a more accurate and comprehensive understanding of human sexuality and gender diversity, promoting empathy, tolerance, and respect.

- Health and well-being: Sex education is not just about reproduction or preventing sexually transmitted infections (STIs); it encompasses a wide range of topics related to sexual health and well-being. Gender-inclusive sex education addresses issues such as consent, healthy relationships, body image, self-esteem, and communication skills. These topics are relevant to all students, regardless of their gender identity or sexual orientation, and help promote positive attitudes toward oneself and others.
- Reduction of stigma and discrimination: Gender-inclusive sex education helps reduce stigma, discrimination, and bullying based on gender identity or sexual orientation. By providing accurate information, challenging stereotypes, and promoting understanding, it empowers students to reject harmful biases and fosters a more inclusive and accepting school culture.
- Mental and emotional health: Adolescence is a critical time for self-discovery, identity formation, and navigating relationships. Gender-inclusive sex education provides students with knowledge and resources to help them understand their own feelings and attractions, as well as those of others. It can help prevent feelings of confusion, isolation, or shame that some students may experience due to societal pressures or lack of information about diverse gender identities and sexual orientations.
- Preparation for the future: Gender-inclusive sex education prepares students for a diverse and interconnected world. It equips them with the skills to navigate relationships, understand consent, make informed decisions, and respect the rights and boundaries of others. This knowledge is essential for building healthy and respectful relationships in adolescence and beyond.

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11.5 Moral Development

In middle childhood, **moral development** refers to the process through which children develop an understanding of right and wrong, learn to make moral judgments, and internalize societal values and norms. Children begin to move beyond a simplistic understanding of morality based on rules and authority figures. They start to develop a more nuanced understanding of moral principles, such as fairness, justice, empathy, and honesty. Here are a few key aspects of moral development in middle childhood:

- Understanding rules and consequences: Children become more aware of the rules and expectations set by society, family, and school. They begin to understand that actions have consequences, and they become increasingly capable of following rules and guidelines.
- Developing empathy and perspective-taking: Middle childhood is a critical period for the development of empathy. Children begin to understand and appreciate the feelings and perspectives of others, which plays a crucial role in their moral decision-making. They start to recognize the impact of their actions on others and show concern for others' well-being.

- Expanding moral reasoning: Children in middle childhood start to engage in more sophisticated moral reasoning. They move beyond a focus on the consequences of their actions and consider intentions, motives, and the context in which actions occur. They may begin to weigh conflicting moral values and make judgments based on a sense of fairness.
- Internalizing societal values: As children grow older, they increasingly internalize the values and norms of their society. They start to differentiate between moral and conventional rules, understanding that moral rules involve fundamental issues of right and wrong.
- Peer influence: Peers play a significant role in shaping moral development during middle childhood. Children are influenced by their peers' behavior, and peer interactions provide opportunities for practicing and negotiating moral principles.
- Moral identity and self-reflection: Children begin to form a sense of their own moral identity during middle childhood. They reflect on their own moral values and may start to exhibit a sense of guilt or shame when they violate those values.

Theories of Moral Development

Theories of moral development in childhood seek to understand how children acquire and internalize a sense of right and wrong that guides their ethical reasoning and behavior. These theories explore the progression of moral thinking and decision-making from early childhood to adolescence, shedding light on the factors that shape children's understanding of morality. Several prominent theories have emerged over the years, with influential contributions from psychologists such as Jean Piaget, Lawrence Kohlberg, and Carol Gilligan. These theories propose distinct stages and processes through which children develop their moral beliefs, perspectives, and actions, providing valuable insights into the complex journey of moral growth during childhood. By examining these theories, we can gain a deeper understanding of the fascinating and nuanced development of moral reasoning in young individuals, ultimately contributing to our understanding of human nature and the foundations of ethical behavior.

Kohlberg's Theory of Moral Development

Lawrence Kohlberg's theory of moral development explains how individuals develop their moral reasoning abilities over time. According to Kohlberg, moral development occurs in a series of stages, each of which is characterized by a different level of moral reasoning. Kohlberg's theory is based on the concept of moral dilemmas, hypothetical situations that require individuals to make moral decisions. He conducted extensive research by presenting such dilemmas to individuals and analyzing their responses. From his studies, Kohlberg identified six stages of moral development, which he grouped into the following three levels:

1. Pre-conventional level

- Stage 1: obedience and punishment orientation. Individuals at this stage focus on avoiding punishment and obeying authority figures. They determine right and wrong based on the consequences of their actions for themselves.
- Stage 2: instrumental relativist orientation. Individuals at this stage recognize that there are different perspectives and may make decisions to serve their own interests. They understand that others have needs and may engage in reciprocal relationships.

1. Conventional level

- Stage 3: good interpersonal relationships. Individuals at this stage emphasize interpersonal relationships, empathy, and the approval of others. They conform to social norms and expectations to maintain these relationships.
- Stage 4: maintaining social order. Individuals at this stage uphold societal laws and rules. They believe in maintaining social order and view it as their duty to follow the established systems.

1. Post-conventional level

- Stage 5: social contract and individual rights. Individuals at this stage recognize the importance of social contracts and democratic processes. They understand that laws can be changed if they are unjust and consider individual rights and societal welfare.
- Stage 6: universal principles. Individuals at this highest stage have developed a personal moral code based on universal ethical principles. They are guided by principles such as justice, equality, and respect for human dignity, which transcend specific laws and cultural norms.

Kohlberg believed that individuals progress through these stages in a fixed order, building on the moral reasoning abilities of the previous stages. However, not everyone reaches the highest stages of moral development. Factors such as education, cultural influences, and personal experiences can impact an individual's progression through these stages.

Kohlberg's Moral Dilemmas

Kohlberg often used moral dilemmas to assess and illustrate the stages of moral development in his research. The Heinz Dilemma is one of the most famous moral dilemmas used by Kohlberg. It involves a man named Heinz whose wife is dying from a specific type of cancer. The only medication that can potentially save her is extremely expensive, and Heinz cannot afford it. Heinz considers stealing the medication to save his wife's life. Participants are asked to judge whether Heinz's action is morally right or wrong and provide reasoning for their decision.

The Broken Promise dilemma explores the concept of keeping promises and the conflict between personal relationships and moral obligations. Participants are presented with a scenario in which a man named John promises to keep a secret for his friend, but later discovers that the secret involves illegal activity. Participants are then asked whether John should keep his promise or break it to report the illegal activity.

These examples are designed to elicit responses that reflect different stages of moral reasoning, allowing researchers to assess an individual's level of moral development based on their justifications and decision-making processes.

Critiques of Kohlberg's Theory

Kohlberg's theory of moral development, while influential and widely studied, has been subject to various criticisms. This highlights the need for a more comprehensive understanding of moral development. One significant criticism is its cultural bias, as the stages of moral reasoning primarily reflect Western, individualistic values, potentially overlooking the diversity of moral perspectives across different cultures. Additionally, the theory's gender bias has been questioned, as it predominantly focuses on male participants and may not adequately capture the moral reasoning exhibited by women. Furthermore, some argue that the theory places excessive emphasis on cognitive reasoning while neglecting the influence of emotions, context, and social factors in moral decision-making. The lack of consistent empirical

support for the fixed sequence of stages and the limited attention to actual moral behavior are further concerns. Finally, Kohlberg's theory tends to prioritize individual morality and overlook the broader social and cultural contexts that shape moral values and actions. Recognizing these shortcomings prompts a critical evaluation and encourages the exploration of alternative perspectives on moral development.

Piaget's Theory of Moral Development

Jean Piaget, a Swiss psychologist, proposed that moral development in children occurs through distinct stages, with each stage characterized by specific cognitive abilities and moral reasoning. Piaget identified two main stages of moral development: heteronomous morality (moral realism) and autonomous morality (moral relativism).

During heteronomous morality, which typically occurs from ages 4 to 7, children perceive rules as fixed and unchangeable. They view rules as external impositions and believe that breaking a rule inevitably leads to punishment. Children in this stage have a limited understanding of others' perspectives and focus on the consequences of actions rather than intentions. They exhibit a sense of "imminent justice," believing that if a rule is broken, punishment will be administered automatically.

Around the age of 10 or older, children enter the stage of autonomous morality. In this stage, children begin to understand that rules are arbitrary and can be altered through mutual agreement. They recognize that rules are created by people and can be modified if everyone agrees to change them. Children also develop a sense of reciprocity and understand the importance of intentions when evaluating moral actions. They consider factors such as motive, context, and the consequences of actions, and they can make moral judgments based on these factors.

Piaget emphasized that moral development is closely linked to **cognitive development**. As children acquire new cognitive abilities, their understanding of morality becomes more sophisticated. They move from a rigid adherence to rules in the heteronomous stage to a more flexible and autonomous approach to morality in the later stage. Piaget's theory has been subject to criticism, and subsequent research has identified other factors that contribute to moral development. However, his work remains influential in understanding the cognitive aspects of moral reasoning in children.

Contrasts Between Piaget and Kohlberg

Piaget's theory of moral development and Lawrence Kohlberg's theory of moral development share some similarities. However, as described in the following list, they also have notable differences in their approach to understanding how morality develops:

- Use of stage theory: Piaget proposed two stages of moral development, while Kohlberg expanded on Piaget's work and identified six stages of moral development. Kohlberg's stages are often seen as more comprehensive and detailed, covering a broader range of moral reasoning.
- Importance of cognitive development: Piaget's theory focuses on the cognitive aspects of moral development. He believed that children's moral development is closely tied to their cognitive development and understanding of rules. In contrast, Kohlberg placed a stronger emphasis on moral reasoning and the ability to engage in abstract thinking and ethical decision-making.
- Nature of moral judgment: Kohlberg emphasized the internalization of moral values and the development of moral principles. He pro-

posed that moral judgments should be based on universal ethical principles, rather than just external rules. In contrast, Piaget emphasized the importance of children's understanding of rules and their relationship to external authority figures. He focused on how children perceive rules and their understanding of consequences.

- Moral dilemmas: Kohlberg heavily relied on moral dilemmas to assess individuals' moral reasoning. He presented individuals with hypothetical moral dilemmas and focused on their responses and the reasoning behind their moral judgments. However, Piaget used a more observational approach to study moral development, focusing on children's spontaneous moral reasoning and interactions in their everyday lives.
- Cultural factors: Kohlberg's theory acknowledges the influence of cultural and societal factors on moral development. He recognized that individuals from different cultures may prioritize different moral values and principles. Piaget's theory, while not entirely neglecting cultural factors, places less emphasis on cultural variations in moral development.

Both theories have contributed significantly to our understanding of moral development, with Kohlberg's theory building upon Piaget's work and expanding the stages of moral reasoning. Kohlberg's theory is often considered more comprehensive and has been widely influential in the field of moral psychology. As previously noted, Kohlberg's work is not without shortcomings. Other developmental theorists have addressed issues with cultural relevance and racial bias. One such theorist is Carol Gilligan.

Gilligan's Theory of Moral Development

Carol Gilligan is an American feminist psychologist and scholar known for her work in the field of gender studies, moral development, and ethical theory. She was born on November 28, 1936, in New York City, United States. Gilligan gained prominence for her book In a Different Voice: Psychological Theory and Women's Development, which was published in 1982. In this influential work, she challenges Lawrence Kohlberg's theory of moral development, arguing that it has a gender bias that favors male perspectives and neglects the moral reasoning of women. She then proposes an alternative perspective that emphasizes the importance of relationships, care, and interconnectedness in women's moral decision-making. Her research highlights the differences between male and female approaches to moral reasoning, suggesting that women often prioritize empathy, care, and maintaining relationships, while men tend to prioritize principles of justice and individual rights. Gilligan argues that these differences should be recognized and valued rather than seen as inferior or less developed.

Carol Gilligan has continued her work on gender, ethics, and psychology, focusing on themes such as care ethics, moral development in girls and women, and the **intersectionality** of gender, race, and class. She has held academic positions at various universities, including Harvard University and New York University, and has made significant contributions to the fields of psychology, gender studies, and feminist theory.

Gilligan's Moral Development Framework

Gilligan's moral development framework challenges traditional theories by centering on the moral reasoning and experiences of women. At the core of her framework is the ethic of care,

which emphasizes empathy, compassion, and the interconnectedness of relationships. This ethic prioritizes maintaining and nurturing relationships and considers the needs and well-being of others. Gilligan highlights the significance of relationships in moral development, asserting that women's moral reasoning is often shaped by their connections with others as they consider the impact of their actions on individuals within their social networks. Her framework takes into account contextual and situational factors, recognizing that moral judgments cannot be made in isolation from the specific circumstances, relationships, and cultural contexts in which individuals find themselves.

Gilligan critiques traditional theories for their gender bias. She argues that these theories tend to prioritize traits associated with stereotypical masculine values, such as autonomy and justice, while neglecting or devaluing qualities traditionally associated with femininity, such as care and interconnectedness. She advocates in favor of recognizing multiple moral voices and perspectives and valuing the diverse moral orientations that arise from cultural, social, and individual factors. Her framework embraces moral relativism and stresses the importance of understanding and respecting diverse moral viewpoints. Gilligan's work expands the field of moral psychology, promoting a more comprehensive understanding of moral development beyond traditional male-centered perspectives.

Gilligan's moral development framework highlights the importance of care, relationships, context, and the inclusion of diverse moral voices in understanding and evaluating moral reasoning. Her work has contributed to expanding the field of moral psychology and promoting a more nuanced understanding of moral development beyond the traditional male-centered perspective.

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11.6 Health and Wellness

Mental Health

Middle childhood can be a critical juncture for the emergence of various mental health issues, including anxiety disorders, depression, attention-deficit/hyperactivity disorder (ADHD), and behavioral disorders. These conditions can profoundly impact a child's emotional well-being, social interactions, academic performance, and overall quality of life. Recognizing and addressing mental health concerns during this formative stage is crucial for promoting healthy development and laying the foundation for lifelong well-being.

Anxiety and Depression

The correct identification and understanding of anxiety and depression is essential for effective intervention. In middle childhood, anxiety may present itself as excessive worry, perfectionism, fear of making mistakes, difficulty sleeping, physical complaints (such as headaches or stomach aches), clinginess, or avoidance of certain activities or situations. Children experiencing anxiety may also exhibit increased irritability, restlessness, or an inability to concentrate. Depression in this age group might manifest as persistent sadness, a loss of interest in activities once enjoyed, changes in

appetite or sleep patterns, low self-esteem, feelings of guilt or worthlessness, and a decline in academic performance. Children with depression may exhibit social withdrawal, irritability, fatigue, or difficulty concentrating. It is important to note that symptoms can vary among individuals, and a thorough evaluation by a qualified healthcare professional is necessary for an accurate diagnosis.

Several factors can contribute to the development of anxiety and depression in middle school students. Here are some common causes:

- Biological factors: Changes in brain chemistry and genetic predisposition can play a role in the development of depression. Children with a family history of depression may be more susceptible to experiencing depressive symptoms.
- Hormonal changes: Hormonal fluctuations during puberty can influence mood and contribute to the development of depressive symptoms in some children.
- Academic pressure: The increasing academic demands and expectations of middle school such as exams, projects, and higher levels of coursework, can lead to stress and anxiety for many students. High expectations from parents and teachers or self-imposed pressure to excel academically can create anxiety in students, who may fear disappointing others or falling short of their own goals.
- Social challenges: Middle school is a time of significant social changes, including forming new friendships, navigating peer groups, and dealing with issues like bullying or peer pressure. These social challenges can trigger anxiety and feelings of insecurity.
- Transition and change: Significant life changes, such as the loss of a loved one, parental divorce or separation, relocation, or a major illness, can trigger feelings of sadness and depression in middle childhood. Transitioning from elementary school to middle school can be overwhelming. Adjusting to a new school environment, different teachers, larger class sizes, and increased independence can all contribute to feelings of anxiety.
- Low self-esteem: During middle childhood, children begin to develop a sense of self and compare themselves to their peers. Negative self-perceptions, feelings of inadequacy, or a lack of confidence can contribute to depressive symptoms.
- Body image and physical changes: During middle childhood, children undergo significant physical changes, which can lead to self-consciousness and anxiety about body image, appearance, and fitting in.
- Media and social media influences: Constant social media use, cyberbullying, or unrealistic portrayals of perfection in media can contribute to feelings of anxiety and social comparison.
- Traumatic experiences: Experiencing traumatic events, such as abuse, neglect, violence, or witnessing a distressing incident, can have a profound impact on a child's mental well-being and increase the risk of depression.

Bullying

Several factors contribute to bullying in middle childhood. One important factor is a lack of empathy and social skills. Children at this stage are still developing their ability to understand and consider others' perspectives, making it easier for them to engage in aggressive behavior toward their peers. Additionally, the influence of peers and the desire to fit in can play a significant role. In an attempt to gain popularity or establish social dominance, some children resort to bullying others. Family dynamics and experiences at home can also contribute to bullying behavior. Children who witness or experience aggression, neglect, or inconsistent parenting may be more likely to

exhibit bullying tendencies. Furthermore, societal factors, such as media influence and exposure to violence, can shape children's attitudes and behaviors, making them more prone to engage in bullying. Finally, the lack of effective intervention and prevention strategies in schools and communities can perpetuate the cycle of bullying, allowing it to persist and impact the well-being of children in middle childhood.

Bullying can have significant implications for children's mental health, often leading to anxiety and depression. The persistent and repeated acts of aggression, whether physical, verbal, or social, can erode a child's self-esteem and sense of worth. Being consistently targeted by bullies can make children feel isolated, powerless, and rejected, which can contribute to a sense of hopelessness and sadness. The constant fear of future bullying incidents can heighten anxiety levels, creating a constant state of hypervigilance and distress. Children who are bullied may also experience social withdrawal, avoiding interactions with peers to minimize the risk of further victimization, which can exacerbate feelings of loneliness and depression. Furthermore, the negative impact of bullying extends beyond the immediate bullying episodes and can lead to long-lasting emotional scars that affect a child's overall well-being. If left unaddressed, the emotional toll of bullying can have severe consequences for middle childhood development and increase the risk of long-term mental health issues.

Early Exposure to Pornography

Social media platforms provide a gateway to a vast amount of information and content, including explicit and violent material. Children in middle childhood who have access to social media may encounter unsolicited and age-inappropriate content related to sexual violence, such as explicit images, videos, or discussions. Due to their limited understanding of sexuality and violence, they may be particularly vulnerable to the negative impact of such exposure. Social media also facilitates anonymous communication and interaction, making it easier for perpetrators to target children and engage in predatory behavior. Children in this age group may unknowingly interact with individuals who have malicious intentions, leading to potential grooming, exploitation, or exposure to harmful content. Moreover, the sharing and dissemination of sexually explicit material through social media platforms can lead to inadvertent exposure, as children may come across explicit content shared by their peers or unintentionally stumble upon it while browsing. This exposure to sexual violence at an early age can have profound psychological and emotional consequences, including trauma, confusion, anxiety, and a distorted understanding of healthy relationships and boundaries.

Peer Influence/Pressure and Substance Misuse/Abuse

During middle school, peer influence plays a significant role in shaping drug and alcohol use among adolescents. At this stage, young individuals are highly susceptible to the opinions and actions of their peers as they strive to fit in, establish their identity, and seek acceptance within their social groups. Adolescents often feel a strong desire to be accepted by their peers and may engage in drug and alcohol use to conform to group norms. The fear of exclusion or social isolation can push them toward experimenting with substances. When peers engage in substance use, it normalizes such behavior in the eyes of adolescents. They may view it as a typical part of teenage life or a way to appear more mature and independent. Additionally, curiosity and a desire for exploration can lead middle schoolers to try drugs and alcohol if they witness their peers doing so.

The pressure to conform to the expectations of their social circle can be overwhelming, with adolescents feeling compelled to use substances to avoid being seen as uncool or weak. Peers may actively pressure or encourage substance use, making it challenging for individuals to resist. Lastly, peers who engage in drug or alcohol use can serve as role models, influencing the attitudes and behaviors of their peers. Adolescents may perceive substance use as desirable or glamorous if they observe their friends or popular individuals engaging in such behaviors.

Not all middle schoolers succumb to peer influence and engage in substance use. However, it remains a significant concern that requires attention when implementing prevention and intervention strategies targeting drug and alcohol use among this age group.

Early Exposure to Alcohol

Early exposure to alcohol during middle childhood poses significant risks and negative consequences. Children who consume alcohol at a young age are at risk of impaired brain development, leading to cognitive and learning difficulties. It can also affect physical growth and increase the likelihood of developing alcohol-related health problems later in life. Early alcohol exposure is associated with a higher risk of alcohol-related problems, including abuse, addiction, and dependency. Social and emotional problems may arise, including difficulties in social interactions, behavioral issues, and poor emotional regulation. Academic performance can suffer, leading to decreased school attendance, impaired concentration, and memory problems. There is an increased risk of engaging in risky behaviors and substance abuse, including the use of illicit drugs. Family dynamics can be strained, and legal and safety concerns may arise. Preventing and addressing early alcohol exposure is crucial to safeguarding children's health, well-being, and future prospects.

Tobacco Use in Middle School

Tobacco use poses significant risks to the health and well-being of individuals, including those in middle childhood. During this critical developmental stage, children are particularly vulnerable to the harmful effects of tobacco, both directly and indirectly. Tobacco use during this stage can impair lung function and hinder the growth and development of vital organs. Children exposed to secondhand smoke, which contains numerous toxic chemicals, are at an increased risk of respiratory infections, asthma, and other respiratory conditions. These health issues can have long-lasting effects on their overall well-being and quality of life.

Another direct risk of tobacco use in middle childhood is the potential for nicotine addiction. Nicotine, the highly addictive substance found in tobacco, can have profound effects on the developing brain, leading to dependence and long-term consequences. Children who start using tobacco products at a young age are more likely to become regular smokers in adolescence and adulthood, increasing their risk of various health problems, including respiratory disorders, cardiovascular disease, and certain types of cancer.

In addition to the direct risks, tobacco use in middle childhood can also have indirect consequences. Children may experience negative social and psychological effects, such as lower self-esteem and social isolation, as a result of using tobacco. They may face social stigma, peer pressure, and difficulties in forming healthy relationships due to their involvement with tobacco products. The financial burden of purchasing tobacco can impact families, diverting resources from essential needs, such as education and health care.

It is crucial to address the risks of tobacco use in middle childhood through comprehensive prevention efforts, education, and public health policies. By promoting tobacco-free environments, enforcing age restrictions, and providing support for smoking cessation, we can protect children from the harmful effects of tobacco and pave the way for healthier futures.

The Effects of Childhood Trauma

Childhood trauma refers to experiences of significant adversity, abuse, or neglect that occur during a child's formative years. These traumatic events can have profound and lasting effects on various aspects of a child's life. The impacts of childhood trauma can extend well into adulthood, shaping an individual's physical and mental health, emotional well-being, and overall quality of life. From impaired **cognitive development** and increased risk of mental health disorders to challenges in forming healthy relationships and achieving educational and career success, the effects of childhood trauma are wide-ranging and complex. Understanding and addressing the consequences of childhood trauma is crucial for providing appropriate support and interventions to promote healing and resilience in individuals who have experienced such adversity.

Adverse Childhood Experiences (ACEs)

Adverse childhood experiences (ACEs) are stressful or traumatic events that occur during childhood and have the potential to negatively impact a person's well-being and development. These experiences typically involve abuse, neglect, or household dysfunction and can have long-lasting effects on an individual's physical and mental health. The original ACEs study, conducted by the Centers for Disease Control and Prevention (CDC) and Kaiser Permanente in the 1990s, identified 10 specific categories of ACEs. The ACEs survey continues to be a reliable tool for assessing childhood trauma and may be accessed **at www.acesaware.org [PDF]**. It asks users to identify whether they have experience with the ten categories and the frequency with which the experiences occurred.

Physical abuse

The child experiences physical violence or harm from a parent or caregiver. The experience of physical violence or harm inflicted by a parent or caregiver can have profound effects on a child's well-being. First, it can cause immediate physical injuries, which may vary in severity and range from bruises to fractures, leaving lasting scars and impairments. Moreover, physical abuse can have detrimental effects on a child's emotional and psychological health. The child may suffer from low self-esteem, feelings of worthlessness, anxiety, depression, or post-traumatic stress disorder (PTSD). They may also develop maladaptive coping mechanisms or behavioral problems as a result of the trauma. The impact extends beyond the emotional realm, as physical abuse can hinder cognitive development, affecting learning abilities, memory, and academic performance. Furthermore, it can disrupt the establishment of healthy attachments and trust in relationships, leading to difficulties in forming secure connections with others. These developmental challenges can have a profound and lasting impact on the child's overall growth, impacting their social interactions, mental health, and future relationships. Early intervention, therapy, and a safe and supportive environment are crucial in helping children recover from the effects of physical abuse and promoting their healthy development.

Sexual abuse

The child is subjected to any form of sexual contact or exploitation. The trauma and violation associated with sexual abuse can have profound and long-lasting effects on a child's development and overall well-being. First, it can cause severe emotional and psychological distress, leading to symptoms of anxiety, depression, shame, guilt, and PTSD. The child may also experience difficulties with trust, intimacy, and forming healthy relationships in the future. Second, sexual abuse can disrupt the child's sense of self and identity. They may struggle with low self-esteem, self-blame, and a distorted body image. The abuse can also negatively impact their **sexual development**, leading to confusion, inappropriate sexual behaviors, or difficulties establishing healthy boundaries. Additionally, sexual abuse may impair the child's cognitive development, leading to academic difficulties and impaired concentration. It can also contribute to behavioral problems, such as aggression, withdrawal, or self-destructive behaviors. Furthermore, victims of sexual abuse may be at higher risk of engaging in risky sexual behaviors, substance abuse, or self-harm as they grow older. It is crucial for children who have experienced sexual abuse to receive immediate support and specialized therapy to address the trauma, promote healing, and reduce the long-term negative impacts on their development and well-being.

Emotional abuse

The child experiences repeated emotional mistreatment, such as humiliation, rejection, or constant criticism. This form of abuse involves repeated emotional mistreatment, such as humiliation, rejection, constant criticism, or belittlement. The effects of emotional abuse can be pervasive and damaging. First, it can undermine a child's self-esteem and self-worth, leading to feelings of worthlessness, inadequacy, and a distorted self-image. They may internalize negative messages and develop a negative perception of themselves. Second, emotional abuse can impair a child's emotional and social development. It can hinder their ability to regulate emotions, recognize and express feelings, and form healthy relationships with others. The child may struggle with trust, have difficulties establishing boundaries, or experience challenges in empathy and understanding others' emotions. Moreover, emotional abuse can have detrimental effects on the child's mental health, leading to anxiety, depression, or other psychological disorders. It can also impact cognitive development, impairing attention, concentration, and academic performance. The long-term consequences of emotional abuse can extend into adulthood, influencing the individual's ability to form and maintain healthy relationships, succeed academically and professionally, and experience overall life satisfaction. Early intervention, supportive environments, and therapeutic interventions are crucial in helping children heal from emotional abuse, build resilience, and promote healthy development.

Physical neglect

The child's basic physical needs, such as food, shelter, and clothing, are not adequately met by their caregivers. The absence of essential care and support can have detrimental effects on multiple levels. First, it can lead to malnutrition, impaired growth and development, and compromised physical health. Lack of proper nutrition and health care can result in deficiencies, weakened immune systems, and increased susceptibility to illnesses and infections. Second, physical neglect can have profound emotional and psychological impacts. The consistent deprivation of care and attention can create a sense of worthlessness, insecurity, and feelings of being unloved or unwanted. Children

may develop symptoms of anxiety and depression or exhibit behavioral problems as a way to cope with their unmet needs. Furthermore, physical neglect can hinder cognitive development, affecting the child's ability to learn, concentrate, and perform academically. The lack of a stable and nurturing environment can impede the development of important cognitive and social skills. Long-term consequences may include difficulties in forming healthy relationships, low self-esteem, and challenges in self-regulation. Early intervention, ensuring the child's safety and well-being, and providing access to necessary resources and support are crucial in mitigating the risks associated with physical neglect and promoting healthy child development.

Emotional neglect

The child does not receive the emotional support and nurturing required for healthy development. Emotional neglect occurs when a child's emotional needs are consistently unmet, such as receiving little to no affection, validation, or emotional support from caregivers. This form of neglect can have severe consequences for various aspects of a child's life. Emotional neglect can lead to significant emotional and psychological distress. The absence of nurturing and responsive caregiving can leave children feeling unloved, unseen, or unworthy, leading to low self-esteem, feelings of emptiness, and a diminished sense of self. It can also contribute to the development of mental health issues, such as anxiety, depression, and difficulties with emotion regulation. Emotional neglect can also hinder the development of healthy interpersonal skills. Children may struggle to form secure attachments, have difficulties trusting others, or lack effective communication and problem-solving abilities. They may also have challenges in recognizing and understanding their own emotions and those of others. Furthermore, emotional neglect can impact cognitive development, impairing learning abilities, attention, and academic performance. The lack of emotional stimulation and support can hinder intellectual growth and curiosity. The long-term consequences of emotional neglect may affect relationships, self-esteem, and overall well-being into adulthood. Early intervention, providing a nurturing and supportive environment, and offering therapeutic interventions are crucial in addressing emotional neglect, promoting healing, and supporting healthy emotional development in children.

Household substance abuse

One or more members of the child's household have problems with alcohol or drug addiction. Growing up in a household where substance abuse is present exposes children to a range of challenges. Children may experience neglect and inconsistent parenting. Substance abuse can consume the time, attention, and resources of the caregivers, leaving little energy or capacity to meet the child's physical and emotional needs. Neglectful parenting can result in inadequate supervision, lack of proper nutrition, and compromised health care, jeopardizing the child's overall well-being. In addition, children living in such households often face emotional and psychological turmoil. Witnessing the erratic and unpredictable behavior of substance-abusing parents can cause fear, anxiety, and confusion. They may be subjected to verbal or physical abuse in the context of substance use, which can lead to trauma and lasting emotional scars. Moreover, children may internalize feelings of guilt, shame, or responsibility for their parents' substance abuse, impacting their self-esteem and sense of self-worth. Household substance abuse can also increase the risk of substance use and addiction in the child's own life. Growing up in an environment where substance abuse is normal-

ized can shape their attitudes and behaviors toward drugs or alcohol, making them more vulnerable to addiction. Furthermore, the instability and chaos associated with substance abuse can disrupt educational attainment, social relationships, and overall **developmental milestones**.

Household mental illness

A parent or caregiver in the household has a diagnosed or undiagnosed mental health condition. Children in such households may experience several challenges. First, the emotional environment can be unstable and unpredictable. A parent's mental illness may result in mood swings, unpredictable behavior, or difficulty in managing emotions. This can create an atmosphere of tension, confusion, or fear for the child, impacting their emotional well-being and sense of security. Second, the parents' ability to provide consistent care and support may be compromised. Mental health issues can affect a parent's capacity to meet the child's physical and emotional needs consistently. The parent may struggle with self-care, maintaining daily routines, or offering reliable emotional support, which can hinder the child's development and overall well-being. Third, children in these households may assume inappropriate roles or responsibilities beyond their age and developmental stage. They might become caretakers for their parent or their siblings, which can disrupt their own growth and limit opportunities for normal childhood experiences. Moreover, there may be limited access to resources and social support networks. Families affected by parental mental illness may face challenges in accessing appropriate health care, counseling, or community services. This lack of support can further isolate the child and limit their ability to cope with the unique challenges they face. Finally, there is an increased risk of the child developing mental health issues themselves. Genetics and environmental factors play a role in the development of mental illness, and growing up with a parent with a mental health issue can increase a child's susceptibility. Additionally, the stress and emotional strain of living with a parent's mental illness can contribute to the development of mental health problems. With appropriate interventions and support, the negative impacts on children can be mitigated. Access to mental health services, therapy, and support groups can provide valuable resources for both the parent and the child, promoting resilience and overall well-being.

Parental separation or divorce

The child's parents separate or divorce, causing significant disruption in the family structure. As a result, children may experience a range of emotions, such as sadness, anger, confusion, or guilt. Furthermore, the disruption of the family unit and changes in living arrangements, routines, and relationships can create instability and insecurity. High levels of conflict and ongoing parental discord during the separation or divorce process can cause distress and increase the risk of behavioral or emotional problems. Additionally, reduced parental availability and involvement, as well as potential financial challenges, further impact a child's access to support, guidance, and resources. However, supportive and nurturing relationships, effective co-parenting, and a stable environment can mitigate these effects, allowing children to navigate the transition more successfully.

Domestic violence

The child witnesses or is exposed to violence between adults in their household. Domestic violence poses significant risks to child development, exposing children to a harmful and volatile environment that can have far-reaching consequences.

Witnessing or experiencing violence between adults in the household can have profound emotional, psychological, and behavioral effects on children. First, it can lead to emotional trauma, causing fear, anxiety, and feelings of helplessness. The constant exposure to violence can disrupt a child's sense of safety and security, leading to chronic stress and heightened vigilance. Second, domestic violence can impair a child's social and interpersonal skills. Growing up in an environment characterized by aggression and conflict can hinder their ability to form healthy relationships, trust others, and communicate effectively. Children may also internalize the patterns of violence they witness, leading to a higher risk of engaging in violent or abusive behaviors themselves. Furthermore, exposure to domestic violence can have detrimental effects on a child's academic performance and cognitive development. The chronic stress and emotional turmoil can interfere with attention, concentration, and learning abilities. These challenges may persist into adulthood, impacting educational and vocational opportunities. Early intervention, providing a safe and supportive environment, and offering therapeutic interventions are crucial in mitigating the risks associated with domestic violence and promoting healthy child development.

Incarcerated household member

A member of the child's household is incarcerated or serving a prison sentence. When a parent or caregiver is incarcerated, it can lead to emotional distress for the child. They may experience feelings of sadness, anger, confusion, or abandonment. The sudden absence of a loved one and the disruption in the family structure can be emotionally challenging for a child to cope with. Incarceration often leads to financial strain on the family. The loss of income can make it difficult to meet basic needs, such as food, housing, and health care. Economic instability can also contribute to increased stress levels within the household, which can negatively impact the child's well-being. Furthermore, physical separation disrupts a child's attachment to their incarcerated parent. They may miss out on important emotional support, guidance, and nurturing that a parent would typically provide. This disruption in attachment can affect their sense of security and overall development. Having a family member in prison can subject the child to social stigma and discrimination. They may face judgment or prejudice from peers, teachers, or community members, which can lead to feelings of shame, embarrassment, or social isolation. This stigma can negatively affect their self-esteem and social interactions. Finally, the absence of a parent or caregiver due to incarceration can leave children more vulnerable to other risk factors, such as poverty, substance abuse, or involvement in the criminal justice system themselves. These additional challenges further increase the likelihood of negative outcomes for the child.

ACEs assessment helps foster a more compassionate and empathetic approach to trauma by shifting the focus from "What's wrong with you?" to "What happened to you?" This approach acknowledges the systemic and environmental factors that contribute to adversity, leading to a greater understanding of the complex interplay between trauma, health, and behavior. By implementing ACEs assessment as a routine part of health care, education, and social services, we can begin to mitigate the long-term effects of trauma and build resilient communities that prioritize prevention, early intervention, and holistic support for those who have experienced adverse childhood experiences. By embracing the use of ACEs to assess trauma, we pave the way for a more compassionate and effective approach to healing and promoting well-being for individuals and society as a whole.

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11.7 Conclusion

Middle childhood is a critical period for **social and emotional development**. During this stage, children undergo significant transformations in their understanding of self, others, and the complex world around them. They also develop a sense of autonomy, establish meaningful relationships with peers, and acquire crucial emotional regulation skills. They become increasingly aware of societal norms and expectations, further shaping their identities and moral reasoning. It is essential for parents, educators, and caregivers to foster supportive environments that encourage healthy social interactions, emotional expression, and empathy. By nurturing these aspects of development, we can lay a strong foundation for children's future social competence, emotional well-being, and overall success in life.

Review of Learning Objectives

1. Identify the stages of social and emotional development in middle childhood.
2. Compare and contrast theories of **moral development**.
3. Examine the complex nature of gender identity in middle childhood.
4. Analyze the impact of caregivers, peers, and environmental influences on social emotional and moral development in middle childhood.

Review of Key Terms

- **Gender identity**: a person's deeply held sense of their own gender, which may be different than the sex they were assigned at birth.
- **Moral development**: the process through which individuals acquire and internalize moral values, beliefs, and principles, and develop the ability to distinguish right from wrong.
- **Nature versus nurture**: the ongoing debate in psychology and other fields about the relative contributions of genetics (nature) and environment (nurture) in shaping human behavior, traits, and development.
- **Peer group**: a social group composed of individuals who are similar in age, social status, interests, and other characteristics and who interact with one another regularly.
- **Self-concept**: the cognitive and perceptual understanding that an individual has of themselves, including the beliefs, perceptions, thoughts, and evaluations that a person holds about their own identity, abilities, characteristics, and worth.
- **Self-esteem**: the subjective evaluation and perception that an individual has of their own worth, value, and overall sense of self.

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CHAPTER

12

Adolescent Physical and Sexual Development

12.1 Chapter Overview and Learning Objectives

Adolescence is often defined as the period that begins with puberty and ends with the transition to adulthood. This period of development is commonly accepted to begin at age 12. The end of adolescence as a stage of development takes more work to pin down. When does adulthood truly begin? Are we an adult at 18 years of age? Or 20? Or even older? Adolescence **physical development** has evolved historically, with evidence indicating that this stage is lengthening as individuals start puberty earlier and transition to adulthood later than in the past. Puberty today begins, on average, at age 10–11 for girls and age 11–12 for boys. This average age of onset has decreased by 3–4 months per decade since the 19th century and has been attributed to a range of factors including better nutrition, obesity, increased father absence, and other environmental factors (Steinberg, 2013). Completion of formal education, financial independence from parents, marriage, and parenthood have all been used as markers for the end of adolescence and beginning of adulthood. On average, all of these transitions happen later now than they did in the past.

Learning Objectives

After reading this chapter, you will be able to do the following:

1. Identify the distinct aspects of physical and **sexual development** related to adolescence.
2. Explain age appropriate comprehensive sex education.
3. Discuss concerns to adolescent health, wellness, and safety.
4. Analyze the impact of cultural and environmental influences on physical and sexual development in adolescence.

Key Terms

Throughout this chapter, you will be introduced to important key terms that will help deepen your understanding of adolescent physical and sexual development.

- **Communicable disease**: an illness caused by infectious agents, such as bacteria, viruses, fungi, parasites, or prions, that can spread easily from one person to another; also referred to as infectious or contagious illness.
- **Contraception**: a method to prevent pregnancy; also commonly referred to as birth control.
- **Intersex**: the presence of partial elements of both male and female anatomical characteristics.
- **Sex differentiation**: the process by which genitals and reproductive organs develop within the womb.
- **Sexually transmitted infection (STI)**: an illness that has a significant probability of transmission by means of sexual contact, including vaginal, anal, and oral sex.

CASE STUDIES

DYANI

Dyani is now 16 years old and has been attending the same school since she was 5 years old. She started playing basketball in middle school and is one of the school's sports stars. Her coaches think that she can earn a sports scholarship to college if she continues to improve her skills. She loves the physical aspects of the game, but even more so, she loves to travel to visit other schools in Alaska. Dyani's family travels often to some of the bigger towns and cities, such as Fairbanks and Anchorage, but she is most interested in the diverse cultural practices and ways of living in the small rural villages. Dyani remains involved with the community hall, participating in cultural dances and classes offered.

Things at school have changed for the better. Dyani's parents and elders had been working diligently with the school district to improve the curriculum to reflect the needs and wants of the community. Some teachers still utilize the old curriculum, but others have more inclusive themes and units of study, which the students enjoy. These changes came at an important time for Dyani, who had been disconnecting from school and allowing her grades to decline. One of her classmates had died by suicide, and another community member had done the same the year prior. This was difficult for all to process, but the elders had committed themselves to gathering the community and diving deeper into Indigenous and spiritual teachings to help people heal.

ANTHONY

Anthony is now in middle school, but he is attending a community program. His last year of elementary school was rough due to several incidents involving the school administration. Anthony continued to be bullied by a group of boys, mainly during recess time. One time, he was playing soccer with a group of kids and was repeatedly pushed by one of the boys, even after he reported the incident. Anthony became increasingly upset, which set off an asthma attack. When he reached for the inhaler, the mean boy kicked it out of his hand. Anthony rushed toward the boy and started yelling at him. Recess staff rushed over and grabbed Anthony. In the incident report, the staff noted that Anthony was acting very "aggressive" and "hostile" toward the other child.

Things got particularly heated when Anthony was walking in the hall one day and saw one of the boys, who muttered the n-word quietly as Anthony passed by. Anthony could not take it anymore. He yelled and pushed the boy into the wall. A staff member saw Anthony and sent him immediately to the principal's office. By the time Anthony's parents arrived at the school, there was a police officer talking to the principal. Anthony's parents are aware of the racial bias and discrimination in school discipline. They did not believe that the school had Anthony's best interests in mind, so they decided to enroll him in a different program. The community school is a much better fit for Anthony. There is a small, yet diverse student body, and the teachers are caring and dynamic in their teaching. Anthony is thriving and enjoying school once again.

GABRIELA

Gabriela is 17 years old and starting to think about life after high school. Many of her classmates are going to college, which seems like a dream to her. She maintains good grades and hopes to secure a scholarship to afford additional schooling. A few of Gabriela's friends do not have legal status, which means that they cannot get any federally funded aid to help pay for tuition. Gabriela would like to become an immigration lawyer to help people like her parents and friends who have emigrated from other countries in the pursuit of a better life. Her parents have worked hard since moving to California, learning English and starting their own business. Getting citizenship posed many barriers, including legal hurdles and significant financial costs to become documented. It took several years and the help of legal aid programs for them to finally obtain legal residency.

Despite her good grades, middle school and high school have been difficult for Gabriela. She tried hard to fit in with the other girls at school, but American culture is very different from the traditional ideals of her Mexican family. At one point, Gabriela became embarrassed of her family and being Mexican. She stopped speaking Spanish and started acting and dressing differently. She refused to participate in important rites of passage, such as a quinceañera, which is a Mexican celebration for 15-year-old girls. Things were particularly tough during a presi-

dential election when students would post awful things about Mexicans on social media or yell "build a wall" at school. Thankfully, Gabriela's high school had a program specifically for Latina girls. Through this program, she regained her cultural pride and learned leadership skills that she can use in the future.

JESSE

Jesse is now 15 years old and is focused on expressing their true identity. The journey of self-discovery unveiled a truth they held close to their heart, which was that Jesse identifies as a nonbinary person. While their peers tend toward traditional gender roles, Jesse embraces a unique blend of masculine and feminine qualities. They gravitate toward clothing that defies societal norms rather than conforming to expectations. Though Jesse's journey has just begun, they are approaching it with an unwavering determination to embrace their true self.

When Jesse approached their parents, Ashley and Jeremy, with the truth about their nonbinary identity, they responded with a mix of love, concern, and a desire to understand. Jesse's parents understand the importance of creating a safe and supportive environment for their child. However, their own experiences have been shaped by more traditional gender roles. They love their child, but they feel ill-equipped to support them through their **gender identity development** and worry about how their community will treat Jesse.

Jesse and their parents embarked on a journey of learning and education, seeking resources and connecting with support networks within their rural community. Conversations around gender identity became an integral part of their family life, and they actively listened to Jesse's experiences and emotions, ensuring their child felt seen and heard. Ashley and Jeremy recognized that this was uncharted territory for them, but their unwavering love for Jesse fueled their commitment to embrace and celebrate their child's authentic self. Together, they navigated questions, challenges, and occasional missteps, building a foundation of open communication and unconditional acceptance, ultimately empowering Jesse to flourish and thrive in their identity.

In the small rural school Jesse attends, the journey of self-discovery proved to be more challenging than anticipated. Unfortunately, their teacher, Ms. Johnson, struggled to understand and support Jesse's nonbinary identity. Instead of embracing and fostering a nurturing environment, Ms. Johnson's lack of knowledge and empathy led to dismissive remarks and a refusal to acknowledge Jesse's chosen pronouns. This lack of support left Jesse feeling isolated and unheard within the school community. Despite the teacher's resistance, Jesse's resilience and determination persisted. They sought solace in the acceptance they found at home and leaned on supportive friends and allies who championed their identity.

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12.2 The Growing Body: Physical Development in Adolescence

Body Changes

The adolescent growth spurt is a rapid increase in an individual's height and weight during puberty resulting from the simultaneous release of growth hormones, thyroid hormones, and androgens. Males experience their growth spurt about 2 years later than females. The accelerated growth in various body parts happens at different times, but for all adolescents, it has a fairly regular sequence. The first areas to grow are the extremities (head, hands, and feet), followed by the arms and legs, and later the torso and shoulders. This nonuniform growth is one reason an adolescent body may seem out of proportion. During puberty, bones become harder and more brittle. Before puberty, there are nearly no differences between males and females in the distribution of fat and muscle. During puberty, males grow muscle much faster than females, and females experience a higher increase in body fat. An adolescent's heart and lungs increase in size and capacity during puberty, contributing to increased strength and tolerance for exercise.

Brain Development

Brain growth continues into the early 20s. In particular, the development of the frontal lobe is important during this stage. Adolescents often engage in increased risk-taking behaviors and experience heightened emotions during puberty. This may be due to the fact that the frontal lobes of their brains, which are responsible for judgment, impulse control, and planning, are still maturing (Casey et al., 2005).

The brain undergoes dramatic changes during adolescence. Although it does not get larger, it matures by becoming more interconnected and specialized (Giedd, 2015). The myelination and development of connections between neurons continues. This results in an increase in the white matter of the brain and allows the adolescent to make significant improvements in their thinking and processing skills. Different brain areas become myelinated at different times. For example, the brain's language areas undergo myelination during the first 13 years. Completed insulation of the axons consolidates these language skills but makes it more difficult to learn a second language. With greater myelination comes diminished plasticity as a myelin coating inhibits the growth of new connections (Dobbs, 2012).

Even as the connections between neurons are strengthened, synaptic pruning occurs more than it did during childhood as the brain adapts to environmental changes. This synaptic pruning causes the brain's gray matter, or the cortex, to become thinner but more efficient (Dobbs, 2012). The corpus callosum, which connects the brain's two hemispheres, continues to thicken, allowing for stronger connections between brain areas. Additionally, the hippocampus becomes more strongly

connected to the frontal lobes, allowing for greater integration of memory and experiences into our decision making.

The limbic system, which regulates emotion and reward, is linked to the hormonal changes that occur at puberty. The limbic system is also related to novelty seeking and a shift toward interacting with peers. In contrast, the prefrontal cortex, which controls impulses, organization, planning, and decision-making, does not fully develop until the mid-20s. The significant aspect of the development of the prefrontal cortex and the limbic system is the "mismatch" in timing between the two (Giedd, 2015). Approximately 10 years separate the development of these two brain areas, which can result in risky behavior, poor decision-making, and weak emotional control for the adolescent.

When puberty begins earlier, this mismatch extends even further. Teens often take more risks than adults. According to research, this is because teens weigh risks and rewards differently than adults do (Dobbs, 2012). The brain's sensitivity to the neurotransmitter dopamine peaks during adolescence. Dopamine is involved in reward circuits, so the possible rewards outweigh the risks. As a result, adolescents respond especially strongly to social rewards during activities.

In addition to dopamine, the adolescent brain is affected by oxytocin, which facilitates bonding and makes social connections more rewarding. With dopamine and oxytocin engaged, it is no wonder adolescents seek peers and excitement in their lives that could end up actually harming them. Because of all the changes occuring in the adolescent brain, abnormal development can occur and may result in mental illness. In fact, 50 percent of mental illness occurs by age 14, and 75 percent occurs by age 24 (Giedd, 2015).

Additionally, the adolescent brain is especially vulnerable to damage from drug exposure. For example, repeated exposure to marijuana can affect cellular activity in the endocannabinoid system. Consequently, adolescents are more sensitive to the effects of repeated marijuana exposure (Weir, 2015). However, researchers have also focused on the highly adaptive qualities of the adolescent brain, which allow the adolescent to move away from the family toward the outside world (Dobbs, 2012; Giedd, 2015). Novelty-seeking and risk-taking can generate positive outcomes, including meeting new people and seeking out new situations. Separating from the family and moving into new relationships and different experiences are actually quite adaptive for society.

Changes in Sleep/Biorhythm

According to the National Sleep Foundation (NSF) (2016), adolescents need about 8–10 hours of sleep each night to function best. The most recent Sleep in America poll in 2006 indicated that adolescents between 6th and 12th grade were not getting the recommended amount of sleep. For older adolescents, only about 1 in 10 (9 percent) get optimal sleep, and they are more likely to experience negative consequences the following day. These include feeling too tired or sleepy, being cranky or irritable, falling asleep in school, having a depressed mood, and drinking caffeinated beverages (NSF, 2016). Additionally, they are at risk for substance abuse, car crashes, poor academic performance, obesity, and a weakened immune system (Weintraub, 2016).

Why don't adolescents get adequate sleep? In addition to known environmental and social factors, including work, homework, media, technology, and socializing, the adolescent brain is also a factor. As adolescents go through puberty, their circadian rhythms change, pushing back their sleep time until later in the evening (Weintraub, 2016). This biological change not only keeps adolescents awake at night, but it also makes it difficult for them to get up in the morning. When they are awake too early, their brains do not func-

tion optimally. Impairments are noted in attention, behavior, and academic achievement, while increases in tardiness and absenteeism are also demonstrated. Psychologists and other professionals have been advocating for later school times, and they have produced research demonstrating better student outcomes for later start times. More middle and high schools have changed their start times to better reflect sleep research.

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12.3 Sexual Development

Adolescence begins with the onset of puberty, a developmental period in which hormonal changes cause rapid physical alterations in the body, culminating in sexual maturity. Although the timing varies across cultures, the average age range for reaching puberty is between 9–14 years for females and between 10–17 years for males (Marshall & Tanner, 1986). For both males and females, these changes include a growth spurt in height, growth of pubic and underarm hair, and skin changes (e.g., pimples). Hormones drive these pubescent changes, particularly the increase in testosterone for males and estrogen for females. This chapter will focus on the physical and body chemistry changes associated with puberty. Chapter 14 will expand on these topics as part of more in-depth information on **sexual development** and topics such as gender identity and sexual orientation.

Sex differentiation, also referred to as sexual differentiation, is the process by which genitals and reproductive organs develop within the womb. This occurs as a result of complex hormonal processes that alter neutral tissues to develop along female or male lines, or some combination of the two. Secondary sex characteristics begin to develop further as part of the sex differentiation process during puberty. Therefore, prenatal development, as well as changes that further occur during puberty, create a cascade of events that result in physical changes to the body. Chromosomes, genes, gonads, hormones, and hormone receptor sites play key roles within the endocrine system that influence sex development. Sex is both a genetic and environmental experience in which epigenetic factors can alter the way that genes function, resulting in changes to hormone production and hormone receptor sites at different points across the lifespan.

Puberty is the stage of development at which individuals become sexually mature. Though the outcomes of puberty for males and females are very different, the hormonal control of the process is very similar. In addition, though the timing of these events varies between individuals, the sequence of changes that occur is predictable for male and female adolescents. A concerted release of hormones from the hypothalamus (GnRH), the anterior pituitary (LH and FSH), and the gonads (either testosterone or estrogen) is responsible for the maturation of the reproductive systems and the development of secondary sex characteristics, which are physical changes that serve auxiliary roles in reproduction.

The first changes begin around the age of eight or nine when the production of LH becomes

detectable. The release of LH occurs primarily at night during sleep and precedes the physical changes of puberty by several years. In prepubertal children, the sensitivity of the negative feedback system in the hypothalamus and pituitary is very high. This means that very low concentrations of androgens or estrogens will negatively feed back onto the hypothalamus and pituitary, keeping the production of GnRH, LH, and FSH low.

As an individual approaches puberty, two changes in sensitivity occur. The first is a decrease of sensitivity in the hypothalamus and pituitary to negative feedback, meaning that it takes increasingly larger concentrations of sex steroid hormones to stop the production of LH and FSH. The second change in sensitivity is an increase in sensitivity of the gonads to the FSH and LH signals, meaning the gonads of adults are more responsive to gonadotropins than are the gonads of children. As a result of these two changes, the levels of LH and FSH slowly increase and lead to the enlargement and maturation of the gonads, which in turn lead to the secretion of higher levels of sex hormones and the initiation of spermatogenesis and folliculogenesis.

In addition to age, multiple factors can affect the age of onset of puberty, including genetics, environment, and psychological stress. One of the more important influences may be nutrition. Historical data demonstrate the effect of better and more consistent nutrition on the age of menarche (menstruation) in females in the United States, which decreased from an average age of approximately 17 years in 1860 to the current age of approximately 12.75 years in 1960, as it remains today (Martinez, 2020). Some studies indicate a link between puberty onset and the amount of stored fat in an individual. This effect is more pronounced in females, but has been documented in males as well. Body fat, corresponding with the secretion of the hormone leptin by adipose cells, appears to have a strong role in determining menarche. This may reflect, to some extent, the high metabolic costs of gestation and lactation. In females who are lean and highly active, such as gymnasts, there is often a delay in the onset of puberty.

Signs of Puberty

Different sex steroid hormone concentrations between the sexes in general and within each individual uniquely also contribute to the development and function of secondary sexual characteristics. Examples of secondary sexual characteristics are listed in figure 12.1. Each individual's hormone concentrations will depend upon genetics, diet, stress, and more. Thus, secondary sex characteristics will progress along a continuum of possibilities based on these nature-multiplying-nurture combinations.

Female	Male
Deposition of fat, predominantly in breasts and hips	Increased larynx size and deepening of the voice
Breast development	Increased muscular development
Broadening of the pelvis and growth of axillary, pubic, and body hair	Growth of facial, axillary, and pubic hair, and increased growth of body hair

Figure 12.1. Development of the Secondary Sexual Characteristics

Something to keep in mind as well is that people can experience varying degrees of muscular, breast, and hair development depending on their genetic and environmental makeup. For instance, some males at the beginning of puberty may see breast tissue growth as well as other body fat increases, and some females may have facial and body hair growth.

One factor in this complex process is how unused testosterone is converted to estrogen, making it not about how much testosterone is present but rather how that testosterone is being used or unused. When testosterone is either excessively or insufficiently converted to estrogen, it can have significant impacts on both boys and girls. In boys, an overconversion of testosterone to estrogen can lead to conditions such as gynecomastia, where breast tissue develops, causing physical and psychological discomfort. Excess estrogen may also interfere with muscle development and result in premature closure of growth plates, potentially leading to a shorter stature. On the other hand, inadequate conversion of testosterone to estrogen can impair bone health, increasing the risk of osteoporosis and fractures. It can also cause delayed or abnormal sexual development and contribute to emotional and behavioral issues due to hormonal imbalances. In girls, excessive conversion of testosterone to estrogen can result in early puberty, causing the early development of secondary sexual characteristics and potentially disrupting growth patterns. Elevated estrogen levels may also lead to menstrual irregularities and increase the risk of estrogen-related health conditions, such as certain cancers. Conversely, insufficient conversion of testosterone to estrogen can delay puberty, affecting the timely development of secondary sexual characteristics and menstruation. Additionally, low estrogen levels can compromise bone density, raising the risk of osteoporosis, and impact emotional stability and cognitive function, potentially leading to mood disorders and difficulties with memory and concentration. Maintaining a proper balance in the conversion of testosterone to estrogen is therefore crucial for ensuring healthy development and overall well-being in both sexes.

It is incorrect to view testosterone as a strictly "male" hormone and estrogen as a strictly "female" hormone. Intersex individuals, females, and males all have estrogen and testosterone impacting their changing bodies during puberty. To understand the person-level variations in hormones and their impact on development, individuals will need to analyze their specific hormone levels, the functionality of genes involved in sex differentiation, and environmental stressors and nutrition that may have epigenetic effects on their genes.

As a female reaches puberty, typically the first change that is visible is the development of the breast tissue. This is followed by the growth of axillary and pubic hair. A growth spurt normally starts at approximately age 9–11 and may last 2 years or more. During this time, a female's height can increase 3 in. (7.6 cm) a year. The next step in puberty is menarche, the start of menstruation.

In males, the growth of the testes is typically the first physical sign of the beginning of puberty, which is followed by growth and pigmentation of the scrotum and growth of the penis. The next step is the growth of hair, including armpit, pubic, chest, and facial hair. Testosterone stimulates the growth of the larynx and thickening and lengthening of the vocal folds, which causes the voice to drop in pitch. The first fertile ejaculations typically appear at approximately 15 years of age, but this age can vary widely across individual males. Unlike the early growth spurt observed in females, the male growth spurt occurs toward the end of puberty, at approximately age 11–13, and a male's height can increase as much as 4 in. (10.2 cm) a year. In some males, pubertal development can continue through the early 20s.

Male Anatomy

Males have both internal and external genitalia that are responsible for procreation and sexual intercourse. Males produce their sperm on a cycle. However, unlike the female ovulation cycle, the male sperm production cycle is constantly producing millions of sperm daily. The male sex organs are the penis and the testicles, the latter of which produce semen and sperm. The semen and sperm, as a result of sexual intercourse, can fertilize an ovum in the female's body; the fertilized ovum (zygote) develops into a fetus, which is later born as a child.

Male Reproductive Anatomy

Male reproductive anatomy involves the organs and glands that produce sperm, create semen to transport sperm, and conduct this liquid semen out of the body. Semen production involves the work of accessory glands, each responsible for the production of one or more key ingredients of semen.

Sperm production:

- Testis: Males typically have two testes (also called testicles), which, in humans, descend from the abdomen during fetal development and are enclosed outside the abdomen in the scrotum. Each testis houses many tube-like structures (the seminiferous tubules) in which sperm are made. Specialized cells (the Leydig cells) in the testes produce testosterone.
- Scrotum: This structure is a pouch of skin that holds the testes, which contract or expand to adjust the distance the testes are from the body to regulate their temperature.

- Seminiferous tubules: These structures within the testes are the actual sites of sperm production.
- Epididymis: This rubbery device sits astride the testis. Sperm mature here and are stored prior to ejaculation (when sperm-bearing semen leaves the body, typically during orgasm).

Semen production:

- Seminal vesicles: These two glands produce an alkaline (basic) fluid that can neutralize the acidity of the vagina. This fluid contains fructose and other nutrients to provide energy for the sperm.

- Bulbourethral (or Cowper's) glands: These two glands provide a mucus-rich alkaline fluid that lubricates the inside of the urethra to allow for easier passage of sperm and neutralizes the urethra (urine residue is acidic). Some of this fluid exits the penis prior to ejaculation (this pre-ejaculate fluid can also contain sperm). The remainder of the fluid combines with the semen ejaculate.
- Prostate gland: This organ wraps around the urethra and provides muscular contractions that help propel semen during ejaculation and block urine flow from the bladder during ejaculation. It also provides fluid in the ejaculate that contains enzymes and zinc that aid in sperm motility.

Sperm/semen transport:

- Ductus (or vas) deferens: This pair of muscle-lined tubes carries sperm from the epididymis of each testis into the abdominal cavity, where they loop over the bladder and join with the ducts from the seminal vesicles to form the ejaculatory ducts. The muscles that line the ductus deferens contract to propel semen during ejaculation.
- Ejaculatory ducts: These ducts are formed by the joining of the vas deferens with the duct

from the seminal vesicle. Each ejaculatory duct empties into the urethra.

- Penis: This is the organ that encircles the urethra as the urethra exits the abdomen. This organ changes from flaccid (soft and limp) to erect (rigid and standing away from the body) during sexual arousal or spontaneously. In uncircumcised males, the penis has a fold of skin called a foreskin that covers the head of the penis during the flaccid state and retracts behind the glans (or head) of the penis during the erect state.

- Urethra: This tube runs from the bladder through the penis and enables urine and semen to exit the body.

Female Anatomy

Female external genitalia is collectively known as the vulva, which includes the mons pubis, labia majora, labia minora, clitoris, vaginal opening, and urethral opening. Female internal reproductive organs consist of the vagina, uterus, fallopian tubes, and ovaries. The uterus hosts the developing fetus, produces vaginal and uterine secretions, and passes the male's sperm through to the fallopian tubes, while the ovaries release the eggs. A female is born with all her eggs already produced. The vagina is attached to the uterus through the cervix, while the uterus is attached to the ovaries via the fallopian tubes. Females have a monthly reproductive cycle. At certain intervals, the ovaries release an egg, which passes through the fallopian tube into the uterus. If the egg meets with sperm during its passage, the sperm might penetrate and merge with the egg, fertilizing it. If not fertilized, the egg and the tissue that was lining the uterus are flushed out of the system through menstruation (around every 28 days).

The female reproductive anatomy includes external structures (the clitoris and vulva), structures involved in supporting the health and maturation of eggs and in fetal development (ovaries, corpus luteum, and uterus), and structures involved in the transport of sperm, eggs, and babies (vagina, cervix, and oviduct).

Female anatomical structures can be broken down into the following:

Egg production and fetal development:

- Ovary: Females have two ovaries that are the site of egg production prior to birth. When an egg is selected for maturation, the ovaries are also the site of the corpus luteum. The ovary produces the hormones estrogen, progesterone, and testosterone.
- Corpus luteum: This temporary structure is the site of egg maturation within the ovary. After ovulation (release of the egg) the corpus luteum produces progesterone to maintain a possible pregnancy.
- Uterus: This muscle-lined, triangular organ is where a fertilized egg implants and develops. The uterus develops a thick blood lining and sheds this lining on a monthly cycle.

Transport of eggs, sperm, and embryos:

- Vagina: This highly expandable pouch structure serves as the opening of the female reproductive tract to the outside of the body. The vagina is the point of sperm entry and the point of exit for unfertilized eggs, menstrual discharge, and babies through vaginal delivery during a pregnancy.
- Cervix: The cervix is the opening between the vagina and the uterus. The size of this opening varies from tightly closed to open for the passage of sperm to open wide enough for a baby to pass through.
- Oviducts (sometimes called fallopian tubes): These ducts transport mature eggs from the ovary toward the uterus. If a sperm and an egg

are in the oviduct at the same time, the egg can be fertilized by a sperm.

Exterior structures:

- Vulva: This is a general term for the exterior parts surrounding the vagina, including the labia majora and labia minora, which are the folds of skin on either side of the clitoris, urethra, and vagina. Often this term is overlooked, with folks referring to the vulva as "vagina," which is the internal structure. It's OK and more accurate to say vulva when referring to the external structure. Importantly, the structure and appearance of the vulva may vary widely. There's no "one size fits all" when it comes to the vulva, and diversity in appearance needs to be celebrated.
- Clitoris: This sensitive, nerve-rich organ is analogous to the head of the penis. The part of the clitoris that is visible outside the body is dorsal to (closer to the belly) the urethra and the vagina. The interior part of the clitoris extends internally along either side of the vagina.

Unfortunately, the structure of the clitoris is not well known by many people, including individuals with a clitoris. Historically, and even in some contemporary settings, this feature of anatomy has been muted or correlated with antiquated notions of female sexuality, such as hysteria or neurosis.

Female Reproductive Physiology

Female reproductive anatomy and physiology have many similarities to those of the male. As described earlier, females also use LH and FSH secretion from the pituitary, which is triggered by GRH from the hypothalamus, to stimulate hormone production by the gonads. Negative feedback also plays a role in regulating hormone production. However, in females, the interplay among the hormonal signals is more complicated than in males. While male hormonal feedback and signaling provide a relatively steady level of the sex hormone testosterone, females experience a monthly cycle during which the circulating hormone levels rise and fall as changes occur in the ovaries and the uterus. This surging of hormones, along with the changes in the ovaries and uterus, requires the more complicated physiological controls described next.

Menstruation

The banner in figure 12.2 was carried in a 2014 march in Uganda as part of the celebration of Menstrual Hygiene Day. Menstrual Hygiene Day is held on May 28 each year and aims to raise awareness worldwide about menstruation and menstrual hygiene. Maintaining good menstrual hygiene is difficult in developing countries like Uganda due to taboos against discussing menstruation and a lack of widely available menstrual hygiene products. Poor menstrual hygiene, in turn, can lead to embarrassment, degradation, and reproductive health problems in females. May 28 was chosen as Menstrual Hygiene Day because of its symbolism. May is the fifth month of the year, and most women average five days of menstrual bleeding each month. The 28th day was chosen because the menstrual cycle averages about 28 days.

Figure 12.2. World Menstrual Hygiene Day is celebrated to bring awareness to the cause of destigmatizing women's needs while menstruating.

The monthly female reproductive cycle can be divided into three phases: the follicular phase, ovulation, and the luteal phase. For each of these phases, there are concurrent changes happening in the uterus and in the ovaries.

The name "follicular phase" is in reference to the egg-containing follicle in the ovary that matures during this phase. This phase begins on day 1 of a female's reproductive cycle. Day 1 is defined as the first day of menstruation (the first day of a period). Menstruation occurs for about the first five days of the follicular phase. During these days, if a female is not pregnant, low circulating levels of the hormone progesterone trigger the breakdown of the endometrium (the lining of the uterus). This blood-rich tissue exits the uterus through the cervix and then leaves the body through the vagina. During menstruation, low circulating levels of estrogen and progesterone stimulate GnRH production (from the hypothalamus in the brain), which leads to LH and FSH secretion by the pituitary gland. FSH signals the maturation of several follicles within the ovaries. These follicle cells produce a steadily increasing amount of estrogen.

Ovulation refers to the rupture of a mature follicle within the ovary. This ruptured follicle releases an oocyte (an unfertilized egg) into the abdominal space. Because this rupture is an actual breakage, some females will feel a twinge or slight pain during ovulation. Ovulation generally happens around day 14 of the reproductive cycle in one ovary.

During the luteal phase, the now-empty follicle within the ovary collapses. This collapsed mass of cells is called a corpus luteum. The corpus luteum produces progesterone that enters the blood circulation. Progesterone signals the hypothalamus to signal the pituitary to reduce FSH and LH production, which prevents other follicles from maturing. If the oocyte in the oviduct is not fertilized, the corpus luteum degrades, causing a drop in progesterone, which triggers the beginning of menstruation and the return to the follicular phase of the reproductive cycle (back to day 1 after about a 28-day cycle). If the oocyte *is* fertilized, then that begins the cellular process of fetal development (pregnancy).

Intersex Anatomy

About 1 in 1,000–1,500 people will be born noticeably **intersex**, such as having partial elements of both a penis and a vulva. However, other intersex conditions may not show up until later, such as during puberty or when trying to conceive children, making the number of intersex individuals higher in actuality. Some estimates show that some intersex conditions can be as high as one in 66. Taken together, some researchers, such as Anne Fausto-Sterling (2000), argue that the number of intersex people is actually closer to about one in 100 (Intersex Society of North America, 2008b). Here is a video of four individuals sharing some of their experiences (figure 12.3).

This interactive content is not available in this version of the text. It can be accessed online here: **https://www.youtube.com/watch?v=cAUD-KEI4QKI**

Figure 12.3. What It's Like To Be Intersex [Streaming Video]. Transcript.

The term intersex is an umbrella term that encompasses many different variations in sex. Some intersex individuals have variations of their sex chromosomes. For example, the SRY gene on an individual's Y chromosome may be missing or may have been translocated onto an X chromosome. Thus, in some instances, a male can have XX chromosomes, and a female can have XY chromosomes. Other variations are possible as well, including X0, XXY, XYY, and XXX. According to Dr. Charmian Quigley with the Intersex Society of North America (2008a):

> The last time I counted, there were at least 30 genes that have been found to have important roles in the development of sex in either humans or mice. Of these 30 or so genes 3 are located on the X chromosome, 1 on the Y chromosome and the rest are on other chromosomes, called autosomes (on chromosomes 1, 2, 3, 4, 7, 8, 9, 10, 11, 12, 17, 19). In light of this, sex should be considered not a product of our chromosomes, but rather, a product of our total genetic makeup, and of the functions of these genes during development. (para. 11–12)

Therefore, we need to be careful when we oversimplify this process and relate sex to XX or XY chromosomes only.

Transgender Anatomy

Further neurobiological research has been conducted to explain why many transgender people experience gender dysphoria, which is an intense feeling that the sex they were assigned at birth based on genital presentation does not match the way they feel about themselves. The contrast between the genital-based presentation of sex and the brain's sex can be explained from a neurobiology perspective by taking a closer look at sex differentiation when we are still in the womb. During prenatal development, sex differentiation of the genitals takes place during the first two months of pregnancy, while sex differentiation of the brain occurs around four months of pregnancy (Swaab & Garcia-Falgueras, 2009). This discrepancy between the development of the genitals and the development of the brain has led biological researchers to believe this may be the reason why some individuals are transgender or experience gender dysphoria. Something to keep in mind: Humans exhibit significantly less sex dimorphism than many other species, resulting in numerous similarities between males and females. This makes research in this area particularly challenging, as differences are often subtle or nonexistent.

Hormone replacement therapy and hormone blockers have been used to promote desirable changes in the physical bodies of some transgender individuals. These treatments have had positive results, adding merit to the perspective that there may be biological reasons and solutions for people experiencing gender dysphoria from a biopsychosocial perspective. In transgender men, testosterone therapy will result in enlargement of the clitoris, leading it to resemble a small penis; increased facial hair and body hair similar to that of other males in the individual's family; redistribution of body fat and increased muscle mass; and deepening of the voice due to thickening of the vocal cords. In addition, the breast tissue will begin to atrophy, and the individual will experi-

ence more oily skin. In transgender women, hormone blockers and estrogen hormone therapy will cause breast tissue growth, redistribution of body fat, and reduced muscle mass. Furthermore, the individual's body hair will thin and grow more slowly, their penile tissue (if not having regular sex or masturbating) will begin to atrophy, and their skin will become drier. Electrolysis for hair removal may be desired, and voice lessons can help train the individual to speak in a register more socially expected for a woman.

Hormone blockers prior to puberty are especially beneficial in preventing these long-lasting impacts and aid the transition process for transgender individuals. However, many parents feel conflicted about this and may not consent on their children's behalf. Surgeries may also be used by some transgender individuals. Within transgender communities, these procedures are commonly referred to as "top surgery," which is surgery to either remove or enhance breast tissue, and "bottom surgery," which alters the genitals. Creating a vagina can be done utilizing the existing tissue. The procedure has positive results for many individuals, enabling them to experience sensation, but this outcome depends on the formation of scar tissue. Creating a penis requires the addition of testicular implants and a penile pump for erection purposes.

Every transgender person will have to decide what steps they want to take to help them feel as comfortable as possible in their bodies. If someone does not use hormones or have surgeries, it does not make them any less transgender than someone who does. Also, keep in mind that access to health care is a **privilege** and not a right in our country, which can be a barrier for many individuals in receiving the care they need. Family, culture, and society also act as barriers in this process. It is never appropriate to question a transgender person about their genitals, surgeries, or hormones; doing so would be an example of a microaggression. This is othering and dehumanizing and reduces transgender individuals to their genitals and body rather than seeing them as a whole person with feelings and the right to privacy. Create a space where someone feels comfortable sharing their experiences with you on their own rather than questioning them. Here are some resources:

- **National Center for Transgender Equity [Website]**.
- **Trans Student Educational Research [Website]**.
- **Supporting the Transgender People in Your Life: A Guide to Being a Good Ally [Website]**.

If you or someone you know is interested in learning more about how hormone replacement therapy impacts the body, check out the links provided by **the University of California, San Francisco Transgender Care [Website]**. UCSF Transgender Care also has more information on **the types of surgeries [Website]** that are available for transgender individuals.

What about when nonbinary individuals, such as those who identify as agender, bigender, or genderqueer, experience gender dysphoria? Or, what about when transgender individuals don't experience gender dysphoria? What might be some biological explanations? We need more research to answer these questions. However, this raises another question to think about further: if gender is a social construct, then does biology even really matter anyway, and are researchers trying too hard to find biological answers? This goes back to the nature versus nurture debate once again. We will discuss gender as a social and cultural phenomenon in Chapter 14, to explore this question further from other perspectives.

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Figure 12.2. Image by Satirtha—The Helping Hand: a nonprofit organization (link not available) on Wikimedia Commons is licensed CC BY-SA 4.0.

12.4 Sexual Activity

Pregnancy

Although adolescent pregnancy rates have declined since 1991, teenage birth rates in the United States are higher than most industrialized countries. In 2020, females aged 15–19 years experienced a birth rate of 15.4 per 1,000 women (Martin et al., 2020). This is a drop of 8 percent from 2019. It appears that adolescents who are sexually active are using birth control.

Risk Factors for Adolescent Pregnancy

Miller et al. (2001) found that parent-child closeness, parental supervision, and parents' values against teen intercourse (or unprotected intercourse) decreased the risk of adolescent pregnancy. In contrast, residing in disorganized or dangerous neighborhoods; living in family with a lower socioeconomic status; living with a single parent; having older, sexually active siblings or pregnant/parenting teenage sisters; going through early puberty; and being a victim of sexual abuse

place adolescents at an increased risk of adolescent pregnancy.

Consequences of Adolescent Pregnancy

After a child is born, life can be difficult for teenage parents. Only 40 percent of teenagers who have children before age 18 graduate from high school. Without a high school degree, job prospects are limited, and economic independence is difficult. Teen mothers are more likely to live in poverty, and more than 75 percent of all unmarried teen mothers receive public assistance within 5 years of the birth of their first child. Approximately, 64 percent of children born to an unmarried, teenage high-school dropout live in poverty. Further, a child born to a teenage mother is 50 percent more likely to repeat a grade in school and is more likely to perform poorly on standardized tests and drop out before finishing high school (March of Dimes, 2012).

Sexually Transmitted Infections

Sexually transmitted infections (**STIs**), also referred to as sexually transmitted diseases (STDs) or venereal diseases (VDs), are illnesses that have a significant probability of transmission by means of sexual behavior, including vaginal, anal, and oral sex. Some STIs can also be contracted by sharing intravenous drug needles with an infected person, through childbirth, or through breastfeeding. Common STIs include chlamydia, gonorrhea, syphilis, genital herpes, human papillomavirus (HPV), and human immunodeficiency virus (HIV) (Figure 12.4).

STI	Brief Description
Chlamydia	Bacterial infection that is often asymptomatic, affecting the reproductive system
Gonorrhea	Bacterial infection causing inflammation of the genital tract, throat, or rectum
Human papillomavirus (HPV)	Viral infection leading to genital warts and increasing the risk of certain cancers
Genital herpes	Viral infection causing painful sores or blisters on the genital or anal area
Human immunodeficiency Virus (HIV)	Viral infection that attacks the immune system, leading to AIDS if left untreated
Syphilis	Bacterial infection with various stages and potential complications if not treated
Trichomoniasis	Parasitic infection causing itching, burning, and discomfort in the genital area
Hepatitis B	Viral infection affecting the liver that may be transmitted through sexual contact or blood
Hepatitis C	Viral infection affecting the liver that is commonly transmitted through blood-to-blood contact
Pubic lice (crabs)	Parasitic infestation causing itching and visible lice in the pubic hair area

Figure 12.4. Common STIs Among Adolescents

Please note that this table is not exhaustive, and there are other STIs not listed here. It's important to practice safe sex, get regular screenings, and seek medical attention if any symptoms or concerns arise.

During adolescence, the risk of acquiring sexually transmitted infections (STIs) increases as young people explore their sexuality and engage in sexual relationships. Adolescents may be particularly vulnerable to STIs due to a combination of factors, such as lack of comprehensive sex education, inconsistent condom use, multiple sexual partners, and limited access to healthcare services. These infections can have serious health consequences, including infertility, chronic pain, cervical or anal cancer, and increased risk of HIV transmission. Therefore, it is crucial for adolescents to be educated about safe sexual practices, the importance of regular STI testing, and the use of barrier methods (e.g., condoms) to reduce the risk of transmission. Open communication with healthcare providers, access to confidential healthcare services, and awareness of one's own sexual health are vital for reducing the spread of STIs and promoting a healthy sexual life during adolescence and beyond.

According to the Centers for Disease Control and Prevention (CDC) (2023), there was an increase in Chlamydia, Gonorrhea, and HPV in 2021. Those most affected by STIs include racial and ethnic minorities, adolescents and young adults, and men who have sex with men. The most effective way to prevent transmission of STIs is to practice abstinence (not participating in sexual

intercourse), safe sex, and to avoid direct contact of skin or fluids, which can lead to transfer with an infected partner. Proper use of safe-sex supplies, such as male condoms, female condoms, gloves, or dental dams, reduces contact and risk and can be effective in limiting exposure. However, some disease transmission may occur even with these barriers.

Contracting sexually transmitted infections (STIs) during adolescence can have significant long-term health consequences. For females, certain STIs, such as chlamydia and gonorrhea, can lead to pelvic inflammatory disease (PID), resulting in damage to the reproductive organs and potential infertility. Chronic pelvic pain can persist due to untreated or recurrent STIs, impacting quality of life. Human papillomavirus (HPV), a common STI, can increase the risk of cervical, anal, vulvar, vaginal, penile, and oropharyngeal cancers. STIs can also complicate pregnancy, leading to premature birth, low birth weight, neonatal infections, and congenital disabilities. Some STIs, such as genital herpes and syphilis, increase the risk of HIV transmission. Chronic STIs like genital herpes and HIV require ongoing management, causing recurrent outbreaks, immune system suppression, and the need for lifelong medication. Understanding these long-term consequences highlights the importance of safe sex practices, early diagnosis, treatment, regular STI testing, and open communication with healthcare providers.

Contraceptive Methods and Protection From Sexually Transmitted Infections

There are many methods of **contraception** that sexually active adolescents can use to reduce the chances of pregnancy (figure 12.5).

Method	Description	Failure Rate
Intrauterine device (IUD)	A small device that is shaped in the form of a "T" and is placed inside the uterus	0.1–0.8%
Implant	A single, thin rod that is inserted under the skin of a female's upper arm	0.01%
Injection	Injections or shots of hormones to prevent pregnancy that are given in the buttocks or arm every three months	4%
Oral contraceptives	A pill that contains the hormones to prevent pregnancy and is taken at the same time each day; also called "the pill"	7%
Patch	A patch that is worn on the lower abdomen, buttocks, or upper body and releases hormones to prevent pregnancy into the bloodstream; applied once a week for three weeks and then left off for a week	7%
Hormonal vaginal contraceptive ring	A ring that is placed in the vagina and releases hormones to prevent pregnancy; worn for three weeks, left out for a week, then replaced with a new ring	7%
Spermicide	A foam, gel, cream, film, suppository, or tablet that kills sperm and is placed in the vagina before intercourse	21%
Diaphragm or cervical cap	A cup that, in conjunction with spermicide, is placed inside the vagina before intercourse to cover the cervix to block sperm	17%
Sponge	A sponge that contains spermicide and is placed in the vagina where it fits over the cervix	14–27%
Male condom	A stretchy covering worn (single use) by the male over the penis to keep sperm from entering a partner's body	13%
Female condom	A pouch worn (single use) by a female inside the vagina to keep sperm from entering the body	21%
Natural family planning	A method in which fertile days are predicted during a regular menstrual cycle so that sexual intercourse can be avoided on those days.	2–23%
Copper IUD	A small copper device that is shaped like a "T" and inserted into the uterus; can be inserted up to 5 days after sexual intercourse	0.8%
Emergency contraceptive pills	A pill or pills that can be taken up to 5 days after sexual intercourse and may be available over-the-counter	1–10%

Figure 12.5. Contraception Methods

In choosing a birth control method, dual protection from the simultaneous risk for HIV and other STIs also should be considered. Although hormonal contraceptives and IUDs are highly effective at preventing pregnancy, they do not protect against STIs, including HIV. Consistent and cor-

rect use of the male latex condom reduces the risk for HIV infection and other STIs, including chlamydial infection, gonococcal infection, and trichomoniasis.

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12.5 Health and Wellness

Nutrition

The USDA dietary guidelines define late adolescence as the period from age 14 to 18. After puberty, the rate of physical growth slows down. Girls stop growing taller around age 16, while boys continue to grow taller until ages 18 to 20. One of the psychological and emotional changes that takes place during this life stage is the desire for independence as adolescents develop individual identities separate from their families. As teenagers make more of their dietary decisions, parents, caregivers, and authority figures should guide them toward appropriate, nutritious choices.

Accessing Healthy Food

Most people have access to fresh water in all except the most extreme situations, but some adolescents don't have the food necessary for proper development and may be food insecure. In fact, although the need for food is one of the most fundamental and important human needs, more than 1 in 10 U.S. households contains people who live without enough nourishing food. This lack of proper nourishment has profound effects on individuals' ability to lead lives that will allow them to develop to their fullest potential (Coleman-Jensen et al., 2022). When people are extremely hungry, their motivation to attain food completely changes their behavior. Hungry people become listless and apathetic to save energy and then become completely obsessed with food. Ancel Keys et al. (1950) found that volunteers who were placed on severely reduced-calorie diets lost all interest in sex and social activities and became preoccupied with food. According to Maslow, meeting one's basic needs is vital for proper growth and development.

Immunization and Disease Prevention

The physiological changes that occur during puberty, including hormonal shifts and the maturation of bodily systems, can impact the immune system and make adolescents more susceptible to infections. Additionally, adolescents often engage in risk-taking behaviors, such as experimentation with drugs, alcohol, or tobacco, which can weaken their immune system and leave them vulnerable to diseases. Limited knowledge and awareness about disease prevention, safe sex practices, and healthy lifestyle choices further contribute to their increased risk. Peer interactions and social dynamics, along with crowded environments in schools and community settings provide opportunities for the spread of infectious diseases. Furthermore, travel and exploration activities can expose adolescents to new environments and potential disease risks.

Communicable Disease

A **communicable disease**, also known as an infectious or contagious disease, is an illness caused by the invasion and multiplication of infectious agents in the body, such as bacteria, viruses, fungi, parasites, or prions. These diseases can spread from one person to another through various modes of transmission, including direct contact, respiratory droplets, blood or bodily fluid exchange, contaminated surfaces, and vectors like mosquitoes or ticks. When an infected individual comes into contact with a susceptible person, the infectious agent can be transmitted, leading to the development of the disease in the new host. Examples of communicable diseases include the common cold, influenza, tuberculosis, HIV/AIDS, malaria, hepatitis, and COVID-19. The severity of communicable diseases can range from mild to severe. Diseases can significantly impact individuals, communities, and even global populations. Preventive measures, such as vaccination, proper hygiene practices, use of personal protective equipment, and public health interventions, play a crucial role in controlling the spread of communicable diseases and protecting public health.

Adolescents can be at risk of communicable diseases due to a combination of factors related to their physical, social, and behavioral characteristics. Here are some reasons why adolescents may be more vulnerable:

- Sexual activity: Adolescents often begin exploring their sexuality during this stage of life. Engaging in sexual activity, especially without practicing safe sex measures like condom use, can put them at risk of STIs, such as chlamydia, gonorrhea, and HIV.
- Peer interactions: Adolescents tend to spend a significant amount of time with their peers, which can increase the likelihood of close contact and the spread of communicable diseases. Activities such as sharing food, drinks, or personal items can facilitate the transmission of diseases, such as the common cold, influenza, and mononucleosis.
- Limited knowledge and awareness: Adolescents may have limited knowledge about communicable diseases and their prevention. This lack of awareness can lead to risky behaviors and poor hygiene practices, making them more susceptible to infections.
- Substance use: Substance use, including alcohol and drug abuse, is more common among some adolescents. Substance use can impair judgment, leading to risky behaviors, such as engaging in unprotected sex or sharing needles, which can increase the risk of contracting HIV, hepatitis B, and hepatitis C.
- School and community settings: Adolescents often spend a significant amount of time in school and community settings, where they come into contact with a large number of people. Close quarters, poor ventilation, and limited hygiene practices in these settings can facilitate the spread of respiratory infections, such as the flu or COVID-19.
- Travel and exploration: Adolescents may engage in travel or exploration activities, which can expose them to communicable diseases prevalent in different regions or countries. Lack of vaccination or immunity to specific diseases can make them more susceptible to infections.

Vehicle/Drivers Education Safety

Anthony is now a vibrant and energetic teenage boy eagerly counting down the days until he gets his driver's license. With a sparkle in his eyes and an infectious enthusiasm, he imagines the freedom and independence that will soon be within his grasp. Anthony's anticipation grows with each passing moment as he envisions the open road beckoning him to embark on thrilling adventures

and explore new horizons. The prospect of driving, with its endless possibilities and newfound responsibilities, ignites a fire within him, fueling his dreams and aspirations. Ready to embrace this milestone in his life, Anthony is on the cusp of an exciting journey that will shape his sense of identity and open doors to a world of newfound possibilities.

Vehicle safety is of utmost importance for adolescents like Anthony who are learning to drive or are passengers in a vehicle. Optimal safety for adolescents includes adequate driver training, but it also includes learning how to be a safe passenger. In 2020, there were approximately 2,800 vehicle-related adolescent fatalities (CDC, 2022). The majority of adolescent deaths involved adolescent drivers carrying adolescent passengers.

Here are some key points to consider for ensuring adolescent vehicle safety:

- Seat belt usage: Adolescents should always wear their seat belts, whether they are driving or riding as a passenger. Seat belts are the most effective safety feature in a vehicle and can significantly reduce the risk of injury or fatality in the event of a crash.
- Avoid distractions: Distractions, such as using a mobile phone, eating, or adjusting the radio, can greatly impair a driver's ability to react quickly and make safe decisions. Adolescents should be educated about the dangers of distracted driving and encouraged to focus solely on the road.
- Defensive driving: Adolescents should be taught defensive driving techniques, including maintaining a safe distance from other vehicles, scanning the road for potential hazards, and anticipating the actions of other drivers. This helps them respond effectively to unexpected situations.
- Speeding: Speeding is a common cause of accidents among young drivers. Adolescents should be educated about the risks associated with excessive speed and the importance of obeying speed limits.
- Impaired driving: Adolescents must understand the dangers of driving under the influence of alcohol or drugs. They should be aware of the legal consequences and the potential for serious accidents and injuries. Encourage them to always designate a sober driver or use alternative transportation when necessary.
- Nighttime driving: Driving at night can be more challenging, especially for inexperienced drivers. Adolescents should practice driving at night with adult supervision to gain confidence and develop the skills needed for safe nighttime driving.
- Avoid peer pressure: Adolescents should be encouraged to avoid risky behaviors influenced by peer pressure, such as reckless driving, overcrowding in vehicles, and participating in street racing. Emphasize the importance of making responsible choices and speaking up against unsafe practices.
- Vehicle maintenance: Adolescents should understand the importance of regular vehicle maintenance, including tire checks, brake inspections, and routine servicing. A well-maintained vehicle reduces the risk of mechanical failures that can lead to accidents.
- Weather conditions: Adolescents should be cautious when driving in adverse weather conditions, such as rain, snow, or fog. Educate them about appropriate adjustments in driving techniques and the importance of slowing down and maintaining a safe distance from other vehicles.
- Model safe behavior: Parents and guardians play a crucial role in modeling safe driving behavior. Adolescents are more likely to adopt safe driving practices if they see responsible behavior demonstrated consistently by their adult role models.

Equity Issues in Driver's Safety Education

Various **equity** issues can affect adolescents' access to driver's safety courses and create disparities in the opportunities and resources available to different groups. Here are some equity issues that may arise:

- Financial barriers: The cost associated with driver's safety courses can be a significant barrier for many adolescents and their families. Courses, study materials, and licensing fees can be expensive, making them unaffordable for low-income individuals and communities. This creates an inequity where those who can afford the courses have better access to driver's education and safety training.
- Geographical disparities: Access to driver's safety courses may be limited in certain geographic areas, particularly in rural or underserved communities. This can be due to a lack of driving schools or limited availability of instructors and resources. Adolescents in these areas may face challenges in finding nearby courses or have to travel long distances to attend them.
- Language and cultural barriers: Language barriers can pose challenges for adolescents from non-English speaking backgrounds. If driver's safety courses are predominantly available only in English, it may exclude individuals who are not proficient in the language. Additionally, cultural factors may influence the accessibility of courses. For example, courses that do not consider cultural diversity or fail to provide culturally relevant information may hinder effective learning and engagement.
- Transportation accessibility: Lack of transportation options can hinder adolescents' ability to attend driver's safety courses. In communities with limited public transportation or where individuals rely heavily on public transportation, getting to and from the course locations can be a challenge. This can disproportionately affect low-income individuals who may not have access to a reliable vehicle or public transportation options.
- School-based disparities: Some adolescents have the opportunity to attend driver's safety courses through their school programs. However, not all schools offer such courses, and disparities may exist based on the resources and funding available to different schools. Schools in disadvantaged areas may lack the necessary funding or resources to provide comprehensive driver's safety education.
- Digital divide: With the increasing availability of online driver's safety courses, the digital divide can create disparities. Adolescents without reliable internet access or access to computers may face difficulties in participating in online courses. This can disproportionately affect individuals from low-income households or rural areas with limited internet connectivity.

Addressing these equity issues requires proactive measures:

- providing financial assistance or scholarships to ensure affordability
- ensuring the availability of driver's safety courses in diverse languages
- promoting cultural competence and inclusivity within driver's safety curricula
- expanding the availability of courses in underserved areas, including rural communities
- offering transportation assistance for adolescents who face difficulties accessing course locations
- advocating for equal access to driver's safety education across schools
- bridging the digital divide by providing internet access and computers to those in need

By addressing these equity issues, we can ensure that all adolescents have the opportunity to learn and practice safe driving skills.

Racism in Vehicle Safety

Black Americans face disproportionate risk in traffic violations, often experiencing heightened scrutiny and harsher consequences compared to their White counterparts. Studies consistently reveal racial biases in law enforcement practices, leading to increased stops, searches, and citations for Black drivers. For Black teenage boys, encounters with police carry added layers of complexity and danger. These young men must navigate a delicate balance of asserting their rights while prioritizing their safety. They often undergo specific training on how to interact with law enforcement to mitigate potential harm. The unfortunate reality is that for many Black Americans, routine traffic stops can escalate into life-threatening situations, highlighting the urgent need for systemic change and greater accountability within law enforcement agencies.

CASE STUDY: ANTHONY

What Is Driving While Black?

With his newly earned license in hand, Anthony eagerly took the wheel for one of his first solo drives. As he cruised down the familiar streets, the flashing lights of a patrol car suddenly lit up behind him. Heart pounding, Anthony remembered the countless talks his mom had given him about encounters with law enforcement. With steady hands, he pulled over, recalling her words: "Stay calm, keep your hands visible, and always show respect." As the officer approached, Anthony carefully followed his mother's advice, offering his license and registration without hesitation. Despite his nerves, he remained composed, conscious of every move he made. Thankfully, the encounter ended without incident, but the fear lingered. Later, Anthony shared the experience with his mom, grateful for her wisdom and guidance that had kept him safe. Their conversation echoed the harsh reality faced by so many Black American families: simple traffic stops can turn into potential danger.

"Driving while Black" is a term used to describe the racial profiling and discriminatory practices experienced by Black individuals during traffic stops or while operating a vehicle. Black drivers are disproportionately targeted by law enforcement officers based on their race, leading to heightened scrutiny, unwarranted stops, searches, and sometimes escalated encounters. This phenomenon reflects systemic racism within the wider criminal justice system, where Black individuals are unfairly targeted and subjected to harassment or violence solely because of their race. The term underscores this pervasive racial bias, highlighting the need for reforms to address racial profiling and ensure equitable treatment for all drivers regardless of race.

It's crucial to recognize that Indigenous and Latinx-identifying drivers also face disproportionately high rates of police violence during traffic stops. The systemic biases that pervade law enforcement interactions extend to these communities as well, resulting in heightened risk and vul-

nerability. Furthermore, it's essential to acknowledge that drivers who identify as women report higher rates of sexual assault during traffic stops, adding another layer of danger and injustice to these encounters.

By broadening the discussion to encompass the experiences of BIPOC (Black, Indigenous, and people of color) and female-identifying drivers, driver's education courses can provide a more comprehensive understanding of the intersecting issues at play during police stops. This not only empowers BIPOC students and students who identify as women to navigate encounters with law enforcement safely, but it also serves as a crucial lesson for White students and students who identify as men. By recognizing the systemic biases that exist, White students and students who identify as men can better understand their **privilege** and the role it plays in perpetuating unequal treatment. Educating all students about the disparities in traffic stops fosters empathy, awareness, and a collective commitment to dismantling racist and sexist police-driver interactions. It's not just about preparing individuals for the road; it's about equipping them with the knowledge and awareness to strive for a more just and equitable society.

Gun Violence

Gun violence poses a significant problem for adolescent well-being, encompassing a range of physical, psychological, and societal consequences. This issue affects young people's lives across various regions, often leading to devastating outcomes.

Adolescents who are victims of gun violence can suffer severe physical injuries, including gunshot wounds, permanent disabilities, and even fatalities. These injuries not only impact their immediate well-being but can also have long-term consequences, such as chronic pain, mobility issues, and emotional trauma.

Witnessing or experiencing gun violence can have profound psychological effects on adolescents. They may develop symptoms of post-traumatic stress disorder (PTSD), anxiety, depression, and other mental health disorders. These experiences can disrupt their emotional well-being, hinder academic performance, and impair social relationships.

The constant threat of gun violence creates a pervasive atmosphere of fear and insecurity among adolescents. This fear can lead to heightened anxiety, stress, and a diminished sense of safety. It may also limit their ability to engage in regular daily activities, such as attending school, participating in extracurricular activities, and socializing with peers.

Gun violence in and around schools can disrupt the learning environment for adolescents. Frequent lockdowns, security measures, and trauma-related distractions impede academic progress. Moreover, students may experience difficulty concentrating, lower educational attainment, and increased dropout rates due to the fear and trauma associated with gun violence.

The impact of gun violence during adolescence can extend well into adulthood. Survivors may face ongoing physical, emotional, and financial challenges. Additionally, exposure to violence at a young age increases the risk of engaging in violent behavior or becoming involved in criminal activities later in life, perpetuating the cycle of violence.

Gun violence in adolescence affects not only the individuals directly involved but also their families, friends, and communities. The loss of young lives and the resultant grief and trauma reverberate throughout society. Communities affected by gun violence often experience a breakdown of trust, social cohesion, and economic development.

Addressing the problem of gun violence in relation to adolescent well-being requires a multifaceted approach. It involves implementing comprehensive gun control measures, improving access to mental health services, promoting con-

flict resolution and nonviolent communication, fostering community engagement, and providing support systems for affected individuals and communities. By prioritizing prevention, intervention, and support, we can work toward creating safer environments for adolescents and improving their overall well-being.

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12.6 Conclusion

Physical development during adolescence is a complex process that involves significant changes in the body's structure, function, and overall appearance. Adolescents experience a wide range of physical changes that include growth spurts, changes in body composition, and the development of secondary sex characteristics. These changes can lead to both positive and negative experiences, including increased self-esteem, social acceptance, and physical discomfort. It is important to understand that physical development during adolescence is a normal and natural process that varies greatly between individuals. By providing a supportive and understanding environment, parents, educators, and health-care providers can help adolescents navigate this critical period of growth and development with confidence and self-assurance.

Review of Learning Objectives

1. Identify the distinct aspects of physical and **sexual development** related to adolescence.
2. Explain age appropriate comprehensive sex education.
3. Discuss concerns to adolescent health, wellness, and safety.
4. Analyze the impact of cultural and environmental influences on physical and sexual development in adolescence.

Review of Key Terms

- **Communicable disease**: an illness caused by infectious agents, such as bacteria, viruses, fungi, parasites, or prions, that can spread easily from one person to another; also referred to as infectious or contagious illness.
- **Contraception**: a method to prevent pregnancy; also commonly referred to as birth control.
- **Intersex**: the presence of having partial elements of both male and female anatomical characteristics.
- **Sex differentiation**: the process by which genitals and reproductive organs develop within the womb.
- **Sexually transmitted infection (STI)**: an illness that has a significant probability of transmission by means of sexual contact, including vaginal, anal, and oral sex.

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CHAPTER
13

Adolescent Cognitive Development

13.1 Chapter Overview and Learning Objectives

In 1904, G. Stanley Hall coined the term "storm and stress" to describe adolescent development. More than 100 years later, this description holds true. Adolescence is the period from age 13 to emerging adulthood. It can be a tumultuous period marked by cognitive changes and social experiences. Cognitive changes include developing metacognition and the ability to think abstractly. Similar to middle childhood, expanding social influences impact **language development**. In this chapter, we'll focus first on theoretical contributions in **cognitive development**. We will then discuss cognitive and language development, and we'll apply our understanding of cognitive development to the context of school and educational settings.

Learning Objectives

After reading this chapter, you will be able to do the following:

1. Identify the components and development of executive functions in adolescent cognitive development.
2. Compare and contrast theories of cognitive development in adolescence.
3. Discuss the importance of family, peers, and school settings in cognitive development.
4. Examine how biological and social factors influence the school experience.

Key Terms

Throughout this chapter, you will be introduced to important key terms that will help deepen your understanding of adolescent cognitive development:

- **Critical thinking**: analyzing information presented as facts, evidence, or arguments and being able to make a decision.
- **Bandwidth tax**: the cognitive load or mental effort required to manage multiple tasks or information streams simultaneously.
- **Formal operational stage**: Piaget's final stage of cognitive development, in which individuals develop the ability to think abstractly, logically, and systematically, formulate hypotheses, consider multiple variables simultaneously, and engage in deductive reasoning.
- **Cognitive plasticity**: the ability of the brain and cognitive abilities to change over time.
- **Transitivity**: the ability to understand the relationship between two objects.
- **Egocentrism**: an adolescent's belief that others are as attentive to their behaviors and appearance as the adolescent themself.
- **Imaginary audience**: the belief that others are constantly observing and scrutinizing one's behavior and appearance, as if one is the center of attention in a hypothetical audience. This phenomenon often leads adolescents to feel self-conscious or overly concerned about how they are perceived by others.
- **Personal fable**: the way adolescents tend to see themselves as unique or invulnerable is another example of biased thinking that occurs during adolescence.
- **Inductive reasoning**: using specific observations, or comments from those who are perceived to be knowledgeable, to draw general conclusions.
- **Deductive reasoning**: reasoning begins with a general principle that then leads to proposed conclusions.
- **Heuristic thinking**: a problem-solving approach that employs practical and efficient methods, often based on experience and intuition, to make decisions or solve problems quickly.
- **Pruning**: a process in which the brain eliminates unused neurons and connections, which helps speed transmissions between different regions of the brain.

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13.2 Theories

Understanding how teenagers think and their **cognitive development** is no easy task. Cognitive theories in adolescent development can provide a framework or set of statements that allow researchers, educators, and scientists to describe, explain, and predict outcomes or behaviors (see Chapter 2 for more information on theory). Understanding cognitive development through tested theories can help inform programs and policies impacting children in this developmental period.

Throughout the developmental period referred to as adolescence, cognitive processes continue expanding. As with any theory, a cognitive theory

provides an empirically tested perspective on the understanding of how cognitive processes occur.

Piaget

Chapter 2 introduced Jean Piaget's theory of cognitive development and how Piaget believed that humans develop in stages. As children make sense of the world around them, building on previous knowledge, they progress through four stages of cognitive development. According to Piaget's theory of cognitive development, the fourth stage of cognitive development is the formal operational stage.

Formal Operational Stage

The **formal operational stage** of cognitive development begins at approximately 12 years old and lasts into adulthood. Children's understanding and ability to make sense of the world move beyond just what can be seen or observed. In adolescence, young people often are able to think more abstractly and discuss abstract concepts such as beauty, love, freedom, and morality. Yet even in adulthood, the ability to think abstractly may not be constant. For some, formal schooling may stop at the age of 18, but exercising our cognitive abilities should not. **Cognitive plasticity,** or the ability of the brain and cognitive abilities to change over time, can cause some people to be less flexible in their thinking and to revert to concrete operational ways of thinking. Neural pathways can be created throughout our lifetime if we keep flexing our ability to do so.

Additional cognitive skills developed during the formal operational stage include hypothetical-deductive reasoning, which means that young people at this stage can develop a hypothesis based on what they think will logically occur. This hypothetical, what-if thinking is important for scientific thinking. Formal operational thinkers are able to consider potential outcomes and then test their hypothesis systematically. Additionally, adolescents develop transitivity, or the ability to understand the relationship between two objects. Transitivity allows adolescents to build on previous knowledge and problem-solve. The video in figure 13.1 illustrates deductive reasoning capabilities in different stages of cognitive development.

This interactive content is not available in this version of the text. It can be accessed online here: **https://www.youtube.com/watch?v=zjJd-cXA1KH8**

Figure 13.1. Children and adolescents demonstrate deductive reasoning capabilities in different stages of cognitive development. This is kind of logic is important to scientific thinking. **Transcript.**

Formal Operational Thinking in the Classroom

Educational experiences, both in and out of the classroom, are important in developing abstract cognitive abilities. The day-to-day educational opportunities at school make schooling the main contributor in guiding students towards formal operational thought. Guided learning through hypothetical problems posed by teachers encourages adolescents to reason and apply hypothetical thinking to problem-solving. Students move beyond basic understanding when they apply hypothetical reasoning and are able to create alternative explanations. Hypothetical thinking also provides students with the opportunity to broaden their understanding of other people's experiences. For example, a social studies teacher using hypothetical-based pedagogy may ask students to imagine what it would be like to be enslaved during colonialism and write about their

experience. Students have to apply what-if reasoning to narrate a hypothetical situation.

Piaget's research on hypothetical reasoning often focused on scientific reasoning and problem-solving. The ability to systematically test and manipulate mental models of objects or processes is the precise skill that defines formal operations.

Students who are able to think hypothetically have an advantage as they require relatively few "props" to solve problems when completing schoolwork and can be more self-directed. This does not mean that academic success is out of reach for students who do not have this cognitive ability or that formal operational thinking guarantees academic achievement. All students have varying needs and strengths, and success is achieved when there is guided support along their educational journey.

Adolescent Egocentrism

During adolescence, individuals often demonstrate **egocentrism**, or a heightened self-focus. Adolescent egocentrism is characterized by an obsession with how one is being viewed or judged by others. For example, adolescents may spend a considerable amount of time checking social media posts for responses or likes.

David Elkind (1967) expanded Piaget's theory of adolescent egocentrism by theorizing that the physical changes during puberty lead to a hyperfocus on appearance and behavior. Likewise, adolescents think others are as hyperfocused on them as they are on themselves. According to Elkind, adolescent egocentrism results in the imaginary audience and the personal fable.

An adolescent's belief that others are as attentive to their behaviors and appearance as the adolescent causes the adolescent to anticipate the reactions of others and consequently construct an imaginary audience. The **imaginary audience** arises when individuals see themselves as the object of attention. They feel as if they are always on stage and under the scrutiny of others. This false perception of attention may be interpreted as being vain, but Elkind thought that the imaginary audience contributed to the self-consciousness that occurs during early adolescence. For example, it may be difficult for a pre-teen to think that no one notices a small pimple on their face. They are more likely to imagine that everyone is staring at the pimple on their face and thinking that they are "gross."

The **personal fable** concept refers to the way adolescents tend to see themselves as unique or invulnerable and is another example of biased thinking that occurs during adolescence. Elkind explains that because adolescents feel like they are the center of attention (imaginary audience), they regard themselves and their feelings as being special and unique. Adolescents may believe that they are the only ones who experience such strong emotions. Perhaps you can recall feeling as if no one understood what you were experiencing. At one point or another, most adolescents have exclaimed, "You just don't understand my life!"

The concept of personal fable and the belief in one's uniqueness is what encourages adolescents to think they can handle or do anything. They see themselves as invulnerable to the consequences that other people have succumbed to. Research suggests that this is what removes any impulse to control one's behavior (Lin, 2016) and causes adolescents to make decisions that could involve serious health risks (Banerjee et al., 2015). Adolescents may be prone to engaging in risky behaviors, such as drinking and driving or having unprotected sex, because they believe they are invincible. These skewed, biased thoughts typically decline as individuals move into late adolescence and gain a greater understanding of themselves and the world around them.

Inductive and Deductive Reasoning

Inductive reasoning is the first type of reasoning to emerge in childhood. Inductive reasoning is sometimes characterized as "bottom-up processing." It involves using specific observations or comments from those who are perceived to be knowledgeable to draw general conclusions. These conclusions may or may not be accurate. For example, a kindergartner watches middle schoolers in the neighborhood ride the bus to school. The kindergartner then concludes that all middle schoolers ride the bus to school.

In contrast, **deductive reasoning,** sometimes called "top-down-processing," should emerge in adolescence. Deductive reasoning begins with a general principle that then leads to proposed conclusions. For example, if a general theory maintains that all trees are green, and you are then asked what color you expect a particular tree to be, deduction would lead you to say the tree should be green. In other words, you begin with a general principle that has been observed to be true (all trees are green), so the application and logical extension of this principle tells you that you can expect a particular tree to also be green (figure 13.2).

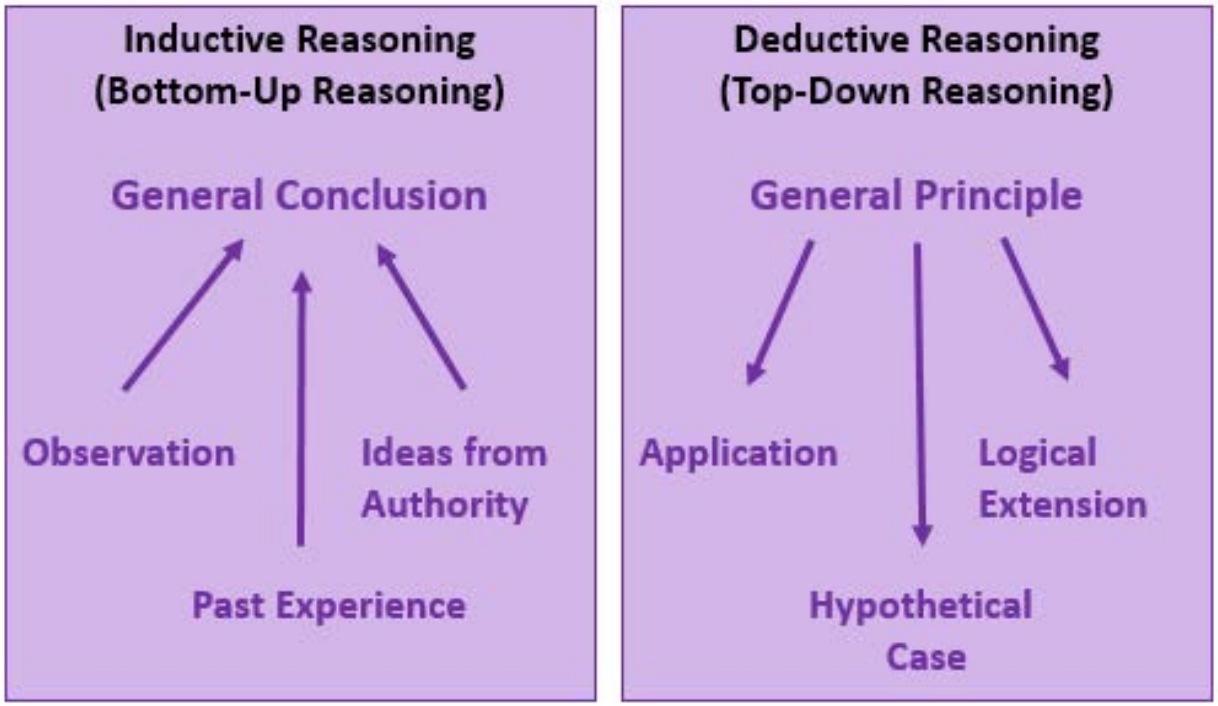

Figure 13.2. As children move to adolescence, from inductive to deductive reasoning, they demonstrate greater introspection related to their thoughts and feelings. Image description.

As adolescents gain the ability to think abstractly and hypothetically, they exhibit many new ways of reflecting on information (Dolgin, 2011). For example, they demonstrate greater introspection, or thinking about one's thoughts and feelings. They may also begin to imagine how the world could be, which leads them to become idealistic or insist upon high standards of behavior. Because of their idealism, they may become critical of others, especially adults in their lives. Additionally, adolescents can demonstrate hypocrisy, or pretend to be what they are not. Since they are able to recognize what others expect of them, they will often conform to those expectations, even if that leads them to act in a way that is counter to their natural way of think-

ing or acting. Lastly, adolescents can exhibit pseudostupidity, which is when they apply a complex approach to a simple problem and fail as a result. Their new ability to consider alternatives is not completely under control, causing them to appear "stupid" when they are actually bright but inexperienced.

Vygotsky

Unlike Piaget, Vygotsky did not subscribe to the idea of developmental stages. Rather, he argued that development was cumulative and not a result specific to maturation (see Chapter 2 for more on Vygotsky's sociocultural theory). According to Vygotsky, there are critical periods of cognitive growth, and in adolescence, the development of one's own culture and beliefs occurs. Vygotsky believed that cultural tools support the development of reasoning and problem-solving skills as well as adolescents' own "cultural tool kit."

Figure 13.3. In adolescence, engaging with one's own culture, including its language and people, is believed to foster enhanced cognitive abilities.

Cultural Tools

According to his sociocultural theory, Vygotsky believed that development was a result of social interactions with people and cultural artifacts, such as language, signs, and symbols. In adolescence, these influences, which Vygotsky referred to as cultural tools, provide context, integration, and even intersect with the development of one's own culture. The mental processing involved in these social interactions supports Vygotsky's belief that cultural tools also provide opportunities for cognitive development. Vygotsky believed that adolescents develop increased cognitive abilities, such as focused attention, memory, formal reasoning, and verbal thinking, through social interactions. He emphasized language as being an important cultural tool for cognitive development. According to Vygotsky (1962), language plays two important roles in cognitive development by doing the following:

1. enabling adults to transmit information to children
2. providing opportunities for cognitive adaptation

VYGOTSKY IN THE CLASSROOM

Reciprocal teaching is a contemporary teaching approach based on Vygotsky's work. In reciprocal teaching, students and teachers collaborate in the learning process, with the teacher's role diminishing over time. Students deepen their understanding and gain confidence in their

learning when they explain their methods and conclusions to others and receive feedback. Research has shown that students can develop their math skills, their social awareness, and their relationship skills by alternately taking on the roles of coach and player as they explore math concepts and problems with a partner.

Visit **Digital Promise [Website]** for more information on reciprocal teaching, including a short video of how this method can be applied to middle to high school mathematics.

Spontaneous and Scientific Thinking

The development of abstract, hypothetical thinking in adolescence is relevant to Vygotsky's beliefs about both spontaneous thinking and scientific thinking. Vygotsky believed that everyday experiences pave the way for unplanned, organic scientific thinking, or spontaneous concepts, through reflection and cultural tools, such as language, writing, and math.

Critical Periods

Vygotsky subscribed to what he called "critical periods," which are human developmental periods of transition and cognitive restructuring. Vygotsky did not see these periods as periods of growth, but rather as periods of "constructive processes of development" (Vygotsky 1998, p. 194). According to Vygotsky, the final critical period occurs in adolescence around the age of 13. This adolescent critical period is characterized by the change from concrete to abstract thought, as well as a shift away from the fantasy play common in younger children and toward play involving games with rules.

Gaps and Limitations

Piaget's theory of cognitive development suggests that cognitive development is complete by the age of 12. However, most recent research demonstrates that adolescence is a period of important cognitive increases. Furthermore, although structural cognitive development reaches a peak during childhood, functional cognitive development can continue throughout one's lifetime. Piaget's theory of cognitive development is vague regarding mechanisms and processes of change, but it created the building blocks for empirical research on cognitive development and neuroscience today.

Vygotsky's approach to the critical period in adolescence is similarly vague and fails to identify the mechanism that causes the cognitive restructuring during this developmental period.

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Figure 13.1. Piaget – Stage 4 – Formal – Deductive Reasoning.

Figure 13.2. Inductive and Deductive Reasoning by Martha Lally and Suzanne Valentine-French, CC BY-NC-SA 4.0.

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13.3 Cognitive Development in Adolescence

Cognitive skills continue to expand in adolescence, although each child develops at their own rate.

Adolescents will develop their own worldview, influencing their thinking and metacognition. We know that adolescents are in the formal operational stage of **cognitive development**. During adolescence, teenagers move beyond concrete thinking and become capable of abstract thought. Teen thinking is also characterized by the ability to consider multiple points of view, imagine hypothetical situations, debate ideas and opinions, and form new ideas. In addition, it's not uncommon for adolescents to question authority or challenge established societal norms. The following section will further explore the expanding cognitive processes related to adolescence, including executive function and attention, and how environmental stressors can impact cognitive processing.

Bronfenbrenner's ecological model provides further context for developing cognitive processes as a child's microsystem further expands during this period as they begin to plan and make strides toward adulthood. Adolescents may begin driving, working, registering to vote, getting involved with social or political concerns, enlisting in the military, or planning for college or vocational school. Additionally, a teen's microsystem begins shifting away from their immediate family as peers and romantic interests play a larger role in their lives.

Executive Function

Executive functions, including attention, working memory, and cognitive flexibility, have been steadily improving since early childhood. Studies have found that executive function is very competent in adolescence. However, self-regulation, or the ability to control impulses, may still fail. A failure in self-regulation is especially true when there is high stress or high demand on mental functions (Luciano & Collins, 2012). While high stress or demand may tax even an adult's self-regulatory abilities, neurological changes in the adolescent brain may make teens particularly prone to more risky decision-making under these conditions. Improvements in basic thinking abilities generally occur in the following five areas during adolescence:

- attention**:** improvements in both selective attention and divided attention
- memory**:** improvements in working memory and long-term memory
- processing speed: improvements in information processing speed, which increases

sharply between age 5 and middle adolescence, levels off around age 15, and does not appear to change between late adolescence and adulthood
- organization**:** improvements in awareness of thought processes and use of mnemonic devices and other strategies to think and remember information more efficiently
- metacognition**:** improvements in the ability to think about thinking itself, including the ability to plan ahead, see the future consequences of an action, and provide alternative explanations of events

ACTIVITY: INFORMATION PROCESSING MODEL

In previous chapters, the information processing model was discussed. During adolescence, memory and the skills to acquire new information continue developing. Review how information is processed, types of memory, and how this relates to cognitive development during this period of development.

This interactive content is not available in this version of the text. It can be accessed online here: **https://www.youtube.com/watch?v=pMMRE4Q2FGk**

Figure 13.4. The Information Processing Model compares human brains to computers: we get input from the environment, process it, and output decisions. **Transcript.**

Metacognition

Thinking about thinking is referred to as metacognition. Adolescents become more reflective and can understand complex relationships between ideas and people. Metacognition abilities vary among adolescents and adults based on their capacity to evaluate situations objectively. Adolescents are better able to understand than younger children that people do not have complete control over their mental activity. The ability to be introspective may lead to forms of egocentrism or self-focus.

Neuroimaging shows that different areas of the brain are responsible for cognitive processing and emotional processing (Brock et al., 2009). Collectively, these processes are known as executive functioning (EF). Cognitive processes are called "cool EF" (Zelazo & Carlson, 2012). Cool EF includes attention, metacognition, problem-solving, and working memory. Emotional processes are called "hot EF" (Zelazo & Carlson, 2012). Hot EF relates to self-control, self-regulation, impulsivity, perspective taking, and engagement in inappropriate versus appropriate behavior (Bjorklund & Causey, 2018).

Biological and behavioral development support the notion that the hot and cool EF trajectories are different. Frontal cortex development and myelination continue through adolescence (Bjorklund & Causey, 2018, p. 262). Neural pathways and brain areas associated with emotion regulation develop later than other systems, supporting the idea that the cool EF system activates before the hot EF system (Bjorklund & Causey, 2018, p. 262; Brock et al., 2009). The hot EF system is more difficult to use, and it takes longer to develop (Zelazo & Carlson, 2012). One study found that when a

task was reframed from a "hot ef" representation (emotionally charged) to a "cool ef" representation (more neutral), it was much easier for the children to engage with and be successful at the task (Zelazo & Carlson, 2012). For example, the task of preparing for an upcoming test, when approached from a "hot ef" context might become focused on all the social interactions that will be lost due to study time; the same task, when approached from a "cool ef" may be focused on the specific topics that need to be reviewed. These findings suggest that having to operate from the hot EF system places greater demands on the child. Having an awareness of children's hot and cool EF systems is important for understanding how best to interact with them, both personally or professionally, such as in an educational setting.

While metacognition is still developing throughout adolescence, it typically peaks just after late adolescence, making it a useful strategy for learning in and out of school (Hitomi dos Santos Kawata et al., 2021). Out of the classroom in everyday decision-making, metacognition allows adolescents to discern information as helpful or misleading (Moses-Payne et al., 2021). In the classroom, metacognition assists in learning. Practicing metacognition in the classroom can help students achieve agency over their learning and allows students to transfer learned information across varying contexts. Classroom practices that support metacognition include:

- identifying clear learning goals
- employing motivational strategies for deferred gratification
- scaffolding or using progression in instruction
- modeling the use of metacognitive strategies (e.g., think-aloud)
- using reciprocal teaching
- encouraging reflection and evaluation

Pruning

Adolescence is one of the few periods when the brain is rapidly producing a large number of brain cells—more than it needs, in fact. While these extra brain cells provide extra storage for information, they also can decrease efficiency (U.S. Department of Health and Human Services, 2018). To become more efficient, the brain continues to form new neural connections. It also becomes faster through pruning. The process of **pruning** rids the brains of unused neurons and connections, and produces myelin, the fatty tissue that forms around axons and neurons, which helps speed transmissions between different regions of the brain (Blakemore, 2008; Rapoport et al., 1999). This video discusses brain remodeling and describes how pruning assists in executive function and efficiency in cognitive development:

This interactive content is not available in this version of the text. It can be accessed online here:
https://www.youtube.com/watch?v=sbCvQbBi2G8

Figure 13.5. Brain remodeling happens within as well as between brain regions at different times, which means that different skills can flourish at different ages. **Transcript.**

Emerging research suggests that excessive pruning in adolescence may be linked to certain mental health conditions, such as schizophrenia. Optional resources:

- Dr. Steve McCarroll and his team at Harvard are exploring the specialization of cell types related to schizophrenia and pruning: **Steve McCarroll: How data is helping us unravel the mysteries of the brain | TED Talk [Streaming Video]**.
- This article explores the C4 protein and environmental factors that can further lead to excessive pruning related to schizophrenia: **Abnormal synaptic pruning during adolescence underlying the development of psychotic disorders [Website]**.

Critical Thinking

Critical thinking is the act of analyzing information presented as facts, evidence, or arguments and being able to make a decision. Critical thinking requires an individual to assess the reliability and validity of information and evaluate the ideas and arguments. Critical thinkers ask key questions, evaluate the evidence, use logical and objective reasoning to problem solve, and synthesize the information so they can communicate their ideas clearly. Critical thinking skills are applicable in many aspects of an adolescent's life, including school, social interactions, and work.

Critical thinking requires the ability to clearly express oneself in spoken and written communication, both of which adolescents have the opportunity to develop and demonstrate in school. Adolescents are expected to display critical thinking and associated cognitive skills, such as metacognition, both in school and out. For example, in school, adolescents must be able to communicate synthesized information in written assignments. To do this, students must be able to evaluate sources and information accessed online. The strategies they use for thinking about thinking (metacognition) in the evaluation process will define the quality of the outcome.

Critical thinking is not fully established in adolescence and is something to be practiced. Guided learning in school enables students to gain the experience necessary to expand their knowledge, including understanding their learning processes and evaluating their learning outcomes. These two defining qualities of metacognition are part of critical thinking as well. Teachers can foster critical thinking in students through discussions and written assignments. By learning to reflect, construct, and control their own ideas, rather than allowing ideas to control them, students can improve their ability to understand information from a deeper context. For students who face barriers in written or expressive language, accommodations can be made to support the development of critical thinking by utilizing resources the student may already be accessing, such as speech or occupational therapy.

Relativistic Thinking

Beyond critical thinking, adolescents are also more likely to engage in relativistic thinking, which is the ability to acknowledge that some truths are context-dependent. They are more likely to question others' assertions and less likely to accept information as the absolute truth. As they interact more with people outside their family circle, they learn that the rules they believed to be absolute are actually dependent on family and culture. They begin to differentiate between rules crafted from common sense, like don't touch

a hot stove, and those that are based on culturally dependent standards, like a family's code of etiquette. This acknowledgement of multiple truths and context-dependent norms can lead to the questioning of authority in all domains.

Intuitive and Analytic Thinking

Cognitive psychologists often refer to intuitive and analytic thought as a dual-process model, which is the notion that humans have two distinct networks for processing information (Albert & Steinberg, 2011). Intuitive thought is automatic, unconscious, and fast, and it is more experiential and emotional (Kahneman, 2011). In contrast, analytic thought is deliberate, conscious, and rational. While these systems interact, they are distinct (Kuhn, 2013). Intuitive thought is easier and more commonly used in everyday life. It is also more commonly used by children and teens than by adults (Klaczynski, 2001). The quickness of adolescent thought, along with the maturation of the limbic system, may make teens more prone to emotionally intuitive thinking than adults.

As critical thinking develops in adolescence, adolescents can utilize strategies for problem-solving. Heuristics are cognitive shortcuts and can be thought of as aids in decision-making. They allow us to reach a solution without a lot of cognitive effort or time, and they can aid in both our intuitive and analytical thinking. **Heuristic thinking** is essentially an educated guess about something. We use heuristics all the time, such as when deciding what groceries to buy from the supermarket, when looking for a library book, when choosing the best route to drive through town to avoid traffic congestion, and so on. However, while heuristics are often useful, they may lead to errors as they are often based on biased information, such as personal experience. Furthermore, the main benefit of heuristics—helping us make decisions quickly and fairly easily—is also its potential downfall: the quick and easy solution is not necessarily the best solution.

Cognitive Empathy

Cognitive empathy relates to the ability to take the perspective of others and feel concern for others (Shamay-Tsoory et al., 2005). Cognitive empathy has developmental gains in early childhood and changes across the lifespan. However, studies are mixed regarding whether or not cognitive empathy increases during adolescence (Doris et al., 2022; Van der Graaff et al., 2013). Cognitive empathy is an important component of social problem-solving and conflict avoidance. Studies show that in caregiver-adolescent relationships, modeling perspective taking and validating teenagers' feelings can support the development of cognitive empathy (Main, Paxton, and Dale, 2016; Main et al., 2019). The limbic system fully matures in early adolescence and is associated with emotional processing (figure 13.6). However, perspective taking relies on the prefrontal cortex, which is associated with critical thinking. The prefrontal cortex does not mature until adulthood.

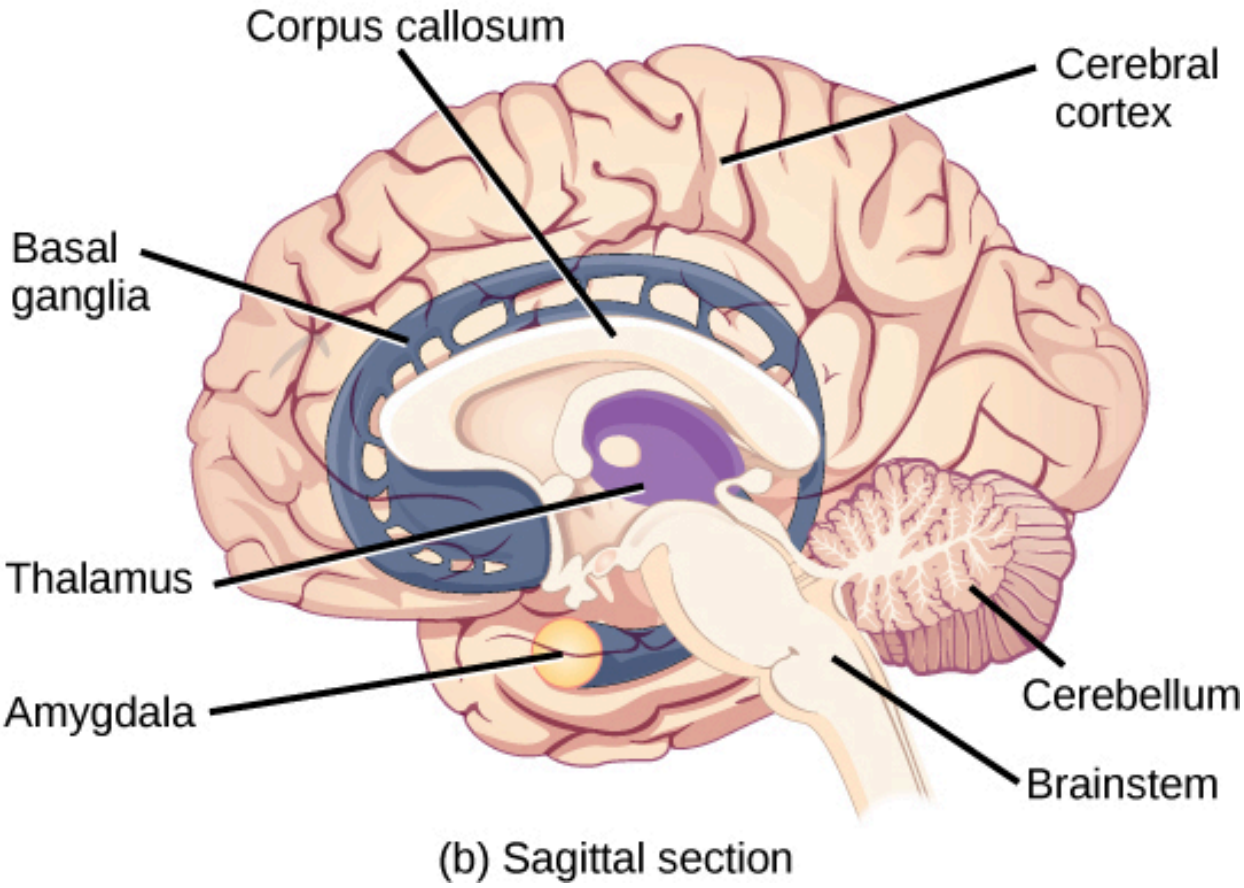

Figure 13.6. Modeling perspective and validating an adolescent's feelings can support the development of cognitive empathy. Image description.

Impulse Control

During adolescence, two influential changes occur in the brain, impacting cognitive abilities and how individuals view risk and reward. One change is within the prefrontal cortex, which undergoes significant development during this period. The other change involves dopamine, a neurotransmitter in the brain that produces feelings of pleasure, which can contribute to increases in adolescents' sensation-seeking and reward motivation (figure 13.7).

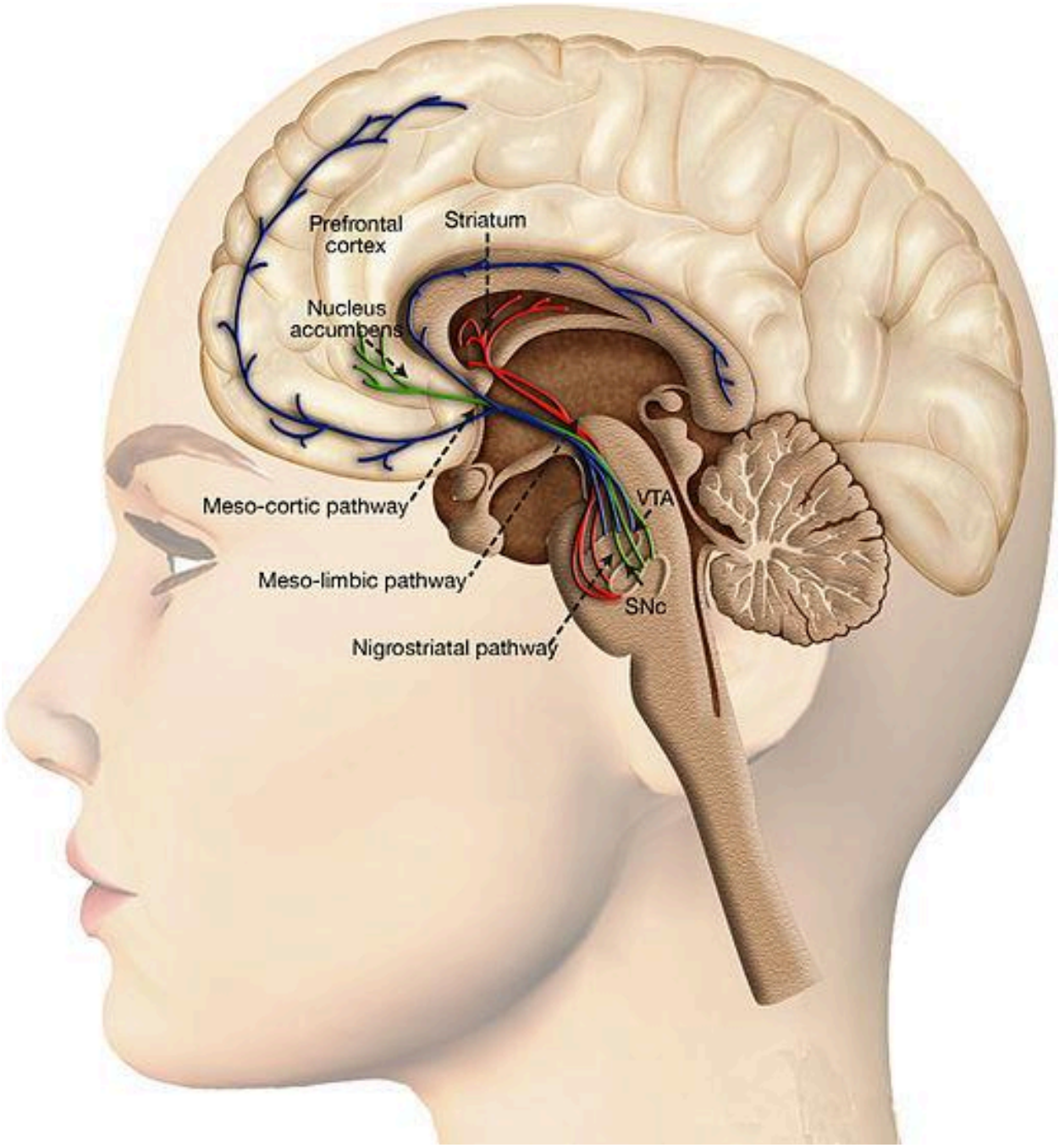

Figure 13.7. The prefrontal cortex, responsible for judgment and critical thinking, leads adolescents to participate in risky behaviors by giving more weight to rewards. **Image description.**

The prefrontal cortex, the area of the brain responsible for critical thinking, judgment formation, impulse control, and emotional regulation, continues to develop in adolescence (Goldberg, 2001). Even though critical thinking skills are emerging in adolescence, individuals at this age often decide to engage in activities that produce high levels of dopamine, without fully considering the consequences. The timing of the development of the prefrontal cortex contributes to risk-taking during middle adolescence because adolescents are motivated to seek thrills (Steinberg, 2008).

One of the world's leading experts on adolescent development, Laurence Steinberg, likens this to engaging a powerful engine before the braking system is in place. The result is that adolescents are more prone to risky behaviors than children or adults, likely because they place greater value on rewards. Furthermore, adolescents highly value social connection, and their hormones and brains are more attuned to reward those values than to long-term consequences (Crone & Dahl, 2012).

However, adolescent impulsivity is sometimes due not to a lack of brakes, but to the planned and enjoyable pressure to the accelerator. Adolescents are making choices influenced by a very different mix of chemical influences than their adult counterparts—a hopped-up reward system that can drown out warning signals about risk. Young people need to somewhat enjoy the thrill of risk-taking to complete the incredibly overwhelming task of growing up.

It is helpful to put all of these brain processes in a developmental context. In summary, changes in brain development, information processing, and hormonal changes lead adolescents to:

- focus on the present
- engage in risk-taking behaviors
- feel invulnerable
- seeking out novel, adventurous, and varied experiences

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Figure 13.4. **Information processing model: Sensory, working, and long term memory | MCAT | Khan Academy**.

Figure 13.5. **Shannon Odell: What's the smartest age? | TED Talk** License Terms: CC BY-NC-ND 4.0 International.

Figure 13.6. The Limbic System Adolescence by Martha Lally, Suzanne Valentine-French, and Diana Lang is licensed **CC BY-NC-SA 4.0**.

Figure 13.7. **Dopaminergic system and reward processing** in Wikimedia Commons licensed **CC-BY-4.0**.

13.4 Language Development in Adolescence

Language development during adolescence may not appear as profound as in previous developmental periods, but there is definite development during this time in grammar, syntax, and vocabulary. As the social aspects of adolescents' lives become increasingly important, so do social language skills, such as conversation, debate, and persuasion.

Grammar, Syntax, and Vocabulary Development

Syntax during this period grows increasingly complex as adolescents become more aware of the rules and structure of sentences. The improvement in systematic, abstract thinking allows adolescents to comprehend the sorts of higher-order abstract logic inherent in puns, proverbs, metaphors, and analogies. Their increased cognitive abilities allow them to appreciate the ways in which language can be used to convey multiple messages, such as satire, metaphor, and sarcasm. (Children younger than age 9 often cannot comprehend sarcasm at all.) This also permits the application of advanced reasoning and logical processes to social and ideological matters, such as interpersonal relationships, politics, philosophy, religion, morality, friendship, faith, fairness, and honesty. Adolescents' vocabulary also continues to expand during this period. Their expanding metacognition results in the use or increase in the use of metacognitive verbs (believe, realize, remember) (Wallis et al., 2022).

Language Development

Adolescents' ability to communicate in social instances is also developing and becoming increasingly important due to their shifting social priorities. During this time, they improve in their use of the various aspects of pragmatics, key components of language that are important in social contexts. Pragmatics involves the ability to adapt one's expression and linguistics in social situations and includes behaviors such as eye contact, social greetings, conversation starters, body language, facial expression, and conversation maintenance.

Diversity in Language

Adolescence is a period of identity formation, and language is a key aspect of identity that we often overlook. Language development goes beyond grammar and syntax to include linguistic styles. Think about how your identity is reinforced by your linguistic style. Furthermore, how might your identity be reinforced by the language(s) you speak? For example, if your first language is Xhosa (pronunciation: [kǀǀʰóːsa]) and not English, then this connection to South Africa or Zimbabwe is reinforced as part of your identity. Diversity in language is important in adolescence as individuals are defining their social identity and often moving away from their parent's linguistic style or their first language.

Culturally Specific Language

Using a culturally specific language can keep adolescents connected to their first language and the culture of their family's heritage through meaning-making. However, it can also create barriers

for adolescents who belong to an underrepresented group in a homogeneous social environment. Meaning-making is influenced by the words available and how they are arranged and used in an individual's culturally specific language. Language also includes references to objects that are specific to a culture, further reinforcing the connection between language culture, cultural identity, and an adolescent's identity development. Language can promote positive identity connections for adolescents who are able to share these same connections in their social groups. Adolescents may also experience a reorganization of language as they move away from their parent's language system to one more like that of their social peer group.

Dual Language Programs

Given the connection between culture and language, dual language programs can positively influence how adolescents learn about another culture. This type of immersion into a language provides a fast track to cultural knowledge. However, for students learning English as a second language, there is still a learning curve that is heavily influenced by family, neighborhood, and community (National Academies Press, 2017). Given the socioeconomic factors that influence learning capacity in general, the capacity to learn a second language varies greatly in dual language programs.

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13.5 Academics and Beyond

During adolescence, particularly late adolescence, individuals often begin thinking about future goals and making plans. Adults, mentors, and caregivers can be sources of guidance and support for adolescents as they complete high school and begin to transition into adulthood. Whether they choose to take a gap year, pursue vocational training or college, join the military or a service organization, or start a new job, there are big changes ahead for these increasingly independent young people.

School

Adolescents spend more waking time in school than in any other context (Eccles & Roeser, 2011). During this period, students typically attend middle school and then high school, though this will vary greatly by demographics. For example, a small rural community may have one K-12 school instead of separate elementary, middle, and high schools.

For those students who will transition from elementary school to middle school, the transition can be stressful. During this transition, many students are undergoing physical, intellectual, social,

emotional, and moral changes (Parker, 2013). Research suggests that early adolescence is an especially sensitive developmental period (McGill et al., 2012). Some students mature faster than others. Students who are developmentally behind typically experience more stress than their counterparts (U.S. Department of Education, 2008). Consequently, they may earn lower grades and display decreased academic motivation, which may increase the likelihood that they will drop out of school (U.S. Department of Education, 2008). For many middle school students, academic achievement slows down and behavioral problems can increase.

As adolescents enter high school, their continued **cognitive development** allows them to think abstractly, analytically, hypothetically, and logically, which is all formal operational thought. High school emphasizes formal thinking in an attempt to prepare graduates for college, where analysis is required. Overall, high school graduation rates in the United States have increased steadily over the past decade, reaching 83.2 percent in 2016 (Gewertz, 2017). Additionally, many students in the United States do attend college. Unfortunately, about half of those who go to college leave without a degree (Kena et al., 2016). Those who do earn a degree make more money and have an easier time finding employment. The key is understanding adolescent development and supporting teens in making decisions about college or alternatives after high school.

Figure 13.8. Teens spend a large portion of their waking hours at school, where they engage in class activities, sports, clubs, and homework.

On average, high school teens spend approximately 7 hours each weekday and 1.1 hours each day on the weekend on educational activities. This includes attending classes, participating in extracurricular activities (excluding sports), and doing homework (Office of Adolescent Health, 2018). All high school students, regardless of gender, spend about the same amount of time in class,

doing homework, eating and drinking, and working.

Academic achievement during adolescence is predicted by interpersonal (e.g., parental engagement in adolescents' education), intrapersonal (e.g., intrinsic motivation), and institutional (e.g., school quality) factors. Academic achievement is important in its own right as a marker of positive adjustment during adolescence. However, it is also important because academic achievement sets the stage for future educational and occupational opportunities. The most serious consequence of dropping out of school is the high risk of unemployment or underemployment in adulthood that follows. High achievement can set the stage for college, vocational school (with a focus on a particular type of skill or training), or other opportunities.

Finishing High School

The status dropout rate refers to the percentage of 16- to 24-year-olds who are not enrolled in school and do not have high school credentials (either a diploma or an equivalency credential, such as a General Educational Development [GED] certificate). The dropout rate is based on sample surveys of the civilian, noninstitutionalized population, which excludes persons in prisons, persons in the military, and other persons not living in households. The dropout rate among high school students has declined from a rate of 12% in 1990 to 5.1% in 2019 (U.S. Department of Education, 2021). The status dropout rate declined between 2010 and 2019 for 16- to 24-year-olds who were Hispanic (7.7%), American Indian/Alaska Native (9.6%), Black (5.6%), White (4.1%), Asian (1.8%), and of two or more races (5.1%), but there was no measurable difference between the status dropout rate in 2010 and 2019 for those who were Pacific Islander. In 2019, the status dropout rate was higher for male 16- to 24-year-olds than for female 16- to 24-year-olds overall (6% versus 4.2%). Status dropout rates were higher for males than for females among those who were Hispanic (9.3% versus 6%), Black (6.8% versus 4.3%), of two or more races (6.2% versus 4.1%), and White (4.7% versus 3.5%). However, there were no measurable differences in status dropout rates between males and females for those who were Asian, Pacific Islander, or American Indian/Alaska Native.

Garcia et al. (2018) reviewed the research on why students dropped out of school and identified several major obstacles to school completion. These included adolescents who resided in foster care or were part of the juvenile justice system. In fact, being confined in a juvenile detention facility practically guaranteed that a student would not complete school. Having a physical or mental health condition or the need for special educational services also adversely affected school completion. Being mistreated due to abuse or neglect and/or being homeless also contributed to dropping out of school. Additionally, adolescent-specific factors, including race, ethnicity, and age, as well as family-specific characteristics, such as poverty, single parenting, large family size, and stressful transitions, all contributed to an increased likelihood of dropping out of school. Lastly, community factors, such as unsafe neighborhoods, gang activity, and a lack of social services, increased the number of school dropouts.

Gap Year

Age transition points require socialization into new roles that can vary widely between societies. For example, in the United Kingdom, when teens finish their secondary schooling (i.e., high school in the United States), they often take a year off from schooling before entering college. They might take a job, travel, or find other ways to experience another culture. Prince William, the Duke of Cambridge, spent his gap year practicing sur-

vival skills in Belize, teaching English in Chile, and working on a dairy farm in the United Kingdom (Prince of Wales 2012a). His brother, Prince Harry, advocated for AIDS orphans in Africa and worked as a jackeroo (a novice ranch hand) in Australia (Prince of Wales 2012b).

In the United States, this life transition point is socialized quite differently, and taking a year off is generally frowned upon. Instead, U.S. youth are encouraged to pick career paths by their mid-teens, to select a college and a major by their late teens, and to have completed all collegiate schooling or technical training for their career by their early twenties.

In other nations, this phase of the life course is tied to conscription, a term that describes compulsory military service. Egypt, Switzerland, Turkey, and Singapore all have this system in place. Youth in these nations (often only the males) are expected to undergo a number of months or years of military training and service.

Employment

Many adolescents work either summer jobs or during the school year or may work in lieu of college. Holding a job may offer teenagers extra funds, provide the opportunity to learn new skills, foster ideas about future careers, and perhaps shed light on the true value of money. However, there are numerous concerns about teenagers working, especially during the school year. Several studies have found that working more than 20 hours per week can lead to declines in grades, a general disengagement from school, an increase in substance abuse, engaging in earlier sexual behavior, and pregnancy (Longest & Shanahan, 2007; Staff et al., 2010; Lee & Staff, 2007; Marsh & Kleitman, 2005; Staff et al., 2011). Like many employee groups, teenagers have seen a decline in job availability. The summer jobs of previous generations have been on a steady decline, according to the U.S. Department of Labor, Bureau of Labor Statistics (2016).

A major concern in the United States is the rising number of young people who choose to work rather than continue their education, and are growing up or continuing to grow up in poverty. Growing up poor or entering the workforce too soon can cut off access to the education and services people need to move out of poverty and into stable employment. Research states that education was often a key to stability, and those raised in poverty are the ones least able to find well-paying work, perpetuating a cycle (Silva-Laya et al., 2020). Those who work only part-time, whether teens or adults, are more likely to be classified as working poor than are those with full-time employment; higher levels of education lead to a lower likelihood of being among the working poor. In 2017, the working poor included 6.9 million Americans, down from 7.6 million in 2011 (U.S. Bureau of Labor Statistics, 2019).

CASE STUDY: JESSE

What is the financial aid gap?

Jesse sat at the kitchen table, a stack of college brochures spread out. The vibrant images of sprawling campuses and enthusiastic students filled him with both hope and dread. Jesse had the grades, the extracurriculars, and the ambition, but there was one insurmountable obstacle: money. Jesse's family lived in a modest house on the outskirts of town. Their father

worked two jobs to support them. They made just enough to keep a roof over their heads and food on the table, but not enough to save for college. Every evening, after finishing homework and helping their younger siblings, Jesse would scour the internet for scholarships. They applied to every one they could find, no matter how obscure or competitive. Each application felt like a tiny lifeline, a chance to bridge the gap between their dreams and their reality. But the rejections came in as fast as the applications went out.

After dinner, Jesse lingered in the kitchen, helping their mother with the dishes. They couldn't shake the feeling of despair that had been creeping up. "Mom, what if I can't go to college?" Jesse asked quietly. Jesse's mother paused, drying her hands on a towel. She looked at her child with tired but determined eyes. "Jesse, you've always found a way to make things work. We'll figure this out too. You're not alone in this."

Many students find themselves in the challenging position of earning too much to qualify for financial aid, yet not enough to comfortably afford college tuition. These families often face a financial "gap" where their incomes disqualify them from need-based assistance, but the high cost of higher education strains their budgets significantly. This predicament forces students and their families to seek alternative solutions, such as taking out substantial student loans, working multiple jobs, or attending less expensive schools that might not offer the same opportunities. The financial pressure can lead to increased stress and potentially impact academic performance and future career prospects. As a result, these students are caught in a difficult balancing act, striving to achieve their educational goals while managing significant financial burdens.

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13.6 Health and Wellness

Sleep (in relation to circadian rhythms and impact on adolescent wellness)

Adolescents often change their sleeping patterns because of a change in melatonin uptake. During these years, it is still important for adolescents to get enough sleep (approximately 9 hours) however, melatonin uptake occurs later than it did earlier in childhood (1–3 hours later), causing them to stay up later and then wanting to sleep in (Carskadon, 2011; Kelley et al., 2017). Some schools have begun to change the start of the school day to better align with **cognitive development**, but this can have an impact on learning and academic performance.

Stressors that Impact Information Processing

Information processing refers to the mental processes involved in encoding, storing, retrieving, and utilizing information from the environment. Several factors can impact these processes, including increased academic demands, social pressures, technological advancements, and environmental distractions. Understanding the factors that contribute to the stress on information processing in middle childhood is crucial for educators, parents, and caregivers to provide appropriate support and optimize children's cognitive development during this critical period.

Bandwidth Tax

Bandwidth Tax was mentioned previously in Chapter 10, and this term related to cognitive capacity is important in adolescence as well. Adolescents who are facing environmental stressors or scarcity of resources have additional situational constraints on their capacity for executive function. Scarcity impacts our cognitive development (Noble et al., 2012) executive functions and our overall ability to process information. Learning and the ability to complete important tasks during this developmental period are diminished by these external stressors. Teachers can implement strategies, policies can address disparities, and interventions addressing resources can support adolescents on an individual level who might be struggling with external stressors leading to a tax on their cognitive bandwidth (Verschelden, 2020).

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13.7 Cultural and Environmental Influences

Understanding how cultural and environmental factors intersect and impact adolescent development is essential for fostering healthy, well-rounded individuals who can thrive within their unique contexts. Both culture and environment play vital roles in shaping the developmental trajectory of youth, influencing their cognitive abilities, social interactions, and overall well-being.

Family

Although peers take on greater importance during adolescence, family relationships remain important, too. Families can promote different opportunities to engage in learning and leadership to help adolescents develop needed foresight and planning skills for school and into adulthood. One of the key changes during adolescence involves a renegotiation of parent-child relationships. As adolescents strive for more independence and autonomy during this time, different aspects of parenting become more salient. For example, parents' distal supervision and monitoring become more important as adolescents spend more time away from their parents and in the presence of peers.

Parental monitoring encompasses a wide range of behaviors, such as parents' attempts to set rules and know their adolescents' friends, activities, and whereabouts, in addition to adolescents' willingness to disclose information to their parents (Stattin & Kerr, 2000). Psychological control, which involves manipulation and intrusion into adolescents' emotional and cognitive world through invalidating adolescents' feelings and pressuring them to think in particular ways, is another aspect of parenting that becomes more salient during adolescence and is related to more problematic adolescent adjustment (Barber, 1996).

Peers

Certainly, the beliefs and expectations about academic success supported by an adolescent's family play a significant role in the student's achievement and school engagement. However, research has also focused on the importance of peers in an adolescent's school experience. Specifically, having friends who are high-achieving, academically motivated, and engaged promotes motivation and engagement in the adolescent, while those whose friends are unmotivated, disengaged, and low-achieving promote the same feelings (Shin & Ryan, 2014; Vaillancourt et al., 2019). As children become adolescents, they usually begin spending more time with their peers and less time with their families, and these peer interactions are increasingly unsupervised by adults.

Sex and Gender Bias (in Academic Performance)

It is interesting to note that even in today's progressive social climate and with advances in gender equality, there are still considerable differences in the ways teenage boys and girls spend their time, as shown in 2019 research by the Pew Research Center. During the school year, teenage boys spend an average of 24 minutes a day helping around the house and 12 minutes preparing food, while teenage girls spend an average of 38 minutes a day helping around the house and 29 minutes preparing food. Both boys and girls spend equal amounts of time on maintenance chores and lawn care. Girls also spend an average of 23 more minutes on grooming each day, which is perhaps explained by the fact that 35 percent of girls say they feel pressure to look good (compared with 23 percent of boys). Read the article **"The Way U.S. Teens Spend Their Time is Changing, but Differences Between Boys and Girls Persist" [Website]** to learn more.

Further gender biases and differences exist in academic performance as well. In one study, Crosnoe and Benner (2015) found that female students often earn better grades, try harder, and are more intrinsically motivated than male students. Further, Duchesne et al. (2019) described how female students were more oriented toward skill mastery, used a variety of learning strategies, and persevered more than males.

However, more females exhibit worries and anxiety about school, including feeling that they

must please teachers and parents. These worries can heighten their effort but lead to fears of disappointing others. In contrast, males are more confident and do not value adult feedback regarding their academic performance (Brass et al., 2019).

A subset of female students who identify with sexualized gender stereotypes (SGS), however, tends to underperform academically. These female students endorse the belief that "girls" should be sexy and not smart. Nelson and Brown (2019) found that female students who support SGS reported less desire to master skills and concepts, were more skeptical of the usefulness of an education, and downplayed their intelligence.

LIFE OF A HIGH SCHOOL STUDENT

On average, high school teens spend approximately 7 hours each weekday and 1.1 hours each day on the weekend on educational activities. This includes attending classes, participating in extracurricular activities (excluding sports), and doing homework (Office of Adolescent Health, 2018). High school males and females spend about the same amount of time in class, doing homework, eating and drinking, and working. However, they do spend their time outside of these activities in different ways.

- High school males. On average, high school males spend about one more hour per day on media and communications activities than females on both weekdays (2.9 vs. 1.8 hours) and weekend days (4.8 vs. 3.8 hours). They also spend more time playing sports on both weekdays (0.9 vs. 0.5 hours) and weekend days (1.2 vs. 0.5 hours). On weekdays, high school males get an hour more sleep than females (9.2 vs. 8.2 hours, on average).
- High school females. On an average weekday, high school females spend more time than boys on both leisure activities (1.7 vs. 1.1 hours) and religious activities (0.1 vs. 0.0 hours). High school females also spend more time grooming on both weekdays and weekend days (1.1 vs. 0.7 hours, on average, for both weekdays and weekend days).

Cultural Differences

Adolescent development does not necessarily follow the same pathway for all individuals. Certain features of adolescence, particularly with respect to biological changes associated with puberty and cognitive changes associated with brain development, are relatively universal. However, other features of adolescence depend largely on circumstances that are more environmentally variable.

For example, adolescents growing up in one country might have different opportunities for risk-taking than adolescents in a different country, and supports and sanctions for different behaviors in adolescence depend on laws and values that might be specific to where adolescents live. Likewise, different cultural norms regarding family and peer relationships shape adolescents' experiences in these domains. For example, in some countries, adolescents' parents are expected to retain control over major decisions, whereas in other countries, adolescents are expected to begin sharing in or taking control of decision-making.

Even within the same country, adolescents' gender, ethnicity, immigrant status, religion, sexual orientation, socioeconomic status, and personality can shape both how adolescents behave and how

others respond to them, creating diverse developmental contexts for different adolescents.

For example, early puberty (which occurs before most other peers have experienced puberty) appears to be associated with worse outcomes for girls than boys, likely in part because girls who enter puberty early tend to associate with older boys, which in turn is associated with early sexual behavior and substance use (Mucaria et al., 2021). For adolescents who are ethnic or sexual minorities, discrimination sometimes presents a set of challenges that nonminorities do not face.

CASE STUDY: GABRIELA

Why aren't girls taking Calculus?

Gabriela, a high school girl with a passion for mathematics, faces discrimination in her advanced math classes due to her race and gender. Despite her exceptional abilities and dedication, she frequently encounters subtle and overt biases from both peers and teachers. Some classmates question her competence, attributing her presence in the class to affirmative action rather than her hard-earned achievements.

Teachers, often unconsciously, overlook her contributions and offer more attention and encouragement to her male counterparts. One notable instance occurred during a major math competition when Gabriela and her classmate, Jake, both presented equally viable solutions to a complex problem. The teacher, however, praised Jake extensively and suggested that his approach was more innovative while dismissing Gabriela's solution with minimal feedback.

This experience not only undermined Gabriela's confidence but also created an isolating environment where she felt compelled to constantly prove her worth. Unfortunately, Gabriela's experience is not unique; girls commonly encounter gender bias in math and science classes, which can discourage them from pursuing these fields further. However, Gabriela finds invaluable support from the school's Diversity, **Equity**, and Inclusion (DEI) advisor, who provides a safe space for her to share her experiences and offers practical strategies to navigate and combat discrimination. The DEI advisor also connects her with resources and opportunities, fostering a sense of belonging and empowerment that strengthens Gabriela's resolve to excel and advocate for herself and others facing similar challenges.

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13.8 Conclusion

Adolescent development is characterized by biological, cognitive, and social changes. Physical changes associated with puberty are triggered by hormones. Cognitive changes include improvements in complex and abstract thought, as well as the development that happens at different rates in distinct parts of the brain and increases adolescents' propensity for risky behavior because increases in sensation-seeking and reward motivation precede increases in cognitive control. Adolescence is characterized by risky behavior, which is made more likely by changes in the brain in which reward-processing centers develop more rapidly than cognitive control systems, making adolescents more sensitive to rewards than to possible negative consequences.

Review of Learning Objectives

1. Identify the components and development of executive functions in adolescent **cognitive development**.
2. Compare and contrast theories of cognitive development in adolescence.
3. Discuss the importance of family, peers, and school settings in cognitive development.
4. Examine how biological and social factors influence the school experience.

Review of Key Terms

- **Critical thinking**: analyzing information presented as facts, evidence, or arguments and being able to make a decision.
- **Bandwidth tax**: the cognitive load or mental effort required to manage multiple tasks or information streams simultaneously.
- **Formal operational stage**: Piaget's final stage of cognitive development, in which individuals develop the ability to think abstractly, logically, and systematically, formulate hypotheses, consider multiple variables simultaneously, and engage in deductive reasoning.
- **Cognitive plasticity**: the ability of the brain and cognitive abilities to change over time.
- **Transitivity**: the ability to understand the relationship between two objects.
- **Egocentrism**: an adolescent's belief that others are as attentive to their behaviors and appearance as the adolescent themself.
- **Imaginary audience**: the belief that others are constantly observing and scrutinizing one's behavior and appearance, as if one is the center of attention in a hypothetical audience. This phenomenon often leads adolescents to feel self-conscious or overly concerned about how they are perceived by others.
- **Personal fable**: the way adolescents tend to see themselves as unique or invulnerable is another example of biased thinking that occurs during adolescence.
- **Inductive reasoning**: using specific observations, or comments from those who are per-

ceived to be knowledgeable, to draw general conclusions.
- **Deductive reasoning**: reasoning begins with a general principle that then leads to proposed conclusions.
- **Heuristic thinking**: a problem-solving approach that employs practical and efficient methods, often based on experience and intuition, to make decisions or solve problems quickly.
- **Pruning**: a process in which the brain eliminates unused neurons and connections, which helps speed transmissions between different regions of the brain.

Optional resources

- **The mysterious workings of the adolescent brain [Streaming Video]**.
- **Brain changes during adolescence | Behavior | MCAT | Khan Academy [Streaming Video]**.
- **Executive Functioning in Online Environments [Website]**

Metacognition in the classroom:

- **Vanderbilt University- Center for Teaching-Metacognition [Website]**
- **Edutopia-Metacognition: Nurturing Self-Awareness in the Classroom [Website]**

Study: The National Longitudinal Study of Adolescent to Adult Health (**Add Health [Website]**) is a longitudinal study of a nationally representative sample of adolescents in grades 7–12 in the United States during the 1994–95 school year. Add Health combines data on respondents' social, economic, psychological, and physical well-being with contextual data on the family, neighborhood, community, school, friendships, peer groups, and romantic relationships.

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CHAPTER

14

Adolescent Social-Emotional Development

14.1 Chapter Overview and Learning Objectives

Adolescents continue to refine their sense of self as they relate to others. Adolescents' main questions are "Who am I?" and "Who do I want to be?" Some adolescents adopt the values and roles that their parents expect of them. Other teens develop identities that align more with the peer groups rather than their parent's expectations. This is common as adolescents work to form their identities. They pull away from their parents, and the peer group becomes very important (Shanahan, McHale, Osgood, & Crouter, 2007). Despite spending less time with their parents, most teens report positive feelings toward them (Moore, Guzman, Hair, Lippman, & Garrett, 2004). Warm and healthy parent-child relationships have been associated with positive outcomes for adolescents, such as better grades and fewer school behavior problems, in the United States as well as in other countries (Hair et al., 2005).

Learning Objectives

After reading this chapter, you will be able to do the following:

1. Identify the stages of adolescent social, emotional, and **moral development**.
2. Examine the complex nature of identity development in adolescence.
3. Analyze the impact of caregivers, peers, and environmental influences on adolescent development.

Key Terms

Throughout this chapter, you will be introduced to important key terms that will help deepen your understanding of human development.

- **Actual self:** who someone perceives themselves to be currently.
- **Possible self:** who someone perceives they can potentially be.
- **Ideal self:** the person that someone wishes to be.
- **Feared self:** the person that someone is afraid of becoming.
- **Cognitive distortions:** patterns of inaccurate negative thinking, such as personalization, overgeneralization, and catastrophizing.
- **Self-concept:** the perception of self, such as one's traits, values, and beliefs.
- **Self-esteem:** how much a person values themselves.
- **Deviant peer contagion:** the process by which peers reinforce problem behavior by laughing or showing other signs of approval that then increase the likelihood of future problem behavior.

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14.2 Developing the Self-Concept

During adolescence, several factors contribute to the formation of self-concept, which is the individual's perception and evaluation of themselves. The first factor is personal experiences and achievements. Adolescents' perceptions of their abilities, skills, and accomplishments contribute to their sense of self-worth and self-efficacy. The second factor is cultural and societal norms influence adolescents' self-concept by shaping their beliefs, values, and attitudes. The third factor is the influence of family and peers. Family members provide a secure base for adolescents to explore their sense of self, while peers offer social comparison and feedback. Understanding these factors and their interaction can help caregivers and educators better support adolescents as they navigate this critical period of identity development.

Cognitive Influences on Self-Concept

As we have seen in previous chapters, the development of self-awareness begins in early childhood. During adolescence, the development of self-concept continues and becomes more complex and abstract. The development of adolescents' cognitive functioning, which we learned about in Chapter 13, gives them the ability for abstract thinking, such thinking of various possibilities and versions of themselves in different contexts. While self-description in childhood tends to be in concrete terms, such as "I have a cat named Socks," self-concept in adolescence becomes more trait-focused, such as "I am honest and talkative." Ask an adolescent girl to describe herself, and she may say, "My friends see me as being outgoing and carefree, but I am actually really anxious and can be shy." Adolescents are able to make the distinction between how others perceive them and how they view themselves; they are able to describe themselves taking both their own and others' views into

account. (Cole et al., 2001; Updegraff et al., 2004). Due to their increased awareness of themselves, adolescents are able to think about themselves in more comprehensive terms than they did during childhood—they can perceive multiple traits of themselves simultaneously.

Adolescent identity is a complex and multifaceted concept that is characterized by a plethora of contradictory understandings of the self. During this developmental stage, young people are trying to make sense of their own identity, trying to figure out who they are, and what their place is in the world. This process is often fraught with tension, as adolescents may hold conflicting beliefs, values, and desires that can be difficult to reconcile. For instance, they may feel a strong need to belong to a peer group while simultaneously wanting to assert their individuality. Additionally, they may struggle to reconcile the expectations and values of their family and community with their own emerging sense of self. These contradictions can lead to confusion and anxiety, but they are also a natural part of the process of identity formation as adolescents navigate the complex terrain of growing up and figuring out who they are.

The increase in adolescents' cognitive functioning and abstract thinking also gives them the ability to think about an **actual self**, who they perceive themselves to be currently, and a **possible self**, who they perceive they can be potentially (Markus & Nurius, 1986; Oyserman Destin, & Novin, 2015). The possible self can be either positive or negative. The positive possible self is called an **ideal self**, and this is the person that the adolescent wishes to be, such as getting good grades, graduating, and being accepted to their college of choice. The negative possible self is called a **feared self**, and this is the person that the adolescent is afraid of becoming, such as a high school dropout (Chalk et al., 2005).

Having the cognitive ability to think of abstract possible selves can result in either positive or negative psychological impacts depending on the self-concept of the adolescent. If the adolescent's self-concept leads to the belief that there is too great of a difference between their ideal self and their actual self, then this may result in hopelessness and depression.

However, having an ideal self can be an incredible motivator for behavior that leads to that ideal self. In the example above, such behavior would be attending school, completing assignments, and being attentive and engaged in classes. Having both an ideal self and a feared self can be beneficial to adolescents as a motivator to behave in ways that help them reach the ideal self and prevent the feared self. Having these possible selves illustrates adolescents' growing cognitive abilities, which lead to a more abstract self-concept.

Cultural Influences on Self-Concept

Cultural beliefs and values play an important role in the development of self-concept in adolescence. The value that different cultures place on self-reflection and self-knowledge can greatly affect the development of self-concept. Cultures that value individualism and independence, which are referred to as individualistic cultures, can foster the development of a sense of self by emphasizing the value of self-reflection and personal accomplishment. Another type of culture, collectivistic culture, places less value on individualism and more value on collectivism, which puts groups' needs over individuals' needs, such as the needs of the family or the community.

Culture can also influence an adolescent's self-concept by placing value on certain behaviors and characteristics over others; this can lead to a more positive or negative self-concept, depending on whether the adolescent's characteristics align with those valued by their culture. For example, a culture like the United States, where independence, assertiveness, and an outgoing personality are highly valued characteristics, may lead to an ado-

lescent who has those characteristics having a more positive self-concept than an adolescent who is shy and reserved.

A sense of belonging, and the self-identity that comes from that, is an important aspect of self-concept. Self-concept can also be influenced by culture if the adolescent is in a marginalized or excluded group, such as being a Black adolescent, or an adolescent with disabilities, in a discriminating community. This can lead to feelings of isolation and being disconnected from the community, which can lead to negative impacts on self-concept.

Self-Esteem

While **self-concept** is the perception of self, such as one's traits, values, and beliefs, **self-esteem** refers to self-worth—how much a person values themselves—and can be displayed through confidence in their own abilities, potential, and achievement.

As self-concept develops, so does self-esteem. In addition to the academic, social, appearance, and physical/athletic dimensions of self-esteem in middle and late childhood, teens also add perceptions of their competency in romantic relationships, on the job, and in close friendships (Harter, 2006). Self-esteem often decreases when children transition from one school setting to another, such as shifting from elementary to middle school or junior high to high school (Ryan, Shim, & Makara, 2013).

These decreases are usually temporary unless there are additional stressors, such as parental conflict or other family disruptions (De Wit, Karioja, Rye, & Shain, 2011). Self-esteem rises from mid to late adolescence for most teenagers, especially if they feel confident in their peer relationships, their appearance, and athletic abilities (Birkeland, Melkivik, Holsen, & Wold, 2012).

Family Influences on Self-esteem

Adolescence is a crucial time in the development of self-esteem, and many factors influence it. One of the most important factors that influences an adolescent's self-esteem is family. Whether or not an adolescent feels supported and loved in their family can impact their self-worth. Family relationships that impact self-esteem not only include parents but can include siblings as well. If an adolescent has a loving family environment and feels a sense of emotional security, support, and belonging, this will most likely lead to higher self-esteem than an adolescent who does not. Being in a family environment that lacks a sense of security due to constant conflict and criticism, either between parents or siblings, may lead to lower self-esteem. Parents having unrealistic high expectations can also lead to feelings of inadequacy and lower self-esteem.

Peer Influences on Self-esteem

Being accepted and fitting in social groups is a critical element in adolescent socio-emotional development and peers become an increasingly significant influence on self-esteem. Positive peer influences, such as having close friends who they feel connected to and who provide emotional support and encouragement, can make a positive impact on adolescents' self-worth, leading to higher self-esteem, while not having this social support can lead to feelings of isolation and lower self-esteem.

Cognitive Influences on Self-esteem

In addition to family and peer influences, cognitive factors, such as how adolescents perceive themselves and how they interpret incidents, can also influence self-esteem. If adolescents perceive

themselves as being capable, of being liked, and of comparing well in terms of their peer group, then their self-esteem is likely to be higher than adolescents who do not see themselves as being liked or capable or believe that they are inferior to their peers. There are also **cognitive distortions** that lead to lower self-esteem, these cognitive distortions are patterns of inaccurate negative thinking, such as personalization (taking things personally when they are, in fact, not connected to you at all), overgeneralization (generalizing about the outcome of one event to all future events—thinking that if you did poorly on one math quiz then you will keep doing poorly and fail math class), and catastrophizing (assuming the worst will happen). Cognitive distortions like these lead to negative self-talk and lower self-esteem (Shirk, Burwell & Harter, 2003).

Cultural Influences on Self-esteem

Cultural beliefs and values can influence self-esteem by affecting how people in that culture perceive their worth. Two particularly important cultural beliefs that can influence the self-esteem of adolescents are values of appearance and gender roles. For example, if a culture values males who are tall and have a muscular appearance, then a male adolescent who does not fit this ideal standard may experience lower self-esteem.

The same concept applies to cultural values of gender roles. If a culture values females who are outgoing and confident, this ideal may negatively affect the self-esteem of a reserved and timid female adolescent who does not fit in with the cultural ideal. Research studies have found that adolescent females tend to have lower self-esteem than adolescent males (Baumeister, 1993; Pipher, 1994). Cultural values and beliefs are thought to be one of the contributing factors to this phenomenon. In Western countries, the cultural emphasis on physical attractiveness for females contributes to lower self-esteem in those who do not feel like they fit the cultural standards.

Studies have found that different cultures share four key factors that contribute to adolescents' self-esteem: controlling one's life, doing one's duty, benefiting others, and achieving social status (Becker et al., 2014). However, the value that is placed individually on these four factors differs by culture. For example, in Western European cultures that value individual freedom, having control over one's life was the factor that was most associated with high self-esteem. In cultures that value tradition and conformity, such as some Asian or Middle Eastern cultures, the factor most associated with high self-esteem is doing one's duty (Becker et al., 2014).

Boosting Self-esteem in Late Adolescence

During late adolescence, self-esteem tends to increase (Savin-Williams & Demo, 1983; Harter, 1990). Peer relationships have been found to play an important role in this increase in self-esteem. As we discussed earlier, peer relations are an important influence on self-esteem, and having the emotional support of friends can lead to increased feelings of self-worth and higher self-esteem. The social support of parents and siblings also has an important influence on adolescents' self-esteem (Harter, 1990; Savin-Williams & Demo, 1983). Doing things well in areas that they care about, such as academics, dance, or sports, and receiving recognition from important people in their lives will increase adolescents' feelings of self-worth. Having the emotional support, encouragement, and praise from these important peer and family relationships is an important contributor to self-esteem in late adolescence, as is highlighting and reinforcing the domains in which they are doing well.

Licenses and Attributions for Developing the Self-Concept

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14.3 Parents and Teens: Autonomy and Attachment

While most adolescents get along with their parents, they do spend less time with them (Smetana, 2011). This decrease in the time spent with families may be a reflection of a teenager's greater desire for independence or **autonomy**. It can be difficult for many parents to deal with this desire for autonomy. However, it is normal for teenagers to increasingly distance themselves and establish relationships outside of their families in preparation for adulthood.

Children in middle and late childhood are increasingly given greater freedom regarding basic decision-making. This continues in adolescence, as teens demand more and more control over the decisions that affect their daily lives. Teens believe they should manage the areas that parents previously had considerable control over, which can increase tension between parents and their teenagers. Their arguments often center on issues of a power struggle or conflict in areas such as chores, homework, curfew, dating, personal appearance, and the right to privacy.

Figure 14.1. Tension between parents and teens usually centers on control, and in many cases, this is reported more frequently with mothers and daughters.

As teens grow older, more compromise is reached between parents and teenagers (Smetana, 2011). Teens report more conflict with their mothers, as many mothers believe they should still have some control over many of these areas, yet often report their mothers to be more encouraging and supportive (Costigan, Cauce, & Etchison, 2007). Parents are more controlling of daughters, especially early maturing girls, than they are of sons (Caspi, Lynam, Moffitt, & Silva, 1993). In addition, culture and ethnicity also play a role in how restrictive parents are with the daily lives of their children (Chen, Vansteenkiste, Beyers, Soensens, & Van Petegem, 2013).

Having supportive, less conflict-ridden relationships with parents also benefits teenagers. Research on attachment in adolescence finds that teens who are still securely attached to their parents have fewer emotional problems, (Rawatlal,

Kliewer & Pillay, 2015) are less likely to engage in drug abuse and other criminal behaviors, (Meeus, Branje & Overbeek, 2004) and have more positive peer relationships (Shomaker & Furman, 2009). This means that both parents and teenagers need to strike a balance between autonomy and maintaining close and caring familial relationships.

The Parent-Child Relationship

The relationship with parents may be a mitigating factor to the negative influence of peers. Communicating family rules and parental style have been inversely associated with substance, alcohol, and tobacco consumption during adolescence. This influence is essential for adolescents' development up to adulthood. Communication between parents and adolescents emerges as a protective factor for alcohol, tobacco, and substance use (Newman, Harrison & Dashiff, 2008).

Sen (2010) observed that family meals could lead to creating a closer relationship between parents and adolescents by strengthening a positive relationship and avoiding certain risky behaviors, such as substance use among girls and alcohol consumption, physical violence, and robberies among boys. These differences between genders may be due to the greater importance that girls attribute to family activities. Still, they do not reveal that boys are indifferent to them—only that the relation between genders may differ. Huebner and Howell (2003) verified that parental monitoring and communication with parents protected adolescents of both genders from being involved in risky behaviors.

Friendships in Adolescence

Peers are an important source of social support and companionship during adolescence. As children become adolescents, they usually begin spending more time with their peers and less time with their families, and these peer interactions are increasingly unsupervised by adults. The level of influence that peers can have over an adolescent makes these relationships particularly important in their personal development. Adolescents with positive peer relationships are happier and better adjusted than those who are socially isolated or have conflict-filled peer relationships.

Adolescents' notions of friendship increasingly focus on intimate exchanges of thoughts and feelings, which are important to forming friendships. These high-quality friendships may enhance a child's development regardless of the particular characteristics of those friends. In addition, peers are an important source of social support and companionship during adolescence.

The peer group may serve as a model, influence behaviors and attitudes, and provide easy access, encouragement, and an appropriate social setting for consumption (Glaser, Shelton & Bree, 2010). Social Learning Theory suggests that it is not necessary for adolescents to observe a given behavior and adopt it; it is sufficient to perceive that the peer group accepts it to be able to opt for similar behaviors (Petraitis, Flay & Miller, 1995).

Peers can serve both positive and negative functions during adolescence. Relationships with peers are valuable opportunities for adolescents to practice their social and conflict-resolution skills. However, negative peer pressure can lead adolescents to make riskier decisions or engage in more problematic behavior than alone or in their family's presence. One of the most widely studied aspects of adolescent peer influence is **deviant peer contagion** (Dishion & Tipsord, 2011), which is the process by which peers reinforce problem behavior by laughing or showing other signs of

approval that then increase the likelihood of future problem behavior.

Figure 14.2. Adolescent peer influence can lead to underage drinking and other activities, which can be problematic.

Peers may strongly determine preference in the way of dressing, speaking, using illicit substances, sexual behavior, adopting and accepting violence, adopting criminal and antisocial behaviors, and in many other areas of the adolescent's life (Padilla, Walker & Bean, 2009; Tomé, Matos & Diniz, 2008). An example of this is that the main motives for alcohol consumption given by adolescents are related to social events, which usually take place in the company of friends, namely: drinking makes holidays more fun, it facilitates approaching others, it helps relaxing or facilitates sharing experiences and feelings (Kuntsche, Knibbe, Gmel & Engels, 2005). Also, mimicking risk behaviors may be greater when consumption begins in the context of a social event (Larsen, Engels, Souren, Granic & Overbeek, 2010).

On the other hand, having friends allows us to share experiences and feelings and learn how to solve conflicts. On the other hand, not having friends leads to social isolation and limited social contacts, as there are fewer opportunities to develop new relations and social interactional skills.

Friendship is also positively associated with psychological well-being (Ueno, 2004). Stronger friendships may provide adolescents with an appropriate environment to develop in a healthy way and to achieve good academic results. Adolescents with reciprocal friendships mention high levels of feelings of belonging in school; at the same time, reciprocity and feelings of belonging have positive effects on academic results (Vaquera & Kao, 2008).

School is a setting where interpersonal relations are promoted, which are important for youngsters' personal and social development (Ruini et al., 2009). School is responsible for the transmission of behavioral norms and standards, and it represents an essential role in the adolescent's

socialization process. The school is able to gather different peer communities and promote self-esteem and harmonious development between adolescents, which makes it a privileged space for meetings and interactions (Baptista, Tomé, Matos, Gaspar & Cruz, 2008).

Adolescents spend a great part of their time at school, making it a privileged context for involvement in or protection from risky behaviors (Piko & Kovács, 2010). Camacho, Tomé, Matos, Gamito, and Diniz (2010) confirmed that adolescents who like school were those who more often were part of a peer group without involvement in risk behaviors, while those who mentioned they did not have any friends reported that they liked school less and those in conflict with their peers had more negative health outcomes.

Despite the positive influence of the peer group during adolescence, the higher the adolescent's autonomy from the peer group, the higher their resilience against its influence. This resilience seems to increase with age, which may mean that it is associated with youngsters' maturity, and girls emerge in several studies as more resilient than boys (Sumter, Bokhorst, Steinberg & Westenberg, 2009).

Another factor that may be found in the influence of the peer group is the type of friendship that adolescents maintain with their peer group: if friends are close, they have a greater influence on each other's behaviors (Glaser, Shelton & Bree, 2010). When the friendship is perceived as reciprocal and of quality, it exerts greater influence (Mercken, Snijders, Steglich, Vartiainen & Vries, 2010). Another factor that has been identified as a possible way of decreasing peer influence is assertive refusal. Adolescents who can maintain an assertive refusal are less susceptible to the group's influence (Glaser, Shelton & Bree, 2010). These are only some variables identified as possible factors decreasing peer influence.

Teen Friendships and Technology

The rising use of technology and social media has made a significant impact not only on how adolescents maintain friendships but also on how they initially form friendships. Technology such as social media and messaging has made it possible to communicate instantly with friends without limits to time or physical location. While the use of technology has a positive impact on social support and helps adolescents feel more connected to their peers, it can also have a negative impact by contributing to adolescents' stress with the need to be always available to their peers.

The way in which adolescents form their friendships has been greatly impacted by the use of technology. While it used to be that friendships were formed through meeting peers in school or extracurricular activities, this limit no longer exists. Adolescents no longer need to meet peers in person to form friendships, as many of these friendships are now formed online. A national survey conducted by the Pew Research Center (2015) found that 57 percent of adolescents formed at least one new friendship online, with 29 percent of adolescents forming five new friendships online. The friendships that are formed online tend to remain digital; only 20 percent of adolescents meet online friends in person.

For more information about teen friendship and technology, please visit this link: **Pew Research Center [Website]**.

Licenses and Attributions for Parents and Teens: Autonomy and Attachment

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14.4 Developing Moral Reasoning: Kohlberg's Theory

The independence that comes with adolescence requires independent thinking as well as the development of morality—standards of behavior that are generally agreed on within a culture to be right or proper. Just as Piaget believed that children's **cognitive development** follows specific patterns, Lawrence Kohlberg (1984) argued that children learn their moral values through active thinking and reasoning and that **moral development** follows a series of stages. To study moral development, Kohlberg posed moral dilemmas to children, teenagers, and adults, such as the following:

> A man's wife is dying of cancer and there is only one drug that can save her. The only place to get the drug is at the store of a pharmacist who is known to overcharge people for drugs. The man can only pay $1,000, but the pharmacist wants $2,000, and refuses to sell it to him for less, or to let him pay later. Desperate, the man later breaks into the pharmacy and steals the medicine. Should he have done that? Was it right or wrong? Why? (Kohlberg, 1984)

This interactive content is not available in this version of the text. It can be accessed online here: **https://www.youtube.com/watch?v=zY4etXWYS84**

Figure 14.3. Researchers pose Kohlberg's moral dilemma to children and adults. Some adults demonstrate post-conventional morality, which recognizes self-chosen principles. Transcript.

As you can see in Figure 14.4, "Lawrence Kohlberg's Stages of Moral Reasoning," Kohlberg concluded, on the basis of their responses to the moral questions, that as children develop intellectually, they pass through three stages of moral thinking: the *pre-conventional level*, the *conventional level*, and the *post-conventional level*.

Age	Moral Stage	Description
Young children	Pre-conventional morality	Until about the age of 9, children focus on self-interest. At this stage, punishment is avoided, and rewards are sought. A person at this level will argue, "The man shouldn't steal the drug, as he may get caught and go to jail."
• **Older children** • **Adolescents** • **Most adults**	Conventional morality	By early adolescence, the child begins to care about how situational outcomes impact others and wants to please and be accepted. At this developmental phase, people are able to value the good that can be derived from holding to social norms in the form of laws or less formalized rules. For example, a person at this level may say, "He should not steal the drug, as everyone will see him as a thief, and his wife, who needs the drug, wouldn't want to be cured because of thievery," or, "No matter what, he should obey the law because stealing is a crime."
Many adults	Post-conventional morality	At this stage, individuals employ abstract reasoning to justify behaviors. Moral behavior is based on self-chosen ethical principles that are generally comprehensive and universal, such as justice, dignity, and equality. Someone with self-chosen principles may say, "The man should steal the drug to cure his wife and then tell the authorities that he has done so. He may have to pay a penalty, but at least he has saved a human life."

Figure 14.4. Lawrence Kohlberg's Stages of Moral Reasoning

Although research has supported Kohlberg's idea that moral reasoning changes from an early emphasis on punishment and social rules and regulations to an emphasis on more general ethical principles, as with Piaget's approach, Kohlberg's stage model is probably too simple.

For one, children may use higher levels of reasoning for some types of problems but revert to lower levels in situations where doing so is more consistent with their goals or beliefs (Rest, 1979). Second, it has been argued that the stage model is particularly appropriate for Western, rather than non-Western, samples in which allegiance to social norms (such as respect for authority) may be particularly important (Haidt, 2001). And there is frequently little correlation between how children score on the moral stages and how they behave in real life (Gibbs, 2019).

Perhaps the most important critique of Kohlberg's theory is that it may describe the moral development of boys better than it describes that of girls. Carol Gilligan (1982) has argued that, because of differences in their socialization, males tend to value principles of justice and rights, whereas females value caring for and helping others. Although there is little evidence that boys and girls score differently on Kohlberg's stages of moral development (Turiel, 1998), it is true that girls and women tend to focus more on issues of caring, helping, and connecting with others than do boys and men (Jaffee & Hyde, 2000). If you don't believe this, ask yourself when you last got a thank-you note from a man.

Influences in Moral Development

There are several factors that influence moral development during adolescence.

Family

Family is one of the most important influences in adolescents' moral development. Family influences have a significant effect on moral development in adolescence and are displayed through reinforcement and direct or indirect teachings. One of the ways that this influence is seen is through family values. If a family stresses moral values like integrity, then adolescents are more likely to internalize and develop those moral values as well.

Family members are also important role models for adolescents. If adolescents observe parents or siblings engaging in moral behavior, such as being honest, then they are more likely to engage in those behaviors as well. It has also been found that adolescents whose parents who use reasoning to guide their children's behavior are positively affected by this authoritative parenting style in their moral development (Hazra & Mittal, 2018).

Peers

Along with family, peers are a significant influence in adolescents' moral development. Adolescents are greatly influenced by their peers—this influence can affect their behavior, values, attitudes, and moral development. For example, adolescents whose friends engage in morally wrong behavior, such as stealing, are more likely to engage in those behaviors themselves due to their peers' influence (Jannsens & Dekovic, 1997). Research studies have also found that there is a correlation between adolescents' moral judgment and problems in peer relationships—as severe problems in adolescents' peer relationships increase, their moral judgment tends to be negatively affected and decrease, especially during late adolescence (Zulfiqar, 2020).

Media

Media exposure can affect adolescents' moral development in both positive and negative ways. Being exposed to and influenced by moral role models, such as a character who fights social injustice or who advocates for those who are powerless, is an example of positive influences on moral behavior and development. Examples of influences of negative moral behavior may be constant exposure to violence.

Influences on Teens

Media is an agent of socialization that influences our political views; our tastes in popular culture; our views of women, people of color, and the LGBTQ+ community; and many other beliefs and practices. In an ongoing controversy, the media is often blamed for youth violence and society's ills. The average child sees thousands of acts of violence on television and in the movies before reaching young adulthood. Rap lyrics often seemingly extol ugly violence, including violence against women. Commercials can greatly influence our choice of soda, shoes, and countless other products. The mass media may also reinforce racial and gender stereotypes, including the belief that women are sex objects and suitable targets of male violence. In the General Social Survey (GSS), about 28 percent of respondents said that they watch four or more hours of television every day, while another 46 percent watch 2-3 hours daily (see "Average Number of Hours of Television Watched Daily"). The media certainly are an important source of socialization that was unimaginable a half-century ago.

As the media socializes children, adolescents, and even adults, a key question is the extent to which media violence causes violence in our society. Studies consistently uncover a strong correlation between watching violent television shows

and movies and committing violence. However, this does not necessarily mean that watching violence causes violent behavior: perhaps people watch violence because they are already interested in it and perhaps even committing it.

Scholars continue to debate the effect of media violence on youth violence. In a free society, this question is especially important, as the belief in this effect has prompted calls for monitoring the media and the banning of certain acts of violence. Civil libertarians argue that such calls smack of censorship that violates the First Amendment to the Constitution. In contrast, others argue that they fall within the First Amendment and would make for a safer society. Certainly, the concern and debate over mass media violence will continue for years to come.

Sociocultural Factors

Sociocultural factors can influence adolescents' moral development. These sociocultural factors include culture and religion. The beliefs, norms, and values that cultures have can affect adolescents' moral development as they are strong indicators of what behavior is appropriate or not appropriate in that culture. Different cultures emphasize different values and reinforce behaviors that align with those values—adolescents growing up in different cultures may have different moral judgments. For example, some cultures value honesty above any personal gain, while others may value harmony more and may overlook dishonesty if it helps to create harmony.

CASE STUDY: DYANI

Academic Honesty and a Moral Dilemma

Dyani balanced her books precariously against her hip as she navigated the bustling halls. Tomorrow's math test loomed ominously over her head, a dark cloud of anxiety threatening to rain down upon her. She glanced at her friend Sarah, who walked beside her, her usual bubbly demeanor replaced by a tense expression. "What's wrong, Sarah?" Dyani asked, concern lacing her voice. Sarah sighed, her shoulders slumping. "I...I cheated on the math test," she confessed, her voice barely above a whisper. Dyani stopped in her tracks, stunned by Sarah's admission. "What? Why?" she asked, unable to hide her shock. Sarah shrugged, avoiding Dyani's gaze. "I didn't study, and I panicked," she admitted. "I peeked at Jenna's paper next to me."

Dyani's mind raced as she grappled with the revelation. She knew she had to do something, but she also didn't want to betray her friend's trust. "We need to tell Ms. Adams," Dyani said finally, her voice firm. Sarah's eyes widened in fear. "But...but I'll get in trouble," she protested.

Dyani shook her head, determination shining in her eyes. "It's the right thing to do, Sarah. We can't let this slide."

Together, Dyani and Sarah made their way to Ms. Adams' classroom, their footsteps echoing in the empty hallway. As they approached the door, Dyani felt a surge of anxiety wash over

her. What if Ms. Adams didn't believe them? What if Sarah got expelled? But Dyani pushed aside her fears and knocked on the door, her resolve unwavering.

Ms. Adams looked up from her desk, surprise flickering across her face as she saw Dyani and Sarah standing there. "Is everything alright, girls?" Ms. Adams asked, concern etched in her voice. Dyani took a deep breath, steeling herself for what she was about to do. "We need to talk to you, Ms. Adams," she said, her voice steady despite the turmoil inside her.

As Dyani recounted what had happened, Sarah stood beside her, her eyes downcast with shame. When Dyani finished speaking, there was a moment of tense silence before Ms. Adams spoke. "Thank you for being honest, Dyani, Sarah," Ms. Adams said, her voice gentle but firm. "Cheating is a serious offense, but I appreciate you coming forward." Dyani felt a weight lift off her shoulders as she watched Sarah being escorted out of the classroom, her head held high with newfound resolve. She knew that their friendship may have been strained, but true integrity was worth more than any consequence.

In the days that followed, Dyani and Sarah worked hard to rebuild their friendship on a foundation of honesty and trust. And though they faced challenges along the way, Dyani knew that their bond was stronger because of it.

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14.5 Sexuality and Gender Identity in Adolescence

Sexual Orientation is an umbrella term that is used to refer to patterns of attraction—sexual, romantic, or both. Under this umbrella, individuals may sort themselves into categories such as gay, heterosexual, bisexual, pansexual, or asexual.

"Queer," "Bisexual," "Pansexual," "Polyamorous," "Asexual"

Queer as an identity term refers to a noncategorical sexual identity; it is also used as a catch-all term for all LGBTQ (lesbian, gay, bisexual, transgender, queer) individuals. The term was historically used in a derogatory way, but was reclaimed as a self-referential term in the 1990s United States. Although many individuals identify as

queer today, some still feel personally insulted by the term and disapprove of its use.

Bisexual is typically defined as a sexual orientation marked by attraction to either men or women. This has been problematized as a binary approach to sexuality, which excludes individuals who do not identify as men or women. **Pansexual** is a sexual identity marked by sexual attraction to people of any gender or sexuality.

Polyamorous (poly, for short) or non monogamous relationships are open or nonexclusive; individuals may have multiple consensual and individually-negotiated sexual and/or romantic relationships at once (Klesse, 2006).

Asexual is an identity marked by a lack of or rare sexual attraction, or low or absent interest in sexual activity, abbreviated to "ace" (Decker, 2014). Asexuals distinguish between sexual and romantic attraction, delineating various sub-identities included under an ace umbrella.

You'll find an excellent overview of these terms at **PFLAG National Glossary [Website]**.

You'll note from the definitions the use of qualifiers such as "may" and "often." This pattern should serve as a clue that sexual orientation is complicated, and our understanding of the diversity of presentations is quickly changing.

You can also check out this helpful link: **Ally's Guide to Terminology [Website]**.

Is Sexual Orientation Influenced by the Environment?

Several studies have found correlations between same-sex sexual preferences and environmental conditions. In this case, the "environment" can be the uterine environment and refer to conditions during fetal development, or the environment can refer to conditions after birth.

The literature on post-birth experiences and their impacts on sexual orientation is challenging for many reasons, but largely because it is so difficult to disentangle the impact of a tolerant environment on someone's inclination to express their homosexuality. For example, there has been work suggesting that children of gay parents are more likely to grow up expressing same-sex sexual preferences (Gartrell et al., 2018). Is this because growing up in a gay family actually influences an individual's sexuality, or because a family that is accepting of homosexuality creates a safe space for a gay or bisexual individual to express their sexuality?

Somewhat more compelling is the work on the prenatal environment and homosexuality. According to many of these studies, differential exposure to prenatal hormones, specifically testosterone, influences sexuality later in life. Research continues to explore links between the timing and intensity of hormone exposure in utero, particularly testosterone, and sexual orientation in adulthood.

Like many aspects of **human development**, the cause of a person's sexual orientation is a complex and personal process. We may never understand the exact scientific or sociocultural factors that drive the process of sexual orientation development. However, only asking "When did you know you were gay?" without also asking "When did you know you were straight?" is more likely to lead to bias in research findings and the way we think about variances in how each of us develops.

Coming Out

The benefit and buffering effects of coming out have been well-established in the literature (Stirratt et al., 2007; Cass, 1984; Troiden, 1989). Meyer's LGBTQ Minority Stress model connects minority identification with positive outcomes in terms of coping and social support resources necessary to address minority stress, but it also highlights how minority identification is related to minority stressors within the individual, such as

expectations of rejection, concealment, and internalized homophobia. In addition, identification and community connectedness can increase visibility, which may increase vulnerability to things like employment discrimination, harassment, and violence (Meyer, 2003).

It may not always be safe to come out to others due to concerns around physical or emotional safety, loss of housing, unsafe living situations, among other difficult situations. Every individual must weigh the pros and cons of coming out because the people around us may not always react in supportive ways.

Also, keep in mind the role of an ally is not to out someone to others. It is up to the individual to tell others about their identity, and we could even cause them physical or emotional harm if we expose them to others. Do not do this without the person's express and direct permission beforehand.

When Did You Know You Were Straight? Bias in Adolescent Romantic Relationships

Individuals who identify as nonheterosexual are often asked how or when they knew they were gay. But this question would seem odd if posed in reverse: when did you know you were straight? That's because heterosexuality is widely accepted as "normal," whereas other sexual orientations are more likely to be thought of as a deviation from the norm. In other words, if someone is not straight, there must be a reason for the difference. This assumption that heterosexuality is normal also leads to questions about what causes homosexuality and, subsequently, other sexual orientations. A common question may be, "Is homosexuality genetic?" Asking this question is a bit like asking, "Are we born gay? Or straight?"

This question can be problematic for some because the motivation for asking the question may not be scientific. For example, individuals who have a social problem with homosexuality may be motivated to see sexual orientation as a choice, making homosexuality a characteristic one could choose not to exhibit. In recent history, eugenicists (individuals who promote selective reproduction among "favored" types of humans) used a presumed genetic basis for homosexuality as an argument in favor of sterilizing gay people.

The question can also be problematic because the stated or implied focus is typically on the cause of homosexuality rather than heterosexuality. But, for now, let's focus on the biology of homosexuality's origins. While no serious scientist is claiming that there is a single "gay gene," many have found evidence of a possible genetic basis.

Some intriguing data arises from the literature on twins. For example, researchers discovered that identical twins (from the same sperm and egg with nearly 100 percent identical genetics) are more alike with respect to sexual orientation than are nonidentical twins (who arise from different eggs and sperm) (Roselli, 2018). However, identical twins don't overlap completely in sexual preferences, a finding that suggests other factors—besides genetics—may be at work.

Intimate Partner Violence

Intimate Partner Violence (IPV) can include physical violence, sexual violence, stalking, and physical aggression by a current or former intimate partner (CDC, 2021). IPV not only affects adult partners but is a prevalent issue in adolescent intimate couples as well, and is also referred to as Teen Dating Violence (TDV). A survey conducted in 2019 asked U.S. high school students about their dating experience in the previous 12 months and found that about 1 in 12 adolescents who were dating experienced physical dating violence, and about 1 in 12 experienced sexual dating violence (CDC, 2019). Female students reported higher rates of

experiencing sexual and physical dating violence than male students. Students who identified as LGBTQ—gay, lesbian, bisexual, queer, and transexual students—reported experiencing higher rates of dating violence than students who identified as heterosexual (CDC, 2019).

Even though this is a prevalent issue in adolescent dating, it is not discussed enough, and adolescents are often afraid of letting others know about the violence they have endured. It is important to be aware of this issue and to provide support for survivors of violence, as the consequences of violence in adolescent intimate relationships include depression, anti-social behavior, substance abuse, and thoughts of suicide. Being in a violent intimate relationship during adolescence may also lead to continuing to be in violent relationships throughout adulthood (CDC, 2019).

For more information about teen dating violence and ways to prevent it, please visit this link: **CDC Teen Dating Violence [Website]**.

What is Gender Identity?

From birth, children are assigned a gender and are socialized to conform to certain gender roles based on their biological sex. "Sex" refers to physical or physiological differences between males, females, and intersex persons, including both their primary and secondary sex characteristics. "Gender," on the other hand, refers to social or cultural distinctions associated with a given sex. When babies are born, they are assigned a gender based on their biological sex—male babies are assigned as boys, female babies are assigned as girls, and intersex babies are born with sex characteristics that do not fit the typical definitions for male or female bodies, and are usually relegated into one gender category or another.

Scholars generally regard gender as a social construct, meaning that it doesn't exist naturally but is instead a concept that is created by cultural and societal norms. From birth, children are socialized to conform to certain gender roles based on their biological sex and the gender to which they are assigned. A person's subjective experience of their own gender and how it develops, or gender identity, is a topic of much debate. It is the extent to which one identifies with a particular gender; it is a person's individual sense and subjective experience of being a man, a woman, or another gender. It is often shaped early in life and consists primarily of the acceptance (or nonacceptance) of one's membership into a gender category. In most societies, there is a basic division between gender attributes assigned to males and females.

In all societies, however, some individuals do not identify with some (or all) of the aspects of gender that are assigned to their biological sex. Those who identify with the gender that corresponds to the sex assigned to them at birth (for example, they are assigned female at birth and continue to identify as a girl and later a woman) are called cisgender. In many Western cultures, individuals who identify with a gender that is different from their biological sex (for example, they are assigned female at birth but feel inwardly that they are a boy or a gender other than a girl) are called transgender. Some transgender individuals, if they have access to resources and medical care, choose to alter their bodies through medical interventions such as surgery and hormonal therapy so that their physical being is better aligned with their gender identity.

Gender Identities

Sex and gender are often confused for one another and are used interchangeably in many circumstances; however, these are distinct concepts. Sex depends on chromosomes, genetics, hormones, hormone receptors, gonads, and epigenetic factors, and secondary sex characteristics continue to unfold during puberty and throughout our lifes-

pans, impacting the way that our physical bodies look and feel. Female, intersex, and male bodies exist on a continuum of possibilities. Gender, on the other hand, is a social construct based on gender roles, expectations around behavior, stereotypes concerning vague concepts like femininity and masculinity, and personal internalization of what gender means to each individual person. All of these factors, through socialization, work to influence the way each individual person internalizes concepts around gender.

When we feel a sense of harmony in our gender, we are said to have gender congruence. It takes the form of naming our gender so that it matches our internal sense of who we are, expressing ourselves through our clothing and activities, and being seen consistently by other people as we see ourselves. Congruence does not happen overnight but occurs throughout life as we explore, grow, and gain insight into ourselves. It is a simple process for some and complex for others, though all of us have a fundamental need to obtain gender congruence.

When a person moves from the traditional binary view of gender to transgender, agender, or nonbinary, they are said to "transition" and find congruence in their gender. Genderspectrum.org adds, "What people see as a 'transition' is actually an alignment in one or more dimensions of the individual's gender as they seek congruence across those dimensions. A transition is taking place, but it is often other people (parents and other family members, support professionals, employers, etc.) who are transitioning in how they see the individual's gender and not the person themselves. For the person, these changes are often less of a transition and more of an evolution." Harmony is sought in various ways to include:

- Social: Changing one's clothes, hairstyle, and name and/or pronouns.
- Hormonal: Using hormone blockers or hormone therapy to bring about physical, mental, and/or emotional alignment.
- Surgical: When gender-related physical traits are added, removed, or modified.
- Legal: Changing one's birth certificate or driver's license.

The Language of Gender

- Agender: When someone does not identify with a gender.
- Cisgender: When a person's gender identity matches their assigned sex at birth.
- FtM: When a person is assigned a female sex at birth but whose gender identity is boy/man.
- Gender dysphoria: When a person is unhappy or dissatisfied with their gender, it can occur in relation to any dimension of gender. The person may experience mild discomfort to unbearable distress. This is classified as a mental health diagnosis, and this diagnosis must be given to an individual in most states if they wish to receive hormone and other gender-affirming treatments. Not all transgender or nonbinary people may experience gender dysphoria, and some cisgender people may experience this.
- Genderfluid: When a person's gender changes over time, they view gender as dynamic and changing.
- Gender role: All the activities, functions, and behaviors that are expected of males and females in a gender-binary society.
- Genderqueer: Someone who may not identify with conventional gender identities, roles, expectations, or expressions.
- MtF: When a person is assigned a male sex at birth but whose gender identity is girl/woman.

- Non–binary: When a gender identity is not exclusively masculine or feminine.
- Transgender: An umbrella term that denotes when a person's gender identity differs from their assigned sex.

Licenses and Attributions for Sexuality and Gender Identity in Adolescence

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14.6 Health and Wellness

Emotional disorders, such as anxiety and depression, are mental health issues that affect people across the lifespan and often begin during adolescence. The symptoms of anxiety disorders include having debilitating fear, worry, and panic about perceived future threats. According to the World Health Organization, anxiety disorders are prevalent among adolescents globally, affecting about 3.6 percent of 10–14 year-olds and 4.6 percent of 15-19 year-olds (WHO, 2021).

The symptoms of anxiety often appear alongside symptoms of depression, which include feelings of worthlessness, loss of energy, sleep problems, and difficulty concentrating. An adolescent who is depressed is more likely to have an anxiety disorder, as these two mental health issues often occur together. Depression has an early onset in adolescence, generally begins around the age of 14, and affects more females than males (Benokraitis & Buchler, 2019).

The National Institute of Mental Health found that about 4.1 million adolescents in the United States (aged 12 to 17) are reported to have had at least one major depressive episode (depressive symptoms which last at least two weeks) in 2020, with a higher prevalence among female adolescents (25.2%) than male adolescents (9.2%). It was also found that the highest prevalence (29.9%) was among adolescents who identified as being of two or more races (NIMH, 2020).

There are many and often interlinked causes of anxiety and depression during adolescence, and include factors such as genetics, trauma, stress, and environment.

For more information on anxiety and depression during adolescence, please visit this link: **What to know about teen anxiety and depression [Website]**.

Bipolar

Bipolar disorder is a type of depression that manifests as cycles of mania and depression, with extreme mood and energy swings. During a manic episode, adolescents may be more energetic, active, and positive than they usually are, while during a depressive episode, they may be much less energetic and active and may have intense feelings of sadness. Bipolar disorder can be difficult to diagnose during adolescence, as the behaviors associated with the disorder, the episodes of extreme mood swings, can be mistaken for conventional adolescent behavior. Although bipolar disorder can occur at any age during the life span, it is typically diagnosed during adolescence or

early adulthood (NIH, 2023). It is estimated that 2.9 percent of adolescents have bipolar disorder, with a higher prevalence of 3.3 percent for females compared to 2.6 percent for males (NIH, 2007).

For more information on bipolar disorder and adolescence, please visit this link: **Bipolar Disorder in Children and Teens [Website]**.

Schizophrenia

Like bipolar disorder, schizophrenia can be challenging to diagnose in adolescents, as the symptoms can be mistaken for typical adolescent behavior and moodiness. Schizophrenia is a severe mental disorder that involves cognitive problems that result in not being able to interpret reality accurately; the symptoms can include difficulty with communication, hallucinations, thought disorder, anxiety, irritability, and social withdrawal (Mayo Clinic, 2023). Schizophrenia is usually diagnosed between 16 and 30 and is typically diagnosed earlier in males than females (NIH, 2022). Schizophrenia is a rare disorder, and is thought to be caused by a combination of genetic and environmental factors, such as living in poverty or being exposed to toxins before birth (NIH, 2022).

For more information on schizophrenia during adolescence, please visit this link: **Childhood Schizophrenia [Website]**.

ADHD

Attention-Deficit/Hyperactivity Disorder (ADHD) is a disorder in which a person may display symptoms of inattention, symptoms of hyperactivity-impulsivity, or both.

Symptoms of ADHD include symptoms of inattention, such as having difficulty following instructions, doing tasks in sequence, and sustaining attention. Symptoms of hyperactivity-impulsivity may include fidgeting, excessive talking, interrupting, and feeling restless. ADHD symptoms can appear as early as between the ages of 3 to 6, and most children with ADHD are diagnosed during their elementary school years. ADHD symptoms need to have been present before the age of 12 for an adolescent to be diagnosed with the disorder (NIH, 2022). The symptoms of ADHD may change over developmental periods; during adolescence, inattention and impulsivity tend to remain from childhood, and hyperactivity tends to lessen (NIH, 2022).

For more information about ADHD, please visit this link: **Attention-Deficit/Hyperactivity Disorder [Website]**.

Bullying

The Centers for Disease Control and the Department of Education released a federal definition of bullying in 2014. According to this definition, bullying involves unwanted and aggressive behavior, power imbalance, and the repetition of bullying behaviors (stopbullying.gov).

Bullying is prevalent in schools; around 20 percent of students in the United States between the ages of 12 to 18 have experienced bullying, and 19 percent of students in grades 9 to 12 experienced bullying on school property. About 15 percent of students aged 12 to 18 were bullied online or by text (NCES, 2019).

Bullying includes physical behaviors such as hitting and kicking, verbal behaviors such as teasing, and social behaviors such as spreading rumors (CDC, 2021). The consequences of being a target of bullying include depression, anxiety, sleep problems, and academic issues. The consequences of being bullied include being at higher risk for violence during later adolescence or adulthood and being at greater risk for substance abuse (CDC, 2021).

For more information about bullying, including risk and protective factors, please visit this link: **Fast Fact: Preventing Bullying [Website]**.

Peer pressure

Peer pressure refers to feeling either internal or external pressure to behave in certain ways—peer pressure can be either positive or negative. Positive peer pressure can include being influenced to do well academically or to volunteer at a local animal shelter. Negative peer pressure can include being influenced to start smoking or to skip classes. Peer pressure can be seen as early as elementary school and tends to increase during middle and high school as adolescents are influenced more and more by their friends and less by their family. Negative peer pressure can affect adolescents' mental health—it can lead to an increased risk of depression and anxiety, a decrease in self-esteem and self-confidence, and an increased risk of suicide. Having supportive environments, open communication, and adult role models can help adolescents set boundaries and prevent negative outcomes from peer pressure.

For more information about peer pressure, please visit this link: **Helping teens deal with peer pressure [Website]**.

Suicide

Awareness

Suicide is the second leading cause of death in the United States for 15-to 24-year-olds (CDC).

Twenty percent of high school students in the United States have reported having serious thoughts of suicide, and 9 percent have reported a suicide attempt. In 2019, the rate of death by suicide was 14 per 100,000 people for 15- to 24-year-olds (NAMI, 2023). These already high rates of suicide for adolescents increased in 2020, during the first year of the COVID-19 pandemic, due to the stresses of the pandemic (NIH, 2022). A study by the National Institutes of Health found that overall, in the 14 states that were a part of the study, there was an increase in rates of suicide among 10-to 19-year-olds in 2020 (NIH, 2022).

Prevention

There are several risk factors for suicide, including a family history of suicide, depression, anxiety, substance abuse, and having a history of abuse or trauma (APA, 2018). In addition to these risk factors, there are warning signs that indicate a person may be considering suicide. These warning signs include social withdrawal, self-harm behavior, changes in hygiene or appearance, talking about suicide, or talking about feeling hopeless (APA, 2018).

Ways to prevent adolescent suicide include expressing your concern, being compassionate and actively listening, helping the adolescent maintain social connections, and trusting your intuition and getting help if you feel that something is wrong, even if the adolescent denies having thoughts of suicide (APA, 2018).

Ways to help prevent suicide need to include strategies at the community level as well as strategies for individuals and families (CDC, 2022). These strategies include strengthening financial security and housing stability, reducing substance abuse through community policies, having access to suicide care, promoting connection in the community, having education programs that support resilience and problem-solving skills, and identifying and supporting people at risk (CDC, 2022).

For more information about preventing suicide, you can choose to visit **Prevention Strategies [Website]** and watch **Teen Suicide Prevention [Streaming Video]** or **Reach Out – Preventing Teen Suicide [Streaming Video]**.

Seeking Treatment

Treatment for suicidal tendencies can vary, depending on the circumstances and degree of risk presented. If an adolescent is in immediate danger, then emergency treatment includes calling a suicide hotline number and going to a hospital's emergency room for immediate care. In a non-emergency situation, a doctor may first conduct medical tests to see if there are any underlying physical problems that may be the root cause of the suicidal tendencies. Treatment for suicidal tendencies may include psychotherapy to help explore issues and learn coping strategies, medications such as antidepressants or anxiolytics, and family support and education.

Gender Identity

Adolescents who are questioning the sex identity given to them at birth may be at higher risk of suicide, as are adolescents who are LGBTQ youth. Studies have shown that LGBTQ youth are at an even higher risk of suicide than their peers aged 10 to 24, with some studies finding that compared to their peers, LGBTQ youth are more than four times as likely to attempt suicide (Johns et al., 2019; Johns et al., 2020). It is important to note that it is the stigma and lack of support that lead LGBTQ youth to attempt suicide, and that having at least one supportive adult can reduce the risk of suicide by 40 percent (The Trevor Project, 2019).

For more information on LGBTQ youth and suicide risk factors and prevention, please visit this link: **Facts about LGBTQ Youth Suicide [Website]**.

Disordered Eating

Eating disorders are severe mental health conditions that can lead to lifelong health problems and can be fatal if left untreated. Eating disorders center around extreme focus on eating behaviors and obsessive thoughts about eating, food, and weight. Although eating disorders can affect children and older adults, they are most frequently seen in adolescents and young adults, in females. The prevalence of eating disorders has been found to have more than doubled between 2000-2018 (Galmiche et al., 2019) and to have increased even more during the COVID-19 pandemic. This is thought to be due to the higher levels of anxiety and the social isolation experienced during the pandemic (Zipfel, Schmidt, & Giel, 2022).

Eating disorders include **anorexia nervosa**, **bulimia nervosa**, and **binge-eating disorder**.

Anorexia nervosa is a mental health condition in which people are exceedingly restrictive in their food intake and have an intense fear of gaining weight. They tend to try to hide their restrictive eating from family and friends and try to appear as having eaten more than they actually have, oftentimes by hiding uneaten food. People suffering from anorexia will see themselves as overweight even when they are significantly underweight. Anorexia nervosa is extremely dangerous and is the eating disorder that is most likely to lead to death if left untreated. Adolescents with anorexia between the ages of 15 to 24 have a tenfold increased risk of mortality compared to their peers (Fitcher & Quadflieg, 2016).

Anorexia is an emotional disorder that often has a root cause of low self-esteem; people with anorexia are so focused on restricting food and weight loss that they equate being thin with self-worth (Mayo Clinic, 2018). Anorexia has also been associated with authoritarian parenting styles, in which parents are demanding, expect strict obedience, and are not emotionally supportive (Haycraft & Blissett, 2019). It is thought that the quest

for thinness seen in anorexia is a means of gaining control back from being in an environment of constant parental control.

Bulimia nervosa is an eating disorder that involves periods of binge eating and purging. During binge eating, large quantities of food are consumed in a short amount of time, followed by feelings of guilt or shame. These feelings lead to purging, which involves trying to expel the food that was eaten, often through vomiting, laxative use, or excessive exercise (Mayo Clinic, 2018). Like anorexia, bulimia is also an emotional disorder that has a root cause of poor self-worth and has been associated with authoritarian parenting styles (Haycraft & Blissett, 2019). Bulimia is thought to be a reaction to parents who have unrealistic expectations of perfection.

Binge-eating disorder is another common form of eating disorders. Binge-eating disorder is similar to bulimia nervosa in that it involves binge eating of large quantities of food, but unlike bulimia, it does not involve purging. Binge-eating is often done in secret and can result in feelings of guilt and depression. People with binge-eating disorder tend to have low self-esteem and poor body self-image (Mayo Clinic, 2018). Authoritarian parenting style has been associated with binge-eating disorder (Zubatsky et al., 2015), as has trauma, with binge-eating being used as a way to manage the overwhelming negative emotions of the trauma (WebMD, 2015).

For more information on eating disorders, please visit this link: **National Institute of Mental Health: Eating Disorders [Website]**.

Alcohol, Tobacco, and Drug Use

Emotional disorders are often seen through alcohol, tobacco, and drug use during adolescence. Adolescence is a time of exploration and is often the time when alcohol, tobacco, and drugs begin to be used.

Alcohol Use

Forty percent of 12-to 20-year-olds have reported at least one incident of trying alcohol (SAMHSA, 2019). In a survey of high school students conducted in 2019, 29 percent reported drinking alcohol during the past month (CDC, 2020). While adolescents tend to drink alcohol less often than adults, when they do drink, they tend to drink larger quantities of alcohol (CDC, 2020). The majority (90 percent) of alcohol consumed by adolescents in the United States is through binge drinking (NIH, 2023). For more information on adolescent alcohol use and binge drinking, please visit this link: **Underage Drinking [Website]**.

Consequences of alcohol use during adolescence include impaired judgment, which can lead to risky behavior such as unsafe sexual activity, cognitive or learning problems, increased risk of using other substances, and increased risk of death due to accidents, overdoses, and suicides (NIH, 2023).

The risk factors for alcohol use during adolescence include peer pressure, desire for increased independence, and stress (NIH, 2023). An association between adolescent alcohol use and low self-esteem has been found (Zeigler-Hill, Dahlen & Madson, 2017), as has an association between childhood trauma and alcohol use during adolescence (NIH, 2022).

Tobacco

The majority of tobacco use tends to start during adolescence (NIDA, 2023). In a survey of students conducted in 2022, it was reported that 11.3 percent of middle and high school students used at least one tobacco product during the past month (NIDA, 2023). The nicotine found in tobacco is extremely addictive and has been found to affect emotional and cognitive functions in the brain when tobacco is used during adolescence, and

these changes in the brain may lead to continued use of tobacco (NIDA, 2023).

The risk factors for tobacco use during adolescence include peer pressure, mental health, and emotional problems. Recent negative life events and depression are also associated with the use of tobacco during adolescence (NIDA, 2023).

Drug Use

Drug use in adolescence includes the use of illegal drugs, such as methamphetamines, cocaine, heroin, and ecstasy, and the misuse of prescription medications. 15 percent of high school students reported having used an illegal drug at least once, and 14 percent reported having misused prescription medications, such as opioids (CDC, 2022).

Drug use in adolescence can lead to an increased risk of mental health problems, increased risk of engaging in dangerous behavior such as driving while under the influence, and can lead to changes in the brain that affect processing emotions, decision-making, and learning (Winters & Arria, 2011).

Risk factors for drug use during adolescence include having a family history of substance abuse, peer pressure, childhood sexual abuse, rejection of gender or sexual orientation by family, and mental health issues (CDC, 2022). Low self-esteem has been found to be a critical risk factor for adolescent drug use, with child physical abuse, bullying in school, low family income, and parental marital issues all being found to be factors contributing to low self-esteem (Ojo et al., 2013).

For more information on drug use during adolescence, including risk and protective factors, please visit **High-Risk Substance Use Among Youth [Website]** and watch **Risk factors for drug use and drug abuse [Streaming Video]**.

Social Media Influences

We have discussed mental health disorders and various factors, such as bullying, low self-esteem, and parenting styles, that can affect adolescents' mental health. We will now look at another critical factor in mental health during adolescence—the influence of social media.

While social media platforms can have positive influences on mental health, such as building social networks and getting emotional support from those networks, social media has been found to have significant negative mental health impacts on adolescents. The negative influences of social media include disrupting sleep, distraction from important tasks, spreading of rumors, peer pressure, and unrealistic views of others (Mayo Clinic, 2022). Feelings of low self-worth in adolescence due to unrealistic social comparisons and higher rates of anxiety and depression have also been associated with the use of social media (Nesi et al., 2015).

The negative impact on adolescent mental health has been associated with the amount of time spent on social media. A study of 12-to-15-year-olds in the United States found that adolescents who were on social media for more than three hours a day were at an increased risk for mental health issues (Riehm et al. 2019).

For information on adolescents' use of social media, including specific social media platforms and the amount of time spent on those platforms, please visit this link: **Pew Research Center: Teens, Social Media, and Technology 2022 [Website]**.

For more information regarding the association between social media and mental health problems in adolescence, please watch **Why social media is toxic for teen mental health [Streaming Video]**.

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14.7 Conclusion

In conclusion, the adolescent years are a crucial period of **social and emotional development**, marked by significant changes and challenges as young people transition from childhood to adulthood. During this time, adolescents experience a range of emotions and begin to develop their sense of self-identity. They form new relationships, experiment with new behaviors, and explore their place in the world. This chapter has highlighted the importance of understanding the social and emotional development of adolescents, as it has implications for their overall well-being and success in life. By recognizing the unique needs and challenges of this developmental stage, parents, educators, and other caring adults can better support and guide young people as they navigate this critical period of growth and change. Ultimately, by fostering positive social and emotional development, we can help adolescents thrive and reach their full potential.

Review of Learning Objectives

1. Identify the stages of adolescent social, emotional, and **moral development**.
2. Examine the complex nature of identity development in adolescence.
3. Analyze the impact of caregivers, peers, and environmental influences on adolescent development.

Review of Key Terms

- **Actual self:** who someone perceives themselves to be currently.
- **Possible self:** who someone perceives they can potentially be.
- **Ideal self:** the person that someone wishes to be.
- **Feared self:** the person that someone is afraid of becoming.
- **Cognitive distortions:** patterns of inaccurate negative thinking, such as personalization, overgeneralization, and catastrophizing.
- **Self-concept:** the perception of self, such as one's traits, values, and beliefs.
- **Self-esteem:** how much a person values themselves.
- **Deviant peer contagion:** the process by which peers reinforce problem behavior by laughing or showing other signs of approval that then increase the likelihood of future problem behavior.

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14.8 References

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Glossary

Adaptive development
a process by which children learn skills and behaviors that allow them to engage in developmentally appropriate self-care and life tasks.

Cognitive development
a process by which children acquire and process information and then learn how to use it in their environment.

Developmental domain
a broad area of development that encompasses a range of skills and abilities.

Developmental justice
the belief that children are deserving of respect, equal rights, and access to optimal conditions needed to thrive in their lives.

Developmental milestones
skills and behaviors used to evaluate age-related progress within a given domain.

Equity
an ideal aimed to achieve fairness and justice by providing the conditions needed for people to thrive in their environments.

Gender identity development
the construction of one's understanding of their gender.

Human development
the study of how humans change and grow over their lifespan.

Intersectionality
the interconnected relationship between systemic privilege and oppression, social identities, and the impact on one's experiences in society.

Language development
a process by which children acquire and process language and learn how to use it to communicate with others.

Moral development
a process by which children process their understanding of right and wrong as related to their social and environmental contexts.

Oppression
a form of systemic injustice based on social identity resulting in social disadvantages and barriers to individuals and groups.

Physical development
a process in which children's brains and bodies grow to help them engage with and thrive in their environment.

Privilege
advantage and opportunity based on social identity which can be earned or unearned.

Sexual development
a biological and physiological process by which children develop awareness of their bodies leading to sexual maturation, sexual identity, and awareness of oneself as a sexual being.

Social and emotional development
a process by which children gain understanding of themselves, their emotions, and the connections between themselves and others.

Social construction
is a concept or idea that is assigned a specific meaning or value in a society.

Social determinants
the physical and social circumstances, shaped by larger societal forces, which can substantially influence individual and group outcomes.

Social determinants of health
are the conditions in the places where people live, learn, work, and play that affect a wide range of health risks and outcomes.

Social justice
the belief that all people are deserving of equal rights, protections, and opportunities in society.

Systemic inequalities
biases and practices embedded within systems of society that lead to advantages for some groups in society and disadvantages for others.

Self-Check Questions

Questions

Chapter 1: Understanding Human Development

1. Which of the following statements describes developmental justice? Select all that apply.
    1. It encourages the harsh and punitive ways children have been treated historically.
    2. The belief that children deserve respect, equal rights, and access to the optimal conditions they need to thrive.
    3. It incorporates the ideal of equity and the beliefs that underlie social justice work.
    4. The belief that it is good to separate a child's development from the larger forces surrounding them.
2. What is the benefit of reading case studies about Dyani, Anthony, Gabriela, and Jesse? Select all that apply.
    1. To show how humans change and grow over their lifespan.
    2. To show how the unequal distribution of power and opportunity creates things like poverty and racism.
    3. To show that human development is simple and straightforward.
    4. To show that human development is the same for all people.
3. Why do researchers study domains of development? Select all that apply.
    1. Domains help to organize and explain periods of growth.
    2. Development in one domain may significantly shape the development of another.
    3. Major domains like cognitive, language, physical, social, and emotional development help to explain important events and experiences.
    4. Domains are typically age-driven.
4. Social determinants don't influence the development of children and adults throughout their lifespan.
    1. True
    2. False

Chapter 2: Theory and Research in Child Development

1. Why are theories important to the study of human development? Select all that apply.
    1. Theories can't be outdated or changed over time.
    2. Theories predict behavior and when it will emerge.
    3. Theories organize information to explain ideas, observations, and findings.
    4. They help researchers to answer questions and make sense of the world.

2. What methods are associated with Qualitative research?
    1. Using non-numerical data to explain big concepts.
    2. Collecting observations, case studies, or interviews.
    3. Gathering statistical information that can be analyzed objectively.
    4. Asking and answering "why" and "how" questions.
3. Which statements accurately describe a developmental theory? Select all that apply.
    1. Bronfenbrenner's theory focuses on the individual alone rather than the interactions between an individual and multiple systems.
    2. In Vygotsky's sociocultural theory, each person holds a set of potential abilities that can be realized if given proper guidance.
    3. Bandura's social learning theory emphasizes a child's sense of self-efficacy or the belief in their ability to accomplish tasks and goals.
    4. Kohlberg's Stages of Moral Development is based only on male subjects because he believed only males could achieve higher levels of moral development.
4. What are some important criticisms of Maslow's theory on human motivation? Select all that apply.
    1. Maslow appropriated Blackfoot teachings without giving them credit.
    2. Self-actualization, or a person's ability to reach their full potential and desires, is not possible.
    3. Many cultures value the well-being of the community as well as the individual, so this theory may not apply.
    4. The hierarchy doesn't account for the impact of gender and the impact of an individualist versus collectivist worldview.

Chapter 3: Conception, Pregnancy, and Prenatal Development

1. Our genetic material is determined at conception, but the conditions after conception may alter how genes present.
    1. True
    2. False
2. Which statements accurately describe conception and prenatal development? Select all that apply.
    1. Dynamic and rapid changes occur during the germinal period, embryonic period, and fetal development period.
    2. About 20 percent of organisms fail during the embryonic period.
    3. Foundational development of the brain occurs during the fetal period.
    4. In a chemoattractant state, human eggs release chemicals to selectively attract sperm.
3. Poverty, unemployment, food insecurity, and housing instability can influence pregnancy outcomes and complications.
    1. True
    2. False
4. Why is Serena Williams' maternal health experience all too familiar to many Black women in the United States?

1. Black women often express that they are not listened to by health care providers.
2. The concerns, signs, and symptoms of Black women are often ignored in the healthcare system.
3. Wealth and status weren't enough to protect Serena Williams from racism in the healthcare system.
4. Social determinants were not a factor in Serena Williams' maternal health.

Chapter 4: Birth, the Newborn, and Postnatal Experiences

1. What happens in the third stage of labor? Select all that apply.
    1. The delivery of the placenta.
    2. Mothers, especially Black mothers, must be monitored closely due to the increased risk of maternal death.
    3. The baby crowns, followed by the delivery of shoulders and body.
    4. The cervix fully dilates.
2. What is the significance of la cuarentena in the postpartum period of Latina mothers? Select all that apply.
    1. The mother's only job during these 40 days is to take care of her baby and rest.
    2. All Latina mothers practice la cuarentena.
    3. Many women pick and choose aspects of this practice that fit their lifestyle.
    4. Latina mothers living in the United States who observe la cuarentena face cultural conflicts with postpartum medical care.
3. Postpartum sleep deprivation has been linked to an increased risk of depression.
    1. True
    2. False
4. Zuo yue zi, or "sitting the month," emphasizes short-term health benefits in Chinese medicine.
    1. True
    2. False

Chapter 5: Cognitive, Language, and Physical Development in Infancy and Toddlerhood

1. How can caregivers promote healthy sexual development for infants and toddlers? Select all that apply.
    1. Use the appropriate names for body parts, as this helps reduce the stigma around sexuality.
    2. Begin to have conversations about safety, sanitary practices, and privacy.
    3. Be aware of their own attitudes and beliefs around sexuality.
    4. Project negative messages about sexual organs onto children.
2. Which communication milestone is associated with the accurate age range? Select all that apply.
    1. Babies begin to coo almost immediately.

2. At 24 months, babies begin to babble, engaging in vocalizations with a consonant-vowel repeated sequence, such as "ma-ma-ma" or "da-da-da."
3. Children at 5 or 6 months use their first words and holophrastic speech or partial one-word expressions.
4. Toddlers engage in telegraphic speech, using only parts of speech that are necessary, like "baby bye-bye."

3. Every experience newborns encounter, such as cuddling with a caregiver, listening to conversations, or tasting new foods, provides an opportunity to learn.
    1. True
    2. False
4. Which of the following factors impact a child's physical development? Select all that apply.
    1. Genetic and heritable traits.
    2. Environmental factors, such as toxins or teratogens.
    3. Access to healthy and consistent nutrition.
    4. Interactions with primary caregivers.

Chapter 6: Social, Emotional, Adaptive, and Identity Development in Infancy and Toddlerhood

1. What is a major social and emotional development difference between an infant at 9 months compared to an infant at 18 months?
    1. A 9-month-old may act shy, clingy, or fearful around strangers, while an 18-month-old will move away from a caregiver.
    2. A 9-month-old will help you dress them by pushing their arm through a sleeve, while an 18-month-old will look at a few pages in a book with you.
    3. A 9-month-old will display different facial expressions, such as happy, sad, angry, and surprised, while an 18-month-old will look at your face to see how to react in a new situation.
    4. A 9-month-old will look when you call their name, while an 18-month-old will notice when others are hurt or upset, such as by pausing or looking sad when someone is crying.
2. Some children will attain skills like eating, toileting, and dressing faster than others, and this is cause for concern.
    1. True
    2. False
3. Which of the following are accurate descriptions of play for young children, according to psychologist Peter Gray? Select all that apply.
    1. Play is something chosen and directed by an adult.
    2. The child determines the content, structure, and rules of play.
    3. To play is to express freedom. Children can stop playing at any time without worry or stress.
    4. Play has no boundaries, which means that it can follow rules different from those found in real life.
4. What is the relationship between physical touch and brain development in infants and toddlers?

1. Skin-to-skin contact, holding, and available facial cues result in beneficial, permanent brain changes.
2. Children who weren't held, rocked, or sang to tend to have a lower volume of neurons and nerve fibers.
3. The absence of physical touch leads to normal cognitive, language, and motor development, as well as normal personality development.
4. Physical touch for infants has no relationship to executive functioning and social functioning.

Chapter 7: Preschool Cognitive and Language Development

1. What are some of the impacts of multilingual learning on preschool development?
    1. Children experience negative impacts on brain development, such as decreased activity of executive functions.
    2. Being able to communicate with family members who can only speak one language is vital to strengthening family bonds and retaining cultural heritage.
    3. Early exposure results in faster language acquisition, as well as the ability to sound like a native speaker.
    4. Bilingual learning can undermine parental efforts to retain the home language.
2. Preschoolers become increasingly independent and no longer need positive interactions from the adults in their lives.
    1. True
    2. False
3. Which of the following is an example of overregulation?
    1. A child's belief in Santa Claus.
    2. An increase in children asking "Why?" and "How come?"
    3. Self-directed speech.
    4. A child may form a sentence such as "I goed there. I doed that."
4. All adaptations are necessarily good for the developing child.
    1. True
    2. False

Chapter 8: Social, Emotional, Adaptive, and Identity Development in Preschoolers

1. Which milestones in social and emotional development demonstrate a preschooler's growing understanding of social roles and relationships? Select all that apply.
    1. Comfort others who are hurt or sad.
    2. Ask to play with other children.
    3. Start to think about the future.
    4. Change behavior based on where they are.

2. Based on the developmental milestones, which of the following would most likely help a preschooler in the 4–5 year range build stronger independence? Select all that apply.
    1. Actively participating in self-care tasks.
    2. Comforting a friend who is sad.
    3. Following multi-step directions and routines.
    4. Showing more independence from parents and family.
3. What are the key benefits of play for preschool-aged children? Select all that apply.
    1. Play contributes to brain development, lifelong health, and resilience.
    2. Cooperative play helps preschoolers develop social and communication skills by working together toward a shared goal.
    3. Onlooker play is a primary way that preschoolers form friendships and deepen social bonds with others.
    4. Constructive play allows children to use objects purposefully, helping them build skills through creating structures or drawings.
4. How can caregivers and educators foster a preschooler's independence while supporting their growing sense of self? Select all that apply.
    1. By offering assistance when needed but encouraging independence in self-care tasks.
    2. By modeling behaviors and providing opportunities for the child to practice skills in real-world settings.
    3. Early interactions that emphasize equity, inclusion, and positive reinforcement are, therefore, essential to support all children's sense of belonging and resilience.
    4. By strictly controlling the child's interactions with peers to ensure safety.
5. How can adverse childhood experiences (ACEs) and negative caregiving environments negatively impact a preschooler's social, emotional, and identity development? Select all that apply.
    1. By fostering toxic stress that disrupts the development of healthy social relationships.
    2. By causing long-term cognitive and emotional challenges that affect the child's sense of self-worth.
    3. By encouraging preschoolers to develop an early sense of independence through positive reinforcement.
    4. By influencing the child's ability to regulate emotions, leading to difficulties in social interactions.

Chapter 9: Middle Childhood Physical Development

1. Weight gain is normal and necessary during middle childhood. While healthcare professionals often use Body Mass Index (BMI) to assess healthy weight, there are criticisms of relying solely on BMI. Which of the following highlights potential issues with relying solely on BMI? Select all that apply.
    1. BMI fails to differentiate between body composition and the distribution of body fat.
    2. It may not provide an accurate assessment of health risks or body composition for people from diverse ethnic or racial backgrounds.
    3. BMI overlooks variations related to age and biological sex.

2. Physical education (PE) and organized sports are crucial for promoting children's overall development. However, disparities in access can limit these benefits. Which strategies can help address these disparities and promote inclusivity in youth sports? Select all that apply.
    1. Prioritizing highly competitive sports leagues to enhance children's competitive skills at an early age.
    2. Implementing financial assistance programs to reduce participation costs for children from low-income families.
    3. Building community partnerships to expand access to sports programs and facilities in underserved areas.
    4. Developing policies that promote diversity and inclusion across all levels of youth sports.
3. Emotional trauma can have profound effects on brain development and executive function, impacting various aspects of cognitive and emotional regulation. Which of the following are potential effects of trauma on executive function? Select all that apply.
    1. Impaired attention and difficulty focusing on tasks due to heightened sensitivity to potential threats.
    2. Enhanced impulse control that helps individuals respond more effectively to stressors.
    3. Emotional dysregulation leading to difficulty controlling emotional responses and maintaining clear thinking.
    4. General executive dysfunction affecting planning, organization, and the ability to execute complex tasks.
4. Sex education is essential for teaching young people about sexual health, relationships, and decision-making. Various approaches are used to address this need. Which of the following statements accurately reflects the characteristics or benefits of comprehensive and inclusive sex education approaches? Select all that apply.
    1. Peer-led sex education can increase engagement and participation by making the learning environment more relatable and comfortable for young people.
    2. Abstinence-only sex education provides comprehensive information on contraception and STI prevention, equipping students to make informed choices.
    3. Sex-positive education aims to empower children by promoting body positivity, teaching about consent and boundaries, and reducing stigma related to sexuality.
    4. Comprehensive sex education includes information about abstinence, contraception, and STIs, preparing young people with the skills and knowledge to make responsible decisions.
5. Access to safe recreational spaces and resources plays an important role in the physical development of children. However, inequities can limit these benefits in certain communities. Which factors contribute to inequities in these opportunities? Select all that apply.
    1. Low-income and minority neighborhoods often lack investment in cycling infrastructure, such as bike lanes, making it less safe for children to ride bikes.
    2. Community pools are often concentrated in more affluent areas, leaving those in low-income neighborhoods with limited or no access to nearby facilities.
    3. Access to healthy food is usually available in all neighborhoods and is not a significant equity issue.

4. Providing financial assistance, community outreach, and inclusive programming can help bridge gaps in access to safe recreational activities.

Chapter 10: Middle Childhood Cognitive and Language Development

1. Middle childhood is a significant period for cognitive development, with various theories explaining how children learn and grow during this stage. Which of the following statements accurately illustrate key cognitive development theories? Select all that apply.
    1. Piaget's theory, with its concrete operational stage, focuses on logical thinking, classification, and conservation but is often criticized for not considering cultural influences on cognitive development.
    2. Vygotsky's sociocultural theory emphasizes the role of social interaction and cultural context in learning, highlighting the importance of guided participation and scaffolding from more experienced individuals.
    3. Bandura's social learning theory suggests that children learn solely through direct instruction and personal experiences, without influence from observing others' behaviors.
2. Cognitive skills continue to expand in middle and late childhood. Which of the following statements accurately reflect aspects of cognitive development during this period? Select all that apply.
    1. Executive function skills, such as impulse control and attention management, continue developing but require support from adults to foster growth.
    2. Children in middle childhood typically have fully developed self-awareness and no longer need adult guidance.
    3. Emotional regulation involves the prefrontal cortex and other brain areas and can be nurtured through positive coping strategies modeled by adults.
    4. Working memory capacity improves during this stage, aided by techniques such as breaking complex tasks into smaller, manageable parts.
3. Which of the following statements accurately describes the role of language in cognitive and social development during middle childhood? Select all that apply.
    1. Language facilitates the ability to classify objects in multiple ways.
    2. Vocabulary growth in middle childhood is slower than in early childhood.
    3. Complex language structures enable children to comprehend and tell jokes with wordplay.
    4. Language helps in drawing conclusions and setting goals.
4. According to the ecological systems model and related concepts, which of the following highlight considerations and impacts on a child's school experience? Select all that apply.
    1. Parental involvement has an equal impact on all children's school experiences, regardless of social class or background.
    2. A child may mirror stereotypes from parents and teachers, such as boys being better at math and girls being better at reading despite the child's actual abilities.
    3. Cultural differences, such as expectations around eye contact and communication styles, can affect a child's assimilation into the classroom environment.

4. Black students face disciplinary measures, such as out-of-school suspensions, at a higher rate than their white peers.

5. The "bandwidth tax" and trauma are major stressors that can negatively impact information processing abilities. Which of the following abilities can be impacted by these stressors? Select all that apply.

    1. Ability to pay attention
    2. Ability to make decisions
    3. Ability to fight, flee, or freeze
    4. Ability to plan

Chapter 11: Social and Emotional Development in Middle Childhood

1. Which of the following are part of the social and emotional development in middle childhood? Select all that apply.

    1. Self-concept remains static and is not influenced by social comparisons or feedback from others.
    2. Perspective-taking abilities, which foster empathy and compassion for others, are enhanced.
    3. Solving complex social problems and negotiating conflicts with peers improves.
    4. Understanding abstract concepts such as fairness and equality contributes to the development of a child's social responsibility and positive social identity.

2. Which of the following statements best compare and contrast theories of moral development? Select all that apply.

    1. Piaget's theory emphasizes cognitive development and the understanding of rules, while Kohlberg's theory focuses on moral reasoning and internalized moral principles through distinct stages.
    2. Kohlberg's theory acknowledges cultural variations in moral development and recognizes the influence of societal factors, while Piaget's theory places minimal emphasis on cultural factors.
    3. Gilligan's approach advocates for the inclusion of diverse moral voices and contextual understanding, expanding moral psychology beyond traditional male-centered perspectives.
    4. Both Piaget's and Kohlberg's theories propose that moral development is closely tied to cognitive development and understanding of rules.

3. How can parents, caregivers, and educators help support healthy gender identity development? Select all that apply.

    1. Help children recognize gender as a social construct, which allows us to critically examine rigid gender norms and promote inclusivity and gender equality.
    2. Increase awareness of gender roles, stereotypes, and biological differences between the sexes.
    3. Promote that gender is biologically determined and universally fixed, with the same roles and expectations applying across different cultures.
    4. Provide a safe and accepting environment that encourages exploration, questions, and discussions around gender.

4. Gender expression and sexual orientation are distinct aspects of human identity.

    1. True

2. False

5. Which of the following statements accurately reflect the effects of childhood trauma? Select all that apply.
    1. Childhood trauma, such as physical abuse and neglect, only impacts a child's emotional well-being and has little effect on cognitive or academic performance.
    2. Witnessing domestic violence poses significant risks to child development, often resulting in chronic stress, impaired social skills, and potential academic difficulties.
    3. Emotional abuse and neglect can lead to difficulties in forming secure attachments, trust issues, and challenges in recognizing and understanding emotions.

Chapter 12: Adolescent Physical and Sexual Development

1. Which of the following statements accurately describe the physical, brain, and sleep-related changes during adolescence? Select all that apply.
    1. Brain development continues into the early 20s, with the prefrontal cortex maturing later than the limbic system, leading to potential risk-taking behaviors.
    2. The adolescent growth spurt results in proportional body growth, with all body parts growing at the same rate.
    3. Dopamine and oxytocin contribute to adolescents' heightened responses to social interactions and novelty-seeking behaviors.
    4. Circadian rhythms change in puberty, keeping adolescents awake at night and making it difficult for them to get up in the morning.
2. Which of the following describes hormonal and physical changes during puberty? Select all that apply.
    1. Environmental factors, such as nutrition and stress, can influence the timing and progression of puberty in individuals.
    2. Testosterone and estrogen are exclusive to males and females, respectively, with no overlap between the sexes.
    3. Puberty begins with a growth spurt in males and females, although it typically starts earlier in females than in males.
    4. Hormonal changes, including the release of LH and FSH, lead to the development of secondary sexual characteristics during puberty.
3. What are the potential outcomes of sexual activity during adolescence? Select all that apply.
    1. An increased risk of contracting STIs due to factors such as inconsistent condom use and lack of comprehensive sex education.
    2. Teen mothers are more likely to live in poverty, and more than 75% of all unmarried teen mothers receive public assistance within 5 years of the birth of their first child.
    3. Children born to teenage mothers have similar academic outcomes to children born in economically stable households.
    4. Significant long-term health consequences due to contracting sexually transmitted infections (STIs) during adolescence.

4. Which statements are true regarding adolescents' risk of contracting communicable diseases? Select all that apply.
    1. Risk-taking behaviors, such as unprotected sex and substance use, elevate adolescents' susceptibility to communicable diseases, including STIs and hepatitis.
    2. Engaging in activities such as sharing food and drinks which can lead to the transmission of diseases.
    3. Adolescents have the same susceptibility to infections as other populations.
5. Financial barriers, geographical disparities, and language and cultural barriers can negatively affect adolescents' access to driver's safety courses.
    1. True
    2. False

Chapter 13: Adolescent Cognitive Development

1. Which of the following describes aspects of executive function and cognitive development in adolescence? Select all that apply.
    1. Improvements in metacognition during adolescence allow students to plan ahead and evaluate the potential consequences of their actions.
    2. Pruning in the brain helps improve cognitive efficiency by removing unused neurons and strengthening frequently used connections.
    3. Adolescents struggle more with tasks requiring self-regulation under high stress or emotional conditions due to the later development of the hot EF system.
    4. Memory improvements during adolescence primarily involve the ability to recall short-term details rather than strengthening long-term memory.
2. Piaget's and Vygotsky's theories provide building blocks for research on cognitive development and neuroscience today; however, both have gaps and limitations.
    1. True
    2. False
3. Which statements describe aspects of critical thinking in adolescence? Select all that apply.
    1. Adolescents are more likely to rely on analytic thought than intuitive thought due to their developing prefrontal cortex.
    2. Critical thinking in adolescents involves evaluating evidence and synthesizing information to communicate ideas clearly.
    3. Relativistic thinking allows adolescents to recognize that some truths are context-dependent and question authority.
    4. Adolescents' increased dopamine activity contributes to sensation-seeking behaviors despite incomplete prefrontal cortex development.
4. Which of the following statements is NOT an obstacle to high school completion?
    1. Experiencing neglect or abuse.
    2. Residing in foster care.

3. Being confined to a juvenile detention facility.
4. Being female.

5. Which of the following statements illustrate issues that may lead to problematic adolescent adjustment and poor academic outcomes? Select all that apply.

    1. Early onset puberty in boys.
    2. Having friends who are unmotivated, disengaged, and low-achieving.
    3. Parenting which includes manipulation and intrusion.
    4. Identifying with sexualized gender stereotypes.

Chapter 14: Adolescent Social-Emotional Development

1. Adolescents develop the cognitive ability to think of abstract possible selves. Which statements accurately describe the different possible selves? Select all that apply.

    1. The ideal self is the version of oneself an adolescent wishes to become.
    2. The feared self is the version of oneself an adolescent is afraid of becoming.
    3. Possible selves reflect an adolescent's ability to think abstractly about their future.
    4. Having a large difference between one's ideal self and the perceived actual self leads to a positive self-concept.

2. Cognitive distortions are patterns of inaccurate negative thinking that lower self-esteem. Which of the following are examples of such distortions? Select all that apply.

    1. My friend was quiet today, so they must not like me anymore.
    2. I burnt the cake, and now the party is ruined!
    3. If they break up with me, I will be alone for the rest of my life!

3. Peer friendships are crucial for personal development and can influence behaviors positively and negatively. Which factors influence peer relationships? Select all that apply.

    1. Close, reciprocal friendships increase the influence peers have on behavior.
    2. Positive peer relationships enhance psychological well-being and academic performance.
    3. Negative peer interactions always result in riskier behaviors.
    4. Peer groups serve as role models and provide social settings that encourage certain behaviors.

4. Cognitive distortions are patterns of inaccurate negative thinking that lower self-esteem. Which of the following are examples of such distortions? Select all that apply.

    1. Kohlberg's stage model may oversimplify moral development by not accounting for situational differences in reasoning.
    2. Kohlberg's theory may describe the moral development of boys better than girls, as it emphasizes justice and rights over caring and relationships.
    3. The model captures moral development across all cultures by emphasizing universal principles.
    4. There is little correlation between a person's moral stage and their actual behavior in real-life situations.

5. LGBTQ youth have similar wellness and mental health outcomes as students identifying as heterosexual adolescents.

1. True
2. False

Answer Key

Chapter 1: Understanding Human Development

1. Which of the following statements describes developmental justice? Select all that apply.
    1. It encourages the harsh and punitive ways children have been treated historically.
    2. The belief that children deserve respect, equal rights, and access to the optimal conditions they need to thrive. (correct)
    3. It incorporates the ideal of equity and the beliefs that underlie social justice work. (correct)
    4. The belief that it is good to separate a child's development from the larger forces surrounding them.
    5. Answer feedback: The authors in this book believe that children deserve respect, equal rights, and access to the optimal conditions they need to thrive. This means they study the biases embedded within systems that advantage some groups and disadvantage others.
2. What is the benefit of reading case studies about Dyani, Anthony, Gabriela, and Jesse? Select all that apply.
    1. To show how humans change and grow over their lifespan. (correct)
    2. To show how the unequal distribution of power and opportunity creates things like poverty and racism. (correct)
    3. To show that human development is simple and straightforward.
    4. To show that human development is the same for all people.
    5. Answer feedback: Children do not grow up in a bubble but are instead influenced by what is happening in the world. Case studies help to highlight how big issues influence parenting and children.
3. Why do researchers study domains of development? Select all that apply.
    1. Domains help to organize and explain periods of growth. (correct)
    2. Development in one domain may significantly shape the development of another. (correct)
    3. Major domains like cognitive, language, physical, social, and emotional development help to explain important events and experiences. (correct)
    4. Domains are typically age-driven.
    5. Answer feedback: Domains help researchers study categories of development. Each encompasses a range of skills and abilities. In contrast, developmental milestones are typically age-driven and change with age-related expectations.
4. Social determinants don't influence the development of children and adults throughout their lifespan.
    1. True
    2. False (correct)
    3. Answer feedback: A person's physical and social circumstances can substantially influence the

development of children and adults throughout their lifespan. Examples include access to quality education and the level of financial stability present in one's life.

Chapter 2: Theory and Research in Child Development

1. Why are theories important to the study of human development? Select all that apply.
    1. Theories can't be outdated or changed over time.
    2. Theories predict behavior and when it will emerge. (correct)
    3. Theories organize information to explain ideas, observations, and findings. (correct)
    4. They help researchers to answer questions and make sense of the world. (correct)
    5. Answer feedback: A theory is an explanation of behaviors or actions based on research data. By updating their knowledge with new data, researchers can recognize outdated ideas and form better theories to explain human development.
2. What methods are associated with Qualitative research?
    1. Using non-numerical data to explain big concepts. (correct)
    2. Collecting observations, case studies, or interviews. (correct)
    3. Gathering statistical information that can be analyzed objectively.
    4. Asking and answering "why" and "how" questions. (correct)
    5. Answer feedback: Empirical research can be qualitative or quantitative. Each method offers different ways to understand information. Quantitative research collects numerical data, while Qualitative research focuses on non-numerical data.
3. Which statements accurately describe a developmental theory? Select all that apply.
    1. Bronfenbrenner's theory focuses on the individual alone rather than the interactions between an individual and multiple systems.
    2. In Vygotsky's sociocultural theory, each person holds a set of potential abilities that can be realized if given proper guidance. (correct)
    3. Bandura's social learning theory emphasizes a child's sense of self-efficacy or the belief in their ability to accomplish tasks and goals. (correct)
    4. Kohlberg's Stages of Moral Development is based only on male subjects because he believed only males could achieve higher levels of moral development. (correct)
    5. Answer feedback: Bronfenbrenner's ecological systems model challenges us to go beyond the individual if we want to understand human development and promote improvements. These theories help us ground our ideas and hypotheses about why people do what they do.
4. What are some important criticisms of Maslow's theory on human motivation? Select all that apply.
    1. Maslow appropriated Blackfoot teachings without giving them credit. (correct)
    2. Self-actualization, or a person's ability to reach their full potential and desires, is not possible.
    3. Many cultures value the well-being of the community as well as the individual, so this theory may not apply. (correct)
    4. The hierarchy doesn't account for the impact of gender and the impact of an individualist versus collectivist worldview. (correct)
    5. Answer feedback: Blackfoot scholars Narcisse Blood and Ryan Heavy Head studied Blackfoot

influence on Maslow. They concluded that the norm of self-actualization among the Blackfoot people led Maslow to a deeper understanding of human motivation.

Chapter 3: Conception, Pregnancy, and Prenatal Development

1. Our genetic material is determined at conception, but the conditions after conception may alter how genes present.
    1. True (correct)
    2. False
    3. Answer feedback: Even though there is no actual DNA change, environmental conditions may prompt some genes to be switched on or others to be switched off. The genetic potential is reacting to the environment.
2. Which statements accurately describe conception and prenatal development? Select all that apply.
    1. Dynamic and rapid changes occur during the germinal period, embryonic period, and fetal development period. (correct)
    2. About 20 percent of organisms fail during the embryonic period. (correct)
    3. Foundational development of the brain occurs during the fetal period. (correct)
    4. In a chemoattractant state, human eggs release chemicals to selectively attract sperm. (correct)
    5. Answer feedback: Conception and Prenatal Development is a time-consuming process and requires a considerable amount of energy from the mother. Human development in these stages is complex and sensitive to genetic and environmental factors.
3. Poverty, unemployment, food insecurity, and housing instability can influence pregnancy outcomes and complications.
    1. True (correct)
    2. False
    3. Answer feedback: There is a significant disparity in pregnancy outcomes in the United States based on race and ethnicity. People of color have higher rates of unemployment and poverty, which impacts the developing child and maternal health.
4. Why is Serena Williams' maternal health experience all too familiar to many Black women in the United States?
    1. Black women often express that they are not listened to by health care providers (correct)
    2. The concerns, signs, and symptoms of Black women are often ignored in the healthcare system. (correct)
    3. Wealth and status weren't enough to protect Serena Williams from racism in the healthcare system. (correct)
    4. Social determinants were not a factor in Serena Williams' maternal health.
    5. Answer feedback: Racial disparities in the U.S. especially impact Black and Native women and their newborns. Postpartum care is essential for identifying potentially serious and life-threatening complications post-birth and weeks after.

Chapter 4: Birth, the Newborn, and Postnatal Experiences

1. What happens in the third stage of labor? Select all that apply.
    1. The delivery of the placenta. (correct)
    2. Mothers, especially Black mothers, must be monitored closely due to the increased risk of maternal death. (correct)
    3. The baby crowns, followed by the delivery of shoulders and body.
    4. The cervix fully dilates.
    5. Answer feedback: The stages of childbirth generally occur in a consistent order. The final stage happens after the baby is born. This stage requires careful monitoring, especially when the mother is a person of color and underserved by the healthcare system.
2. What is the significance of la cuarentena in the postpartum period of Latina mothers? Select all that apply.
    1. The mother's only job during these 40 days is to take care of her baby and rest. (correct)
    2. All Latina mothers practice la cuarentena.
    3. Many women pick and choose aspects of this practice that fit their lifestyle. (correct)
    4. Latina mothers living in the United States who observe la cuarentena face cultural conflicts with postpartum medical care. (correct)
    5. Answer feedback: Latina mothers may practice la cuarentena to promote bonding and to rest and recover from childbirth. Some women may hide their traditions from medical providers because their beliefs may be trivialized due to lack of awareness.
3. Postpartum sleep deprivation has been linked to an increased risk of depression.
    1. True (correct)
    2. False
    3. Answer feedback: Changes in hormone levels, newborn needs, and attending to one's own needs contribute to sleep deprivation. Research shows that social support can provide a buffer against postpartum depression.
4. Zuo yue zi, or "sitting the month," emphasizes short-term health benefits in Chinese medicine.
    1. True
    2. False (correct)
    3. Answer feedback:It is expected that mothers who engage in "sitting the month" will not only reset their bodies in the short-term, but also achieve long-term health benefits as a result.

Chapter 5: Cognitive, Language, and Physical Development in Infancy and Toddlerhood

1. How can caregivers promote healthy sexual development for infants and toddlers? Select all that apply.
    1. Use the appropriate names for body parts, as this helps reduce the stigma around sexuality. (correct)
    2. Begin to have conversations about safety, sanitary practices, and privacy. (correct)

3. Be aware of their own attitudes and beliefs around sexuality. (correct)
4. Project negative messages about sexual organs onto children.
5. Answer feedback: Caregivers can support the positive acceptance of one's genitals, the ability to share feelings, and healthy decision-making about sexual actions. Their attitudes can normalize both giving and asking for consent in the future during sexual encounters.

2. Which communication milestone is associated with the accurate age range? Select all that apply.
    1. Babies begin to coo almost immediately. (correct)
    2. At 24 months, babies begin to babble, engaging in vocalizations with a consonant-vowel repeated sequence, such as "ma-ma-ma" or "da-da-da."
    3. Children at 5 or 6 months use their first words and holophrastic speech or partial one-word expressions.
    4. Toddlers engage in telegraphic speech, using only parts of speech that are necessary, like "baby bye-bye." (correct)
    5. Answer feedback: Starting at about 7 months, children babble to explore the social function of language. Children who are exposed to sign language babble in sign by making hand movements that represent real language. The first words happen at 12 months.
3. Every experience newborns encounter, such as cuddling with a caregiver, listening to conversations, or tasting new foods, provides an opportunity to learn.
    1. True (correct)
    2. False
    3. Answer feedback: Newborns use both inherited information and environmental information to form thoughts, beliefs, and understanding. Young children's cognitive development relies heavily on interactions with caregivers and experiences in the first 3 years of life.
4. Which of the following factors impact a child's physical development? Select all that apply.
    1. Genetic and heritable traits. (correct)
    2. Environmental factors, such as toxins or teratogens. (correct)
    3. Access to healthy and consistent nutrition. (correct)
    4. Interactions with primary caregivers. (correct)
    5. Answer feedback: Physical development includes brain growth, skeletal growth, muscle development, coordination development, and development of gross and fine motor skills. Children grow very quickly and meet physical milestones rapidly in the first few years of life.

Chapter 6: Social, Emotional, Adaptive, and Identity Development in Infancy and Toddlerhood

1. What is a major social and emotional development difference between an infant at 9 months compared to an infant at 18 months?
    1. A 9-month-old may act shy, clingy, or fearful around strangers, while an 18-month-old will move away from a caregiver. (correct)
    2. A 9-month-old will help you dress them by pushing their arm through a sleeve, while an 18-month-old will look at a few pages in a book with you.

3. A 9-month-old will display different facial expressions, such as happy, sad, angry, and surprised, while an 18-month-old will look at your face to see how to react in a new situation.
4. A 9-month-old will look when you call their name, while an 18-month-old will notice when others are hurt or upset, such as by pausing or looking sad when someone is crying.
5. Answer feedback: Children begin learning social and emotional skills at birth. These skills eventually extend to others in their environments. Each child is unique and may develop these skills at different rates. See "Social and Emotional Milestones" for more.

2. Some children will attain skills like eating, toileting, and dressing faster than others, and this is cause for concern.
    1. True
    2. False (correct)
    3. Answer feedback: The formation of adaptive skills is highly dependent on the guidance of caregivers and individual experiences. It is completely normal for children to develop adaptive skills at different rates. All children are unique, and they adapt at their own pace.
3. Which of the following are accurate descriptions of play for young children, according to psychologist Peter Gray? Select all that apply.
    1. Play is something chosen and directed by an adult.
    2. The child determines the content, structure, and rules of play. (correct)
    3. To play is to express freedom. Children can stop playing at any time without worry or stress. (correct)
    4. Play has no boundaries, which means that it can follow rules different from those found in real life. (correct)
    5. Answer feedback:Play, Gray proposes, is evolution's way of helping children educate themselves. Gray states that depriving children of play has led to increases in depression, anxiety, and other stress-related issues, along with declines in social skills and creativity.
4. What is the relationship between physical touch and brain development in infants and toddlers?
    1. Skin-to-skin contact, holding, and available facial cues result in beneficial, permanent brain changes. (correct)
    2. Children who weren't held, rocked, or sang to tend to have a lower volume of neurons and nerve fibers. (correct)
    3. The absence of physical touch leads to normal cognitive, language, and motor development, as well as normal personality development.
    4. Physical touch for infants has no relationship to executive functioning and social functioning.
    5. Answer feedback: Caregivers need the ability and time to attend to their child's needs, especially when they are very young. Physical touch is crucial for healthy brain development and attachment.

Chapter 7: Preschool Cognitive and Language Development

1. What are some of the impacts of multilingual learning on preschool development?

    1. Children experience negative impacts on brain development, such as decreased activity of executive functions.
    2. Being able to communicate with family members who can only speak one language is vital to strengthening family bonds and retaining cultural heritage. (correct)
    3. Early exposure results in faster language acquisition, as well as the ability to sound like a native speaker. (correct)
    4. Bilingual learning can undermine parental efforts to retain the home language. (correct)
    5. Answer feedback: Children who learn in two or more languages increase executive functions by practicing working memory. Impacts differ by race, as immigrant children with similar or higher bilingualism levels to White children aren't viewed as favorably.
2. Preschoolers become increasingly independent and no longer need positive interactions from the adults in their lives.
    1. True
    2. False (correct)
    3. Answer feedback: In the early years, a child's brain development is dependent on interactions with caregivers. In preschool years, it is accelerated through a child's own play. However, meaningful child-adult engagement, such as reading or playing together, remains key.
3. Which of the following is an example of overregulation?
    1. A child's belief in Santa Claus.
    2. An increase in children asking "Why?" and "How come?"
    3. Self-directed speech.
    4. A child may form a sentence such as "I goed there. I doed that." (correct)
    5. Answer feedback: Overregulation, or misapplying grammar rules, shows increasing intelligence, while magical thinking is the belief in concepts that defy logic, asking "why" is an example of the intuitive thought substage, and private speech helps in problem-solving.
4. All adaptations are necessarily good for the developing child.
    1. True
    2. False (correct)
    3. Answer feedback: Some changes within the brain negatively impact cognitive functions. For example, a child exposed to constant threats will have faster activation of fight, flight, or freeze responses. This can lead to anxiety, depression, and stress in later life.

Chapter 8: Social, Emotional, Adaptive, and Identity Development in Preschoolers

1. Which milestones in social and emotional development demonstrate a preschooler's growing understanding of social roles and relationships? Select all that apply.
    1. Comfort others who are hurt or sad. (correct)
    2. Ask to play with other children. (correct)
    3. Start to think about the future.
    4. Change behavior based on where they are. (correct)

5. Answer feedback:"Start to think about the future" is more closely related to cognitive and self-awareness development rather than social and emotional relationships.

2. Based on the developmental milestones, which of the following would most likely help a preschooler in the 4–5 year range build stronger independence? Select all that apply.
    1. Actively participating in self-care tasks. (correct)
    2. Comforting a friend who is sad.
    3. Following multi-step directions and routines. (correct)
    4. Showing more independence from parents and family. (correct)
    5. Answer feedback: While comforting a friend who is sad reflects emotional development and empathy, it doesn't directly foster the independence necessary for daily functioning.
3. What are the key benefits of play for preschool-aged children? Select all that apply.
    1. Play contributes to brain development, lifelong health, and resilience. (correct)
    2. Cooperative play helps preschoolers develop social and communication skills by working together toward a shared goal. (correct)
    3. Onlooker play is a primary way that preschoolers form friendships and deepen social bonds with others.
    4. Constructive play allows children to use objects purposefully, helping them build skills through creating structures or drawings. (correct)
    5. Answer feedback: Onlooker play involves observing others, which helps them learn by watching but does not directly contribute to forming friendships or social bonds.
4. How can caregivers and educators foster a preschooler's independence while supporting their growing sense of self? Select all that apply.
    1. By offering assistance when needed but encouraging independence in self-care tasks. (correct)
    2. By modeling behaviors and providing opportunities for the child to practice skills in real-world settings. (correct)
    3. Early interactions that emphasize equity, inclusion, and positive reinforcement are, therefore, essential to support all children's sense of belonging and resilience. (correct)
    4. By strictly controlling the child's interactions with peers to ensure safety.
    5. Answer feedback:While ensuring safety is important, over-controlling interactions can limit a child's social development. Allowing preschoolers some freedom fosters essential social and emotional skills.
5. How can adverse childhood experiences (ACEs) and negative caregiving environments negatively impact a preschooler's social, emotional, and identity development? Select all that apply.
    1. By fostering toxic stress that disrupts the development of healthy social relationships. (correct)
    2. By causing long-term cognitive and emotional challenges that affect the child's sense of self-worth. (correct)
    3. By encouraging preschoolers to develop an early sense of independence through positive reinforcement.
    4. By influencing the child's ability to regulate emotions, leading to difficulties in social interactions. (correct)
    5. Answer feedback:Positive reinforcement and inclusive interactions promote belonging and resilience, positively impacting a child's social, emotional, and identity development.

Chapter 9: Middle Childhood Physical Development

1. Weight gain is normal and necessary during middle childhood. While healthcare professionals often use Body Mass Index (BMI) to assess healthy weight, there are criticisms of relying solely on BMI. Which of the following highlights potential issues with relying solely on BMI? Select all that apply.
    1. BMI fails to differentiate between body composition and the distribution of body fat. (correct)
    2. It may not provide an accurate assessment of health risks or body composition for people from diverse ethnic or racial backgrounds. (correct)
    3. BMI overlooks variations related to age and biological sex. (correct)
    4. Answer feedback: BMI was initially developed based on predominantly White, middle-class males. It does not account for differences in body composition (muscle versus fat) and can fall short in assessing individuals across various ethnicities, ages, and sexes accurately.
2. Physical education (PE) and organized sports are crucial for promoting children's overall development. However, disparities in access can limit these benefits. Which strategies can help address these disparities and promote inclusivity in youth sports? Select all that apply.
    1. Prioritizing highly competitive sports leagues to enhance children's competitive skills at an early age.
    2. Implementing financial assistance programs to reduce participation costs for children from low-income families. (correct)
    3. Building community partnerships to expand access to sports programs and facilities in underserved areas. (correct)
    4. Developing policies that promote diversity and inclusion across all levels of youth sports. (correct)
    5. Answer feedback:Focusing solely on competitive sports may increase pressure and reduce opportunities, further exacerbating existing disparities.
3. Emotional trauma can have profound effects on brain development and executive function, impacting various aspects of cognitive and emotional regulation. Which of the following are potential effects of trauma on executive function? Select all that apply.
    1. Impaired attention and difficulty focusing on tasks due to heightened sensitivity to potential threats. (correct)
    2. Enhanced impulse control that helps individuals respond more effectively to stressors.
    3. Emotional dysregulation leading to difficulty controlling emotional responses and maintaining clear thinking. (correct)
    4. General executive dysfunction affecting planning, organization, and the ability to execute complex tasks. (correct)
    5. Answer feedback: Trauma often reduces impulse control rather than enhancing it, underscoring the need for supportive interventions to promote resilience and recovery.
4. Sex education is essential for teaching young people about sexual health, relationships, and decision-making. Various approaches are used to address this need. Which of the following statements accurately reflects the characteristics or benefits of comprehensive and inclusive sex education approaches? Select all that apply.

1. Peer-led sex education can increase engagement and participation by making the learning environment more relatable and comfortable for young people. (correct)
2. Abstinence-only sex education provides comprehensive information on contraception and STI prevention, equipping students to make informed choices.
3. Sex-positive education aims to empower children by promoting body positivity, teaching about consent and boundaries, and reducing stigma related to sexuality. (correct)
4. Comprehensive sex education includes information about abstinence, contraception, and STIs, preparing young people with the skills and knowledge to make responsible decisions. (correct)
5. Answer feedback: Abstinence-only education typically lacks detailed information on contraception and STI prevention, which can limit informed decision-making.

5. Access to safe recreational spaces and resources plays an important role in the physical development of children. However, inequities can limit these benefits in certain communities. Which factors contribute to inequities in these opportunities? Select all that apply.
    1. Low-income and minority neighborhoods often lack investment in cycling infrastructure, such as bike lanes, making it less safe for children to ride bikes. (correct)
    2. Community pools are often concentrated in more affluent areas, leaving those in low-income neighborhoods with limited or no access to nearby facilities. (correct)
    3. Access to healthy food is usually available in all neighborhoods and is not a significant equity issue.
    4. Providing financial assistance, community outreach, and inclusive programming can help bridge gaps in access to safe recreational activities. (correct)
    5. Answer feedback: Inequities in access to healthy food, recreational facilities, and safety programs can disproportionately affect low-income and minority communities, limiting opportunities for physical development.

Chapter 10: Middle Childhood Cognitive and Language Development

1. Middle childhood is a significant period for cognitive development, with various theories explaining how children learn and grow during this stage. Which of the following statements accurately illustrate key cognitive development theories? Select all that apply.
    1. Piaget's theory, with its concrete operational stage, focuses on logical thinking, classification, and conservation but is often criticized for not considering cultural influences on cognitive development. (correct)
    2. Vygotsky's sociocultural theory emphasizes the role of social interaction and cultural context in learning, highlighting the importance of guided participation and scaffolding from more experienced individuals. (correct)
    3. Bandura's social learning theory suggests that children learn solely through direct instruction and personal experiences, without influence from observing others' behaviors.
    4. Answer feedback:Bandura emphasized the importance of observation and modeling in learning, challenging the idea that learning occurs only through direct experience.
2. Cognitive skills continue to expand in middle and late childhood. Which of the following statements accurately reflect aspects of cognitive development during this period? Select all that apply.

1. Executive function skills, such as impulse control and attention management, continue developing but require support from adults to foster growth. (correct)
2. Children in middle childhood typically have fully developed self-awareness and no longer need adult guidance.
3. Emotional regulation involves the prefrontal cortex and other brain areas and can be nurtured through positive coping strategies modeled by adults. (correct)
4. Working memory capacity improves during this stage, aided by techniques such as breaking complex tasks into smaller, manageable parts. (correct)
5. Answer feedback: Self-awareness is still developing at this stage, and children benefit from continued guidance to improve critical thinking and decision-making skills.

3. Which of the following statements accurately describes the role of language in cognitive and social development during middle childhood? Select all that apply.

    1. Language facilitates the ability to classify objects in multiple ways. (correct)
    2. Vocabulary growth in middle childhood is slower than in early childhood.
    3. Complex language structures enable children to comprehend and tell jokes with wordplay. (correct)
    4. Language helps in drawing conclusions and setting goals. (correct)
    5. Answer feedback: Vocabulary growth is faster during middle childhood than during any other developmental period, contrary to the statement suggesting a slower rate.

4. According to the ecological systems model and related concepts, which of the following highlight considerations and impacts on a child's school experience? Select all that apply.

    1. Parental involvement has an equal impact on all children's school experiences, regardless of social class or background.
    2. A child may mirror stereotypes from parents and teachers, such as boys being better at math and girls being better at reading despite the child's actual abilities. (correct)
    3. Cultural differences, such as expectations around eye contact and communication styles, can affect a child's assimilation into the classroom environment. (correct)
    4. Black students face disciplinary measures, such as out-of-school suspensions, at a higher rate than their white peers. (correct)
    5. Answer feedback: Teachers may respond most positively to support, praise, and agreement from parents whose race or social class aligns with their own, which can impact parent-teacher relationships and children's experiences in school.

5. The "bandwidth tax" and trauma are major stressors that can negatively impact information processing abilities. Which of the following abilities can be impacted by these stressors? Select all that apply.

    1. Ability to pay attention (correct)
    2. Ability to make decisions (correct)
    3. Ability to fight, flee, or freeze
    4. Ability to plan (correct)
    5. Answer feedback:Fight, flee, or freeze is a primitive stress response triggered by the stress hormone cortisol and serves as a survival rather than an information-processing ability.

Chapter 11: Social and Emotional Development in Middle Childhood

1. Which of the following are part of the social and emotional development in middle childhood? Select all that apply.
    1. Self-concept remains static and is not influenced by social comparisons or feedback from others.
    2. Perspective-taking abilities, which foster empathy and compassion for others, are enhanced. (correct)
    3. Solving complex social problems and negotiating conflicts with peers improves. (correct)
    4. Understanding abstract concepts such as fairness and equality contributes to the development of a child's social responsibility and positive social identity. (correct)
    5. Answer feedback: The development of self-concept during middle childhood is a complex process and is influenced by various social, cognitive, and emotional factors.
2. Which of the following statements best compare and contrast theories of moral development? Select all that apply.
    1. Piaget's theory emphasizes cognitive development and the understanding of rules, while Kohlberg's theory focuses on moral reasoning and internalized moral principles through distinct stages. (correct)
    2. Kohlberg's theory acknowledges cultural variations in moral development and recognizes the influence of societal factors, while Piaget's theory places minimal emphasis on cultural factors. (correct)
    3. Gilligan's approach advocates for the inclusion of diverse moral voices and contextual understanding, expanding moral psychology beyond traditional male-centered perspectives. (correct)
    4. Both Piaget's and Kohlberg's theories propose that moral development is closely tied to cognitive development and understanding of rules.
    5. Answer feedback: Kohlberg emphasized moral reasoning and abstract ethics, while Piaget focused more narrowly on rule comprehension tied to cognitive development.
3. How can parents, caregivers, and educators help support healthy gender identity development? Select all that apply.
    1. Help children recognize gender as a social construct, which allows us to critically examine rigid gender norms and promote inclusivity and gender equality. (correct)
    2. Increase awareness of gender roles, stereotypes, and biological differences between the sexes. (correct)
    3. Promote that gender is biologically determined and universally fixed, with the same roles and expectations applying across different cultures.
    4. Provide a safe and accepting environment that encourages exploration, questions, and discussions around gender. (correct)
    5. Answer feedback:Understanding that cultural and societal norms influence gender helps children critically examine and challenge rigid gender expectations. Providing a supportive environment fosters open conversations and personal growth.
4. Gender expression and sexual orientation are distinct aspects of human identity.
    1. True (correct)
    2. False

3. Answer feedback: True, although they are often intertwined, gender expression refers to how individuals express their gender, while sexual orientation refers to individuals' emotional, romantic and/or sexual attraction to others.

5. Which of the following statements accurately reflect the effects of childhood trauma? Select all that apply.
    1. Childhood trauma, such as physical abuse and neglect, only impacts a child's emotional well-being and has little effect on cognitive or academic performance.
    2. Witnessing domestic violence poses significant risks to child development, often resulting in chronic stress, impaired social skills, and potential academic difficulties. (correct)
    3. Emotional abuse and neglect can lead to difficulties in forming secure attachments, trust issues, and challenges in recognizing and understanding emotions. (correct)
    4. Answer feedback: Childhood trauma can have long-term effects on physical, emotional, and cognitive development, often influencing social skills, academic performance, and overall quality of life into adulthood.

Chapter 12: Adolescent Physical and Sexual Development

1. Which of the following statements accurately describe the physical, brain, and sleep-related changes during adolescence? Select all that apply.
    1. Brain development continues into the early 20s, with the prefrontal cortex maturing later than the limbic system, leading to potential risk-taking behaviors. (correct)
    2. The adolescent growth spurt results in proportional body growth, with all body parts growing at the same rate.
    3. Dopamine and oxytocin contribute to adolescents' heightened responses to social interactions and novelty-seeking behaviors. (correct)
    4. Circadian rhythms change in puberty, keeping adolescents awake at night and making it difficult for them to get up in the morning. (correct)
    5. Answer feedback: Growth spurts are not proportional; growth begins with extremities, then arms and legs, followed by the torso and shoulders.
2. Which of the following describes hormonal and physical changes during puberty? Select all that apply.
    1. Environmental factors, such as nutrition and stress, can influence the timing and progression of puberty in individuals. (correct)
    2. Testosterone and estrogen are exclusive to males and females, respectively, with no overlap between the sexes.
    3. Puberty begins with a growth spurt in males and females, although it typically starts earlier in females than in males. (correct)
    4. Hormonal changes, including the release of LH and FSH, lead to the development of secondary sexual characteristics during puberty. (correct)
    5. Answer feedback: Testosterone and estrogen are present in both males and females, influencing bodily changes during puberty.

3. What are the potential outcomes of sexual activity during adolescence? Select all that apply.
    1. An increased risk of contracting STIs due to factors such as inconsistent condom use and lack of comprehensive sex education. (correct)
    2. Teen mothers are more likely to live in poverty, and more than 75% of all unmarried teen mothers receive public assistance within 5 years of the birth of their first child. (correct)
    3. Children born to teenage mothers have similar academic outcomes to children born in economically stable households.
    4. Significant long-term health consequences due to contracting sexually transmitted infections (STIs) during adolescence. (correct)
    5. Answer feedback: Children born to teenage mothers are 50% more likely to repeat a grade in school, perform poorly on standardized tests, and drop out of school.
4. Which statements are true regarding adolescents' risk of contracting communicable diseases? Select all that apply.
    1. Risk-taking behaviors, such as unprotected sex and substance use, elevate adolescents' susceptibility to communicable diseases, including STIs and hepatitis. (correct)
    2. Engaging in activities such as sharing food and drinks which can lead to the transmission of diseases. (correct)
    3. Adolescents have the same susceptibility to infections as other populations.
    4. Answer feedback:Adolescents may be more susceptible to infections due to hormonal shifts and maturation of bodily systems.
5. Financial barriers, geographical disparities, and language and cultural barriers can negatively affect adolescents' access to driver's safety courses.
    1. True (correct)
    2. False
    3. Answer feedback: True. These issues, along with lack of transportation, availability of school-based programs, and digital access, impact adolescents' ability to learn to drive.

Chapter 13: Adolescent Cognitive Development

1. Which of the following describes aspects of executive function and cognitive development in adolescence? Select all that apply.
    1. Improvements in metacognition during adolescence allow students to plan ahead and evaluate the potential consequences of their actions. (correct)
    2. Pruning in the brain helps improve cognitive efficiency by removing unused neurons and strengthening frequently used connections. (correct)
    3. Adolescents struggle more with tasks requiring self-regulation under high stress or emotional conditions due to the later development of the hot EF system. (correct)
    4. Memory improvements during adolescence primarily involve the ability to recall short-term details rather than strengthening long-term memory.
    5. Answer feedback:Adolescents improve both working memory (short-term) and long-term memory capabilities.

2. Piaget's and Vygotsky's theories provide building blocks for research on cognitive development and neuroscience today; however, both have gaps and limitations.
    1. True (correct)
    2. False
    3. Answer feedback: True. Piaget's theory of cognitive development is vague regarding mechanisms and processes of change. Vygotsky's approach to the critical period is similarly vague and fails to identify the mechanism that causes the cognitive restructuring.
3. Which statements describe aspects of critical thinking in adolescence? Select all that apply.
    1. Adolescents are more likely to rely on analytic thought than intuitive thought due to their developing prefrontal cortex.
    2. Critical thinking in adolescents involves evaluating evidence and synthesizing information to communicate ideas clearly. (correct)
    3. Relativistic thinking allows adolescents to recognize that some truths are context-dependent and question authority. (correct)
    4. Adolescents' increased dopamine activity contributes to sensation-seeking behaviors despite incomplete prefrontal cortex development. (correct)
    5. Answer feedback:Adolescents rely more on intuitive thought than analytic thought due to the faster maturation of the limbic system compared to the prefrontal cortex.
4. Which of the following statements is NOT an obstacle to high school completion?
    1. Experiencing neglect or abuse.
    2. Residing in foster care.
    3. Being confined to a juvenile detention facility.
    4. Being female. (correct)
    5. Answer feedback: In most demographic groups, males have a higher dropout rate. However, there were no measurable differences in status dropout rates between males and females for those who were Asian, Pacific Islander, or American Indian/Alaska Native.
5. Which of the following statements illustrate issues that may lead to problematic adolescent adjustment and poor academic outcomes? Select all that apply.
    1. Early onset puberty in boys.
    2. Having friends who are unmotivated, disengaged, and low-achieving. (correct)
    3. Parenting which includes manipulation and intrusion. (correct)
    4. Identifying with sexualized gender stereotypes. (correct)
    5. Answer feedback: Early puberty appears to be associated with worse outcomes for girls than boys, likely in part because girls who enter puberty early tend to associate with older peers, leading to early sexual behavior and substance use.

Chapter 14: Adolescent Social-Emotional Development

1. Adolescents develop the cognitive ability to think of abstract possible selves. Which statements accurately describe the different possible selves? Select all that apply.
    1. The ideal self is the version of oneself an adolescent wishes to become. (correct)

2. The feared self is the version of oneself an adolescent is afraid of becoming. (correct)
3. Possible selves reflect an adolescent's ability to think abstractly about their future. (correct)
4. Having a large difference between one's ideal self and the perceived actual self leads to a positive self-concept.
5. Answer feedback:A large difference between the ideal and actual self can result in hopelessness or depression. However, having an ideal and feared self can be motivational.

2. Cognitive distortions are patterns of inaccurate negative thinking that lower self-esteem. Which of the following are examples of such distortions? Select all that apply.
    1. My friend was quiet today, so they must not like me anymore. (correct)
    2. I burnt the cake, and now the party is ruined! (correct)
    3. If they break up with me, I will be alone for the rest of my life! (correct)
    4. Answer feedback: All are examples of cognitive distortions, including personalization, overgeneralization, and catastrophizing, which can negatively affect self-esteem.
3. Peer friendships are crucial for personal development and can influence behaviors positively and negatively. Which factors influence peer relationships? Select all that apply.
    1. Close, reciprocal friendships increase the influence peers have on behavior. (correct)
    2. Positive peer relationships enhance psychological well-being and academic performance. (correct)
    3. Negative peer interactions always result in riskier behaviors.
    4. Peer groups serve as role models and provide social settings that encourage certain behaviors. (correct)
    5. Answer feedback: Despite the influence of the peer group during adolescence, the higher their autonomy, the higher their resilience against its influence. Resilience seems to increase with age, which may mean that it is associated with maturity.
4. Cognitive distortions are patterns of inaccurate negative thinking that lower self-esteem. Which of the following are examples of such distortions? Select all that apply.
    1. Kohlberg's stage model may oversimplify moral development by not accounting for situational differences in reasoning. (correct)
    2. Kohlberg's theory may describe the moral development of boys better than girls, as it emphasizes justice and rights over caring and relationships. (correct)
    3. The model captures moral development across all cultures by emphasizing universal principles.
    4. There is little correlation between a person's moral stage and their actual behavior in real-life situations. (correct)
    5. Answer feedback: Critics argue that the model is more suited to Western cultures rather than non-Western cultures.
5. LGBTQ youth have similar wellness and mental health outcomes as students identifying as heterosexual adolescents.
    1. True
    2. False (correct)
    3. Answer feedback:False. LGBTQ youth face higher rates of bullying, intimate partner violence, and suicide risk compared to heterosexual peers.

Image Descriptions

Description for Figure 1.3

This quote appears alongside the image of an indigenous female child:

"They also separated and isolated us from the outside world absolutely re-enforcing that as Indians, we were different, less than other people. When we left the school, we were not prepared for the outside world, the harshness and ugliness of prejudice which exists still to this day. But I believe faith in our Creator (God), made us a strong and enduring people. We will survive and we have survived. I am grateful for that."

Dalinda (Causley) Brissette
Wa-sa-waanaa-que-bek
'Yellow Light from the Clouds'

Return to Figure

Description for Figure 2.5

Chart of four wide horizontal squares, each with an arrow pointing below to the next. The text includes:

Goal: Performing well on exam, Expectancy-Value; A valuable goal is required is a requirement for motivation according to this theory

Action: Studying, Expectancy-Value & Self-Efficacy; Belief that the action will produce the intended goal is a concept represented in both of these theories

Ability: Capability of studying successfully, Self-Efficacy; The added component of this theory considers whether the person believes they are capable of actually achieving the action

Motivation; Amount of motivation is determined by these factors

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Description for Figure 2.6

This handwritten infographic depicts Lev Vygotsky's face and organizes the three zones of proximal development with necessary support levels. Lev says, "What a child can do in cooperation today he can do alone tomorrow."

The comfort zone is what someone can do now.
The learning zone is what someone can do with help.
The anxiety zone is what they can't yet do.

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Description for Figure 2.7

Four rings around a core labeled, "The Developing Child: age, sex, health, abilities, temperament."

The first and smallest ring around the core is yellow and labeled as the Microsystem: Bidirectional influences.

The second ring is blue and labeled as the Mesosystem: Interaction of any two microsystems.

The third ring is orange and labeled as Exosystem: no further description.

The fourth ring is yellow-green and labeled as the Macrosystem: Economic and political system, dominant beliefs and ideologies.

On the opposite side of the fourth ring is Chronosystem: Dimension of time with an upwards pointing arrow and the text: Changing personal and societal conditions over the life course

These influences overlap the micro and mesosystem rings:

Local religious community points back to the core.

An arrow from local religious community points to peer group. Peer group points back to the core.

Peer group points to Neighborhood, which points back to the core.

Neighborhood points to school and home and both of these point back to the core.

These influences are listed in the exosystem ring:

Religious hierarchy and mass media point back to local religious community.

Shopping centers point back to peer group.

Transit system points back to the arrow connecting peer group and neighborhood.

Community and government agencies points back to neighborhood.

Educational system points back to school.

Parents' workplace points back to the connection between home and school.

Parents' friends points back to the mesosystem ring.

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Description for Figure 3.3

Epigenetics and the Agouti Yellow Mouse: How the Maternal Environment Influences Disease in Offspring

A genogram of the Agouti Yellow Mouse depicts the epigenetic differences in offspring of a pregnant mouse when fed a typical diet compared to those fed a diet rich in methyl groups.

Offspring of the typical diet are yellow, obese, and prone to disease.

Offspring of the diet rich in methyl groups are brown, lean, and not prone to disease.

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Description for Figure 3.4

Stages of Development (Top Row): The top section is divided into two periods: the embryonic period (first 8 weeks) and the fetal period (starting from week 9 to full term at week 38). This is indicated by different colored bars.

Embryonic Stages: From left to right, images show the zygote dividing, implanting, and developing, followed by the embryo's major anatomical features, including the central nervous system (CNS), heart, limbs, eyes, ears, teeth, palate, and external genitalia. Each week highlights specific organs and systems that are forming.

Sensitivity to Teratogens (Bar Chart): Below the images, a bar chart indicates critical and sensitive periods for each organ system:

- Blue Bars represent periods when the organ is particularly susceptible to major morphological abnormalities if exposed to teratogens.
- Light Blue Bars show times when teratogens can cause minor morphological or functional abnormalities.

Key Stages:

- Central Nervous System (CNS) has the longest vulnerability period, starting from week 3 and continuing with varying degrees of susceptibility into the fetal period.
- Other organs, such as the heart, limbs, eyes, and ears, show critical windows early in the embryonic stage.

Color Coding: At the bottom, color codes indicate the severity of potential abnormalities due to teratogen exposure, ranging from major morphological defects to minor abnormalities and functional defects.

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Description for Figure 3.7

A silhouette of a pregnant woman in profile, holding her belly. Surrounding her are thought bubbles with symbols and text. The symbols include:

A pink heart.

A green dollar sign.

A blue graduation cap.

A red question mark.

The background text is a mix of questions and statements, expressing the woman's worries and fears about her pregnancy, such as financial stability, support, personal aspirations, and the future of the child. At the bottom right corner, the text reads: "Are you really ready… for the life you never imagined? Prepare, and Protect Your Future."

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Description for Figure 4.1

Stage 1: Dilation of labor

Left Side (Undilated Cervix): A cross-sectional view of the lower abdomen shows the baby in the uterus, surrounded by amniotic fluid. The cervix appears narrow and undilated.

Right Side (Fully Dilated Cervix): This view shows the cervix in a fully dilated state, measuring over 10 cm in diameter. The cervix is now open and ready for the baby to move into the birth canal.

The image uses arrows and labels to indicate key anatomical structures, including the cervix, vagina, and amniotic fluid within the uterus, to highlight the progression from undilated to fully dilated as labor advances.

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Description for Figure 4.2

Stage 2: Birth, focusing on the sequence of events during the delivery of a baby. It is divided into four panels, showing each key step:

Presentation of Head: The first panel shows the baby's head emerging from the birth canal, signaling the beginning of the delivery process.

Rotation and Delivery of Anterior Shoulder: In the second panel, the baby rotates slightly to allow the anterior (front) shoulder to pass through the birth canal, facilitating further delivery.

Delivery of Posterior Shoulder: The third panel shows the delivery of the posterior (back) shoulder, following the anterior shoulder's passage.

Delivery of Lower Body and Umbilical Cord: The final panel depicts the complete delivery of the baby, including the lower body and umbilical cord.

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Description for Figure 4.3

The image illustrates Stage 3: Afterbirth delivery, depicting the process of the placenta being delivered after childbirth. The image is split into two main parts:

1. Illustrative Diagram (Left):

- A medical illustration of a cross-section of the female pelvis showing the uterus post-delivery.
- The placenta is highlighted, shown detaching from the uterine wall and moving down through the vagina for expulsion.

- An arrow and label indicate the pathway the placenta takes during this process, marked with the phrase "Placenta detaches and exits through vagina."

1. Photograph (Right):

- A real-life photo of a detached placenta placed in a medical tray. The placenta appears dark red and textured, showing blood and tissue details.
- The tray is light blue and situated on a medical table or surface.

An arrow between the two parts connects the illustration to the photograph.
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Description for Figure 5.1

The image is titled "Persistent Stress Changes Brain Architecture" and illustrates the impact of stress on neurons in the prefrontal cortex and hippocampus. It is divided into two main sections labeled Normal and Toxic stress.

1. Normal (Top Section):

- A diagram shows a typical neuron with many colorful dendritic branches, representing a healthy brain cell with extensive connections.
- To the right, there is a zoomed-in, grayscale micrograph of a healthy dendritic spine structure labeled "Typical neuron—many connections." The dendrites are densely packed and well-defined, signifying healthy synaptic connections.

1. Toxic Stress (Bottom Section):

- A similar diagram illustrates a neuron affected by toxic stress, depicted with fewer, sparser dendritic branches, highlighting reduced connections.
- The corresponding zoomed-in, grayscale micrograph on the right shows a damaged dendritic spine structure, labeled "Damaged neuron—fewer connections." This image reveals fewer and less robust connections, indicating the detrimental effects of persistent stress.

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Description for Figure 10.6

An illustrated diagram titled "Model of Working Memory" is a colorful representation showing various components and functions involved in the process of working memory, adapted from Cowan (2014) and Heathcote (2016). The diagram is divided into several interconnected sections, each illustrating a different aspect of working memory.

1. Central Executive: Positioned at the center, highlighted in a jagged pink star shape. It includes arrows pointing outwards indicating its role in controlling various functions such as:

- Switch retrieval
- Coordination
- Impacted by age
- Rehearsal scheduling
- Task focus
- Attention and processing type (e.g., sequential and parallel)
- It connects to the broader section labeled The World, indicating interaction with external tasks and goals.

1. Phonological Loop: Located to the right of the Central Executive, represented with an infinity symbol. It consists of:

- Speech-based processor (Passive Storage)
- Articulation loop (Active Subvocal Rehearsal)

1. STM (Short-Term Memory): Displayed in green and centrally placed with terms such as:

- Fluid
- Capacity
- Speed
- Load
- Strategies (Intrinsic and Extrinsic)

1. Visuospatial Sketchpad: Depicted at the bottom left, shown as a red-outlined square with a drawing labeled MY VSSP, representing the visual and spatial storage aspect of memory.
2. Episodic Buffer: Found on the right side, outlined with dashed lines and described as the interface connecting working memory with long-term memory (LTM). Arrows highlight its role in communicating and forming logical connections, with terms like:

- Chunks
- Storage

1. Long-Term Memory (LTM): To the far right, with an orange and yellow gradient background and arrows labeled Memory, connecting it to the Episodic Buffer.
2. Zone of Comfort: Positioned in the upper right corner, suggesting an area within which memory processes operate more effectively.

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Description for Figure 10.7

The image is a layered, concentric circle diagram representing different levels of linguistic analysis. Each ring is color-coded and labeled to indicate its role in the structure and understanding of language, starting from the most basic to the most complex. The rings and their details are as follows:

1. Innermost Ring (Green):

- Labeled PHONETICS and associated with speech sounds.
- Represents the most basic level of language, focusing on the physical sounds of speech.

1. Second Ring (Blue):

- Labeled PHONOLOGY, associated with phonemes.
- Indicates the study of sound systems and the way sounds function within a particular language.

1. Third Ring (Purple):

- Labeled MORPHOLOGY, associated with words.
- Refers to the structure and formation of words from smaller units called morphemes.

1. Fourth Ring (Red):

- Labeled SYNTAX, associated with phrases and sentences.
- Represents the set of rules that dictate the structure of sentences and the arrangement of words.

1. Fifth Ring (Orange):

- Labeled SEMANTICS, associated with the literal meaning of phrases and sentences.
- Relates to the interpretation and meaning of words and combinations of words.

1. Outermost Ring (Yellow):

- Labeled PRAGMATICS, associated with meaning in context of discourse.

- Encompasses how context influences the interpretation of language and its use in communication.

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Description for Figure 13.2

Inductive reasoning (bottom-up reasoning): arrows point up from observation, past experience, and ideas from authority towards general conclusion.

Deductive reasoning (top-down reasoning): arrows point down from general principle towards application, hypothetical case, and logical extension.

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Description for Figure 13.6

The image is an illustration of the human brain shown in a sagittal section (a side view that divides the brain into left and right parts). It labels several key anatomical structures:

- Cerebral Cortex
- Corpus Callosum
- Basal Ganglia
- Thalamus
- Amygdala
- Cerebellum
- Brainstem

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Description for Figure 13.7

The image is an illustration of the human brain shown in cross section. It labels several key anatomical structures:

- Striatum
- Prefrontal cortex
- Nucleus accumbens
- Meso-cortic pathway
- Meso-limbic pathway
- Nigrostriatal pathway

- VTA
- SNc

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Transcripts

Transcript for Figure 10.5, Why Practicing Can Help with Emotional Regulation

In previous videos, we've talked about the importance of practicing various types of plans with our kids or clients, such as what they can do when they get upset, and how they can be successful with various activities and social interactions. Practicing

helps reduce the amount of processing needed in the moment, because they've already gone through the situation.

Let's talk a little bit more about what's happening on a cognitive skill level during escalation, and how practicing helps everyone. Let's take the case of a general "what can you do when you get upset?" kind of plan, which we call a Reactive Plan. Without a plan that's been practiced, we're demanding that the person use several cognitive skills in the moment of their escalation, which is a problem because whenever any one of us gets escalated, our cognitive skills drop. That's right: being mad makes us dumb, and our brains may revert to more primitive responses to handle the stress. This means that without practicing the plan, our kid or client will need to understand what's going on, stay calm enough to figure out an appropriate course of action, think through the consequences of each possible course of action, and then follow through, all while resisting impulses coming from the more primitive parts of their brain.

What we have to remember is that people with developmental disabilities, mental health issues, trauma, or still-developing brains struggle with many of the skills that are needed to achieve emotional regulation. There isn't a structure or piece of the brain that emotionally regulates us, but rather emotional regulation is the result of multiple executive functioning skills working together to calm us down, oftentimes in an instant.

When you don't have these skills, even on a good day, you're missing critical tools, which may mean that you're more likely to get upset over small stressors or that when you do get upset, you engage in behaviors beyond just being mad, like physical aggression, property destruction, or other challenging behaviors.

By practicing the plan, we can help the person shortcut to emotional regulation more easily, because we're helping them process information, and make the "right choice" ahead of time. After we identify some coping strategies, we can have our kid or client

practice them. We may practice randomly or set a structured time. Then, when escalation happens, we can prompt the person to follow the plan, which now they don't have to come up with on their own in that moment. It would be best if our prompt was nonverbal, such as pointing to an object that we designated means "it's time to follow the plan." Of course, when we were practicing the plan, we point to the object to get that practice going.

They may resist at first, which is why it's important that we avoid talking. When we talk, we demand that their brain use various cognitive skills, which is the last thing they need right now. Our hope is that, even if they struggle at first, as they have more time to think about the plan they'll begin the calming process. Once they get to the point of following through on the plan and engaging in a coping skill, hopefully they'll calm down quickly

with fewer challenging behaviors. As the person's brain continues to develop or

as they continue to practice emotionally regulating through these plans that you make with them, our goal is that they will naturally begin to use their coping skills independently in their everyday lives, because they will have more practice in using them successfully and seeing their benefit.

If the plan you make and practice doesn't work, wait until the person is completely calm and open to having a discussion. This may need to happen on a different day than the day of the escalation. With both of you calm and not invested in the moment, you can talk about why the plan didn't work, and make a plan to help it be more successful the next time. Of course, make sure that you practice any changes that you make. Perhaps you just need to try the original plan again without making any changes, but do a few extra practice sessions.

In our next video, we'll talk about common, unhelpful responses that we as parents or professionals may have when someone escalates and how we can avoid those responses. As you know, our videos are free to everyone, and so I'm completely reliant on those who watch them and believe in me to keep them going. Please consider giving to us monthly on **patreon.com/oregonbehavior [Website]** or support us by contacting your local disability and mental health organizations and ask them to have me come to your area and conduct a training or workshop. Of course, you can support us by subscribing to our videos here on YouTube, liking our page on Facebook, and Now we're on twitter, @oregonbehavior. Thanks for watching.

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Transcript for Figure 10.9, TEDxMidAtlantic 2011 – Eldar Shafir – Living Under Scarcity

[Eldar Shafir, Professor of Psychology and Public Affairs, Princeton University]: Thank you. I want to talk to you about the psychology of scarcity, the psychology that comes with not having enough. Poverty is the most obvious example, and throughout the decades the social sciences have been impressed by the fact that the poor make very bad decisions. And the question is, why is that? And probably the most relevant

example I can give you today – there are many – but one is payday lending.

Payday lending is a remarkable story. If you want to pay their loan you go to a place that gives you small amount, $2-$300 for two weeks, until your paycheck arrives. You have to have a paycheck, you have to have a bank, and you pay a lot of interest for that loan. You basically borrow $300 for which you pay somewhere between 20-25%. If you compute the APR, the yearly interest, it comes to somewhere between 400 and 1,000% that you pay for this loan.

We know that these loans hurt you, so basically what happens is, think about it, you need some money urgently. You borrow $250, two weeks from now you owe me $300. You're not any richer than you were

last time, that 300 becomes even more of an offense, you have to borrow again. The data is that people who resort to Payday Loans borrow on the average of between 8 to 12 times a year. Recent evidence suggests that up to 75% of a loan taken goes to pay the previous one. You're just becoming a money pump and you're in debt trap and it hurts you. There's data that shows that when you, when pay loans are available, people are less likely to be able to pay their bills, less likely to resort to medical treatment, etc.

And is this a successful venture? Unbelievably so. I have you some data here. There are more payday loan and check cashing stores in America today then there are McDonald's, Burger Kings, Sears, JC Penney, and Target stores combined. So this is a massively expensive loan that the poor resort to, it hurts them, it's super popular – why?

There have been many attempts to understand this. They range from lack of education, lack of understanding, a lack of self-control, myopia, a wrong culture, etc. We are trying a different tack on this. We want to claim that the psychology that comes from scarcity

– there's actually psychology that comes from not having enough – and that, that psychology when it emerges, when you don't have enough, yields these very characteristic behaviors that are, that can be very hurtful.

To give you a sense of how that feels, I'm going to use a metaphor. It's the packing metaphor, it's a suitcase packing metaphor and think about your budget as a suitcase. Two friends – one has a large suitcase with slack in it, the other one has a very small suitcase, it's very tightly packed. That feels very different. The one with a large suitcase tosses in all the things that she needs. She might throw a few other things that are of lower utility, less important to her but might still be serving a purpose. But you leave some slack for unintended, unexpected events and travels. The one with a very tight suitcase that's very tightly packed can't even put all the things that are really necessary. It just doesn't fit, let alone the things that matter less. She needs to start struggling, doing trade-offs. "What should I put in?" "What shouldn't I?" "Should I put the sneakers or the rain coat, what should I do?" She's dealing with a much more complicated problem, technically, computationally. She has a very hard time leaving any slack in the suitcase for unexpected moments and she has to make trade offs that require a lot of attention. I don't really care about the size of the coat cuz I have room in my suitcase. You with a very tight suitcase really need to know, is the coat bigger or smaller than my shoes? I am traveling with slack – if I walk the streets of New York and I see a pair of shoes I like, I ask, is the price right? and if it is I buy them and I toss them in my suitcase. You with a tight suitcase find the shoes ask, is the price right? and now you ask yourself, well, what do I take out of my suitcase to make room for these shoes? A much more complicated task. So the argument is when you live under scarcity with this very tight suitcase, you're constantly in trade-off thinking mode and you're concerned with the actual size of items and what that might mean for you.

Simple data, if you will. If you ask people of lower and less low income, do you think about what you might not be able to, to buy instead when you buy a TV or a toaster? Sure enough, the low-income report thinking much more often about trade-offs, what they might not be able to buy.

What about knowledge of prices? You know I, I walk the streets of America every day and I buy books and I buy lunches and I take cabs. I don't think about what I'm not going to buy instead and I don't even really care or remember if the book was $17 or $16 if the cab cost $8 or $9 – it's all the same to me. If you have a very tight suitcase, if you are a low-income American, you need to think about the trade-offs every time you buy anything above a muffin. And so if you live in Roxbury and you receive food stamps, you live in a place where food is actually more expensive than if you traveled elsewhere. Now you have to ask a complicated question, do I buy my food here or do I take a taxi since I don't have a car and buy

it somewhere else? For that you need to know how much is a taxi. I don't really care how much a taxi is exactly. You need to know. So we go to South Station in Boston, stop people, ask them, by the way, when you walk into a cab what does the meter start from, when you start, when you take the cab, what's the reading? And we divide them by reported income into high and low, we took cabs, we chose cabs carefully because nobody's going to say that the poor ride cabs more than the rich, yet they're three times more likely to know the price of the cab than the rich are. They're just more attentive, more careful, and have to solve this problem on a constant basis.

The interesting thing about this model of scarcity is it doesn't have to be about money. So many people in this room are time poor, just the way our subjects are money poor. You have a tight suitcase on your time. Some people have more time, say, you work 9 to 5 on a regular job. If I come and ask you, do you want to go to the movies tonight? Just like the shoes, you say, do I want to see this movie? Yes, no and sure I'll go. If I go to some of you who are working much harder and said, do you want to go the movies tonight? You have to say, do I want to see the movie and what do I not do tonight that have to do tomorrow. I'll have to borrow money from tomorrow, sorry, time from tomorrow, potentially at high rate because it's going to be hard to find that time tomorrow in order to go to this movie. So you're packing time.

Temptations. When you're poor, when your suitcase is very tight, things that ought to be regular – taking cabs, buying pizzas – become a temptation you might need to resist. You're constantly resisting temptations, a lot more than the rich are, and there's a lot of

evidence that resisting temptation is simply depleting. It fatigues you. It's hard to resist temptation and the poor – those who have experienced scarcity – do that a lot.

Well, the, the – sorry I'm jumping here – the, the rich have very similar time temptations that they have to think about. Just like there is a regular pizza for the person in America who might not be able to afford it if they're poor, think about spending two hours with your kids playing Monopoly.That ought to be a completely standard activity. If you're time poor, all of a sudden that becomes something you think about, you trade off, you worry about, you might not be able to afford. It becomes a luxury.

Finally, one more. Indulgences. A lot of literature on the poor critiques the poor for being in debt that they cannot pay. Nonetheless, buying small luxuries – sneakers, iPods, etc. – and that somehow looks wrong, but if you understand the psychology of indulgences, it's a different story. I mean, I cannot pay the debt, that's true, but now I can do something that's nice to me.

Think about you guys – how many people in this room are sitting on deadlines that you'll not be able to respect, yet what are you doing here schmoozing with me? Go back and do a few more minutes, but that's just not the psychology and how it works, and so that's part of this issue of scarcity and how you deal with it.

Okay, let me give you some quick studies that we've done. It's hard to make our students money poor but it's very easy to make them time poor. We have subjects come to a lab where they're going to play Family Feud. As most of you know how the game works, you have to guess the answers. They get into it, they collect points which then get translated into money, which they actually get paid, so they want to do well. We randomly assign them into rich and poor. Some have more time, 50 seconds a round, they have more time to think and play. Others have very little, only 15 seconds a round.

In addition, between these two groups, some have the ability to borrow at a high rate, so every time you use an extra second now, if you're into the game, you think you know the answer, you want two more seconds. You can borrow but then you pay with two extra seconds for every second you borrowed, so

you pay back at interest. Or you're in a group that cannot borrow. So we have the rich and the poor able to borrow, not able to

borrow. You play the game, what do you find? You find that the rich – students who have enough time – don't borrow very much. This is not an attractive rate, it's predatory lending – but occasionally they do, and it doesn't hurt them. The poor – those who are poor for time, living under time scarcity – borrow more frequently, pay the high interest rate, manage to finish fewer rounds and get substantially fewer points.

So what we're seeing here is people borrowing under scarcity at predatory lending rates and hurting themselves, except that these are not the poor of America who you can criticize for being uneducated, myopic, wrong culture, these are Princeton students. They're not myopic, they got into Princeton, they don't have self-control problems. They're functioning under scarcity and replicating the effects that you see among those who experience money scarcity. This has big influence on our lives because if you're poor and you're constantly in a packing, problem solving mode, it's very distracting and it's very fatiguing.

Here we go to a mall in New Jersey. We ask people to participate in a study, they agree, they sit in front of a computer. You get hypothetical financial problems: your car breaks down, it's going to take some money to fix. While you're thinking about how you're going to fix this problem, we'll give you a couple of classic cognitive tests that have been used in literature, in experimental studies quite a bit. The cognitive control task is sort of a divided attention, executive control – think about it as divided as driving, it's how well you can manage, you have to answer same side if it's a heart, opposite side it's a flower, it's very confusing. We know for a fact after many studies if you're tired or distracted you do less well, you're slower, and you make more errors, so that's a driving test. The other one, the Raven Progressive matrices, is basically an IQ test. It's used, these actual questions are used in SAT and GRE tests. It captures working memory in intelligence.

So these subjects now got these problems – either a hard problem where the car is going to cost a lot, or, or an easy problem or it's going to cost not too much to fix. They answer, they, they play these games and independently we get a, a reading of their self-reported annual household income. We divide them by median split into rich and poor and let's see how they do in these tests, on these games. If you look at the rich, whether they get the easy or the hard financial problem, they do equally well. If you look at the poor in the Jersey mall, when the problem is easy, when a car is not hard to fix, they do just as well as the rich. When the problem is challenging, they are driving less well. And the argument is when you're poor and driving in America there are a lot of challenging problems in the back of your mind all the time.

The other question. The rich – when you look at the IQ test, whether it's an easy or hard problem – they do equally well. The poor do comparably well when the problem is easy. They are less intelligent when there's a difficult problem that concerns them in the back of their minds. So when you're going around with difficulties packing, this actually impacts your performance in ways that are detectable and consequential.

You could say the rich and the poor, it's a problem, it's different. One is more strength than the other one, is more educated than the other. We've controlled for all that; nonetheless, the dream would be, can we show this in a single subject, not different.

We found a solution. These are sugar cane farmers in India. They have their sugar cane harvest is once a year. Because these people are living under great scarcity, they fail to smooth, they end up being poor before the harvest and rich after, after they sell harvest. So we go to the same people now, four months

apart, just before harvest, just after harvest, and give them these questions and they do less well. They look poor before the harvest and they do better – the same individual, smarter – after the harvest.

Suggesting again that to some extent your ability, your intelligence, your ability to drive, all depends on this psychology that emerges under scarcity that makes life just a lot more difficult to to deal with.

So the irony of scarcity: the poor have much harder, more difficult problems to solve. Their problem, their packing challenges, are extreme and persistent. They face many more temptations by sheer fact that they cannot afford things that otherwise will

be considered standard. And they're constantly under scarcity, which is depleting. At the same time, they are in situations that make the solution much more hard, much more difficult to come by. Society stereotypes are less helpful. They are stressed and depleted from the, from the need to solve their problems and as a result they fail much more often. And why is this important, it's important because I think to some extent we policy makers have failed to appreciate the impact and relevance of scarcity on people's lives, and a design of policy that alleviates scarcity, makes it more possible to deal with, and provides aids, might actually elicit behaviors that are more capable and more competent than we've seen so far. So that's the, that's the program. Thank you.

Attribution

Transcript for "**TEDxMidAtlantic 2011 – Eldar Shafir – Living Under Scarcity**" by **TEDx Talks** is included under fair use.

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Transcript for Figure 12.3, What It's Like To Be Intersex

[Pidgeon Pagonis]: Raise your hands if you have testes.
[Emily raises hand, smiles.]
[Pidgeon]: I'm Pidgeon.
[Alice Alvarez]: I'm Alice.
[Emily Quinn]: I'm Emily.
[Sean Saifa Wall]: I'm Saifa.
[All]: And we are intersexy.
[Text on screen: What does intersex mean?]
[Emily]: Intersex describes a person who doesn't fit the typical definition of male or female.
[Text on screen: They may have variations in their gonads, chromosomes, OR genitalia.]
[Alice]: I have XY chromosomes but typical female genitalia.
[Emily]: I'm a girl who has testes and XY chromosomes.
[Pidgeon]: I identify as a queer gender, non-conforming intersex person.
[Saifa]: I identify as a black intersex man.
[Text on screen: 1 in 2,000 people are born intersex.]

[Pidgeon]: Intersex is not new. It's been around since the beginning of human existence. I mean, there's probably even intersex dinosaurs, if you think about it.

[Text on screen: Is intersex the same as transgender?]

[Emily]: Transgender has to deal with your gender identity, whereas intersex has to deal with your biological characteristics.

[Saifa]: Often, intersex people get surgeries that they don't want, and transgender people have to fight for surgeries that they do want.

[Text on screen: Doctors often perform "normalizing" surgery on intersex people without medical reasons.]

[Saifa]: They gave my mom the excuse that the internal testes were cancerous, that I would develop cancer.

[Pidgeon]: They didn't even come up with an excuse, basically, in terms of a health-related reason. They, instead, just said it was about the appearance.

[Emily]: A lot of doctors are very uncomfortable with the idea that I have testes, and they're still trying to get them removed. But I'm perfectly healthy, and there's nothing wrong with them.

[Text on screen: Medical records are often kept secret from intersex people.]

[Alice]: They did a surgery to remove my testes, and told my parents to take me home and just raise me as a girl. I didn't find out about it myself until I was 12.

[Saifa]: There aren't a lot of options or medical providers don't explore other options.

[Text on screen: Doctors removed Saifa's testes at age 13 because they "may cause cancer"… even though he always identified as a boy.]

[Saifa]: My mom would put me in dresses, and she would be like, "Oh, aren't you so cute, you're so pretty." And I would be like, "No, this is horrible!"

I was put on hormonal treatment which consisted of estrogen and progesterone.

I just wanted to belong, I wanted to fit in. I didn't want to be different. So, even though I knew something felt amiss, I conformed.

[Text on screen: Saifa recently met with the doctor who removed his testes. The doctor had no regrets about the operation.]

He was very condescending. He was like, "You intersex activists don't know what you're talking about."

[Text on screen: These unnecessary surgeries still occur today.]

[Emily]: It's difficult for intersex people to find each other because from an early age, we're told not to talk about our bodies.

[Saifa]: I did feel like I was the only one.

[Emily]: My doctors always told me there was nobody else like me. And so, it just perpetuates a vicious cycle of shame and stigma that we can't break out of.

[Text on screen: What message would you give an intersex person?]

[Emily]: I would tell another intersex person that you are worthy. You are loveable.

[Saifa]: Your body is beautiful, you're beautiful.

[Alice]: Intersex people don't need to be fixed. There's nothing wrong with them.

[Pidgeon]: I know you feel like you might not be able to get through this. I know you might have really dark thoughts. But I want you to know that meeting other intersex people and finding a community or a support group can be one of the most important aspects in your healing process.

And we're out there, we're out here. We're here. And I just hope you can find us.

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Transcript for Figure 13.1, Piaget – Stage 4 – Formal – Deductive Reasoning

[Teacher]: It says if you hit a glass with a hammer, the glass will break.
[Child 1, a younger student]: I knew that.
[Teacher]: And then this one says, "Don hit a glass with a hammer."
[Child 1]: I knew that too.
[Teacher]: So what happened to the glass?
[Child 1]: It broke.
[Teacher]: It broke? Why did it break?
[Child 1]: Because the hammer's hard.
[Teacher]: If you hit a glass with a feather, the glass will break.
[Child 1]: No!
[Teacher]: And this is the second rule. Don hit a glass with a feather. What happened to the glass?
[Child 1]: Nothing. Nothing happened.
[Teacher]: Why didn't anything happen?
[Child 1]: Because the feather is soft.
[Teacher]: The first one says, "If you hit a glass with a feather the glass will break."
[Child 2, an older student]: Okay.
[Teacher]: And the second one: "Don hit a glass with a feather. What happened to the glass?"
[Child 2]: It broke.
[Teacher]: And why did it break?
[Child 2]: Because the rule says if you hit a glass with a feather, it'll break. So if you hit a glass with a feather, it broke.

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Transcript for Figure 13.4, Information processing model: Sensory, working, and long term memory

[Carole Yue, Narrator]: Take a second to think about everything you've done today. You've taken in way more information than you could possibly remember in detail– things you've seen, heard, smelled, touched, and tasted. But somehow, some information gets stored in a way that lets you access it later. So what makes this process work?

Our brains are really complicated, so scientists have come up with models to represent how our brain takes in and makes sense of information in our environment.

Information processing model

One of the most influential models is the information-processing model, which proposes that our brains are similar to computers – we get input from the environment, process it, and output decisions. It's important to note that this model doesn't really

describe where things happen in the brain. It's more conceptual.

Sensory memory

The first stage, then, is getting the input, which occurs in sensory memory. This is sometimes also called the sensory register, so if you hear that term, just know it's the same thing as sensory memory. And this is where you first interact with the information in your environment. It's a temporary register of all the information your senses are taking in. Even though you have five senses, the two most studied in terms of memory are sight and sound. So within sensory memory, you have iconic memory, which is memory for what you see, and echoic memory, which is memory for what you hear.

One of the really interesting things about sensory memory is that it lasts a different amount of time depending on the modality of the information coming in. So visual information is incredibly vivid, but it only lasts for less than half a second. Auditory information, on the other hand, lasts a little bit longer. It lasts for about three or four seconds. So if you've ever tuned out of a conversation and your friend gets mad that you're not listening to them, you can thank echoic memory for helping you remember the last thing they actually said.

Working memory

So we have a ton of information coming into our sensory memory, but we can't possibly process all of it. We decide what to pay attention to, and that gets passed along into working memory to be processed. Working memory is just whatever you're thinking about right at this moment. And it's also called short-term memory, but we're going to stick with working memory because that's what psychologists call it.

Working memory capacity works a little bit differently. It's not defined by time so much as quantity. Just remember the magic number seven. Your working memory can hold about seven plus or minus two pieces of information at a time, so about five to nine. This does vary a little bit based on how complicated those pieces of information are, how old you are, that kind of thing. But generally, it's right around seven. And an interesting fact is that this is actually why phone numbers started out as seven digits long. It was determined that that's as many pieces of information as a person could hold in mind without getting numbers confused or mixing them up. And just like sensory memory has different components for different types of input, working memory has different components to process those distinct types of input.

Working memory components

Visual and spatial information, like pictures and maps, are processed in the aptly-named visuo-spatial sketchpad, while verbal information, meaning words and numbers, are processed in the phonological loop. Again, think of repeating a phone number to yourself just long enough to type it in. That's using your phonological loop. Be careful here, though. "Verbal information" means any words and numbers, so words and numbers you heard that came from the echoic memory, and words and numbers you saw that came from iconic memory. So we've got a little bit of mix-and-match here.

Now, you might be thinking that sometimes you need to process input place that has verbal and visual information together, such as a map with street names and landmarks. In that case, you need someone to coordinate the efforts of the visuo-spatial sketchpad

and the phonological loop. So something called the central executive fills that role. You can think of him kind of like a traffic cop who directs the other components of working memory. Once the central executive tells the visuo-spatial sketchpad and the phonological loop to coordinate, then they create an integrated representation that gets stored in the episodic buffer, which acts as a connector to long-term memory.

Long-term memory components

Long-term memory is the final stage in the information processing model. When stuff gets in here, it's like hitting the Save button on your computer. Unfortunately, our memories aren't quite as foolproof as that. It doesn't work perfectly. But we can store a lot of information in long-term memory.

Once again, there are different components that specialize in different types of memories. We have two main categories — explicit, also called declarative, and implicit, also called non-declarative. As you can see, psychologists like to give these things multiple names, but fortunately, they can generally be broken down into something that makes sense, so don't get intimidated. Explicit memories, for example, are facts or events that you can clearly or explicitly describe. So any time you take a vocabulary test or remember the state capitals, you're using a specific type of explicit memory called semantic memory. And "semantic" just means "having to do with words," so you can think about it as being able to remember simple facts like the meaning of words.

A second type of explicit memory is called episodic memory, which is memory for events, like your last birthday party. Just like a TV episode is a sequence of events, your episodic memory stores event-related memories. While explicit memories are easy to define, implicit memories are a little bit fuzzier. They involve things you may not be able to articulate, such as how to ride a bicycle. You probably can't say clearly how much pressure to put on the pedals or exactly how to turn the handlebars. But provided that you ever learned in the first place, if you get on a bike and just do it, you probably won't fall over. Memories for procedures like riding a bike are conveniently called "procedural memories."

The last type of implicit memory is called priming, which means that previous experience influences your current interpretation of an event. For example, if I say the word "hair," what do you think of? If you paid attention at the beginning of this video, then you might have thought of "hair" as "H-A-R-E," meaning "rabbit," because you were primed with the bunny picture at the beginning. Your recent experience of seeing a bunny stayed in your memory and influenced your interpretation of the word that I said. If you weren't paying attention, or if you've maybe had to push your hair out of your face in the last few minutes, then you might have thought of "hair" as "H-A-I-R," because it's generally a more common word.

With all these components of memory, you might be wondering how much it can actually hold. I think we've all had the feeling that we can't possibly take in any more information, and while it might be true but you can't process any more information at the moment, unlike like the computer in front of you, as

far as we know, long-term memory capacity is unlimited. So your brain never actually gets too full for more information.

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Transcript for Figure 13.5, Shannon Odell: What's the smartest age? | TED Talk

What is the smartest age? Perhaps a day of friendly competition will lead us to the answer.

Tomorrow's the annual Brain Clash— ten teams of two competing in a decathlon of mental challenges, trivia competitions, and puzzles. I've been training all year. I'll need to pick the smartest, most capable teammate. I've narrowed down the roster.

First we have Gabriela. She may only be 8, but don't underestimate her! She's fluent in two languages and is the ultimate outside-the-box thinker.

Then there's Ama. She can recite 100 digits of pi, designs satellites for a living, and bakes a perfect soufflé.

Or I could go with Mr. Taylor. He's the best chess player in the neighborhood, not to mention he's competed in over 20 Brain Clashes and is a five-time champion! I'm not sure who to pick! Who's the smartest?

Which of these teammates should Amir choose for tomorrow's contest and why? Of course, it depends.

While intelligence is often associated with things like IQ tests, these assessments fail to capture the scope and depth of a person's varied abilities. So instead, we'll break down the idea of "smart" into categories like creativity, memory, and learning and explore when the brain's best at each of them.

Let's start at the very beginning. In the first few years of life, your brain undergoes incredible rapid growth, called synaptogenesis, where more than 1 million new neural connections are formed every second.

As the brain develops, it goes through a pruning process. Based on your experience and environment, used connections are strengthened and unused connections are removed. Frequently used neuronal pathways are myelinated, wrapped in a layer of insulation, allowing information to travel faster. This creates a more efficient, fine-tuned brain. But this brain remodeling happens within and between brain regions at different times, allowing different skills to flourish at different ages.

For example, in childhood, brain regions involved in language learning develop quickly, which is why many children can learn and master multiple languages. Yet the prefrontal cortex, a brain region responsible for cognitive control and inhibition, is slower to develop. As a result, some young children may struggle with strategic games, such as chess or checkers, which require constant concentration, planning, and abstract thought. At the same time, children tend to be more flexible, exploration-based learners. They often use more creative approaches when finding solutions to riddles and are, on average, less afraid to make mistakes.

But adults have their own unique set of abilities. Adults benefit from a well-developed prefrontal cortex, allowing them to better execute skills that require learning, focus, and memory, making them quick and efficient puzzle solvers or crossword masters.

Late in adulthood, these same skills may decline as the brain's memory center, known as the hippocampus, shrinks. But there's a reason for the phrase "older and wiser." After a lifetime of learning, older adults have more knowledge to recall and utilize, making them excellent trivia partners.

Other factors that Amir should consider are his own strengths. As an adolescent, the prefrontal cortical regions of your brain are more developed than in childhood. This allows you to better navigate logic and math puzzles. Simultaneously, deep inside the brain, regions that are important in motivation and reward are developing even faster, driving teenagers like Amir to be curious and adventurous learners.

In many ways, you can think of the teenager as a jack-of-all-trades, with brains wired to seek out new experiences and learn quickly. You're at a dynamic stage, where the choices you make and the skills you focus on can actually guide the development of your brain.

So, what's the smartest age? There's no single answer. It's 8, 16, 25, 65, and everything in between; our brains have adapted to prioritize different skills at various ages to meet that stage of life's challenges and demands. So no matter who Amir picks, having an age-diverse team is a good strategy.

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Transcript for Figure 14.3, Kohlberg's Moral Development Theory

[Researcher]: What is your name?

[Alex, Subject 1]: Alex.

[Researcher]: And how old are you, Alex?

[Alex]: Twelve.

[Researcher]: And what grade are you in?

[Alex]: Sixth – seventh grade.

[Researcher]: Okay, I'm gonna ask you a question. I just want you to respond to me the best you can. A man's wife is dying of a very severe illness and needs a medicine that costs a lot of money. He doesn't have enough to pay for it so he decides to break into a store and steal it in order to save his wife's life. Did the husband do the right thing?

[Alex]: No, because he should've, like, tried to find an organization that would help him raise money or raising his money himself to buy the medicine.

[Researcher]: That's a good idea. And what do you think he should do now, since he already, like, went in and broken – and broke the law?

[Alex]: Find a way for his wife to get cured and that's it.

…

[Adult male, Subject 2]: Okay, no he didn't do the right thing. A couple of reasons. One is, we would live in a very chaotic society if every individual interpreted their own experience and acted on it irrespective of laws and rules. The second reason is, well, I would approach this individual and ask them what resources they have or feel that they don't have and help them avail of those available resources. There's medication assistance programs, there's all kinds of social agencies and I would bet that that individual didn't access all available opportunities.

[Researcher]: All right, thank you.

…

[Researcher]: Did the husband do the right thing?

[Child, Subject 3]: No, because you're not supposed to break into stores.

[Researcher]: Okay, and what should he have done?

[Child]: Just earn the money.

[Researcher]: Just like by working or something?

[Child]: Yeah.

[Researcher]: What should he do now?

[Child]: Return the money.

[Researcher]: Return the money or the medicine? All right.

…

[Young adult female, Subject 4]: Okay, first it's a very hard question. I really don't know because I can see both ways. I can see where obviously he's breaking laws and breaking in and stealing something and so that's a wrong thing, but then at the same time the fact that his wife is going to die because he doesn't have the money to buy the medicine is the wrong thing, it's not a just thing. So I mean, I would, I guess I would say if he had exhausted every single possible resource trying to get her the medicine and still was not able to get it then, yeah.

…

[Adult female, Subject 5]: No. I can understand his reasoning for wanting to save her life but the consequences would be more detrimental and I think he probably should look into other resources, if other agencies are available, if anything take it to the ER and they will have to treat it.

[Researcher]: Good answer.

…

[Researcher]: What is your name?

[Shane, Subject 6]: Shane.

[Researcher]: And how old are you?

[Shane]: Seven.

[Researcher]: And what grade are you in?

[Shane]: Second.

[Researcher]: Okay, Shane, I'm gonna ask you a question. I want you to answer for me.

[Shane]: Okay.

[Researcher]: Okay. A man's wife is dying of a very severe illness and needs a medicine that cost a lot of money. He doesn't have enough money to pay for it, so he decides to break into the store and steal it in order to save his wife's life. Did the husband do the right thing?

[Shane]: No, because he should just make a garage sale instead.

[Researcher]: He should make a garage sale?

[Shane]: Yeah.

[Researcher]: Yeah? What do you think he should do since he already broke in? Should he go to turn himself in or – ?

[Shane]: He should turn himself in and tell them if someone can take care.

[Researcher]: Take care of his wife? All right. Thank you.

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Acknowledgments

We would like to thank all of the OER team members who helped guide us through the process of writing and editing this book. It has been a long but fulfilling process.

Most importantly, we would like to thank all of the children, young adults, and colleagues who have shared their life experiences with us. We hope that the content and focus in our textbook reflects the complex and diverse ways in which we all learn and grow.

Lastly, thank you to those who have chosen to review and use Understanding Human Development for your teaching and learning.

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Instructor Resources

Author Message to Instructors:

Thank you for taking the time to review our textbook!

After many years of using outdated and non-inclusive materials, it was time to create a textbook that would fit our instructional needs for teaching child and adolescent development. Our student voices, and our own, were not represented in most of the published textbooks. This left us searching for supplemental material to fill this gap.

Our main goal in the creation of Understanding Human Development was to provide a textbook that highlights the many ways in which development is impacted by social and environmental factors and how social justice issues create disadvantage for many groups in the United States. We begin this discourse in our Prenatal, Birth, and Postnatal Experiences unit, where we discuss how race and access to services can impact pregnancy and birth outcomes.

One of the primary features of our textbook is the use of case studies, which follow four children throughout their lifespan. With each of their stories, we aim to highlight the ways in which a child's intersecting identities can impact their quality of life as well as their overall development. The scenarios presented within the case studies are a reflection of our student experiences as well as our own. They cover topics related to racism, classism, access to resources, health, immigration, and many others.

Understanding Human Development is a work in progress. We hope to add chapters on emerging adulthood as well as how policy and social practices that impact children and their families. We also plan to expand on the case studies. Your engagement and feedback will be key in this process.

Warmly,

Christina, Esmeralda, and Terese

Understanding Human Development: Lead Authors

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Manuscript Development Process

This book went through an extensive pre-production process before it was launched in order to be accountable to the project's equity lens; revise drafts for quality; and incorporate feedback from scholars, practitioners, and students in the discipline.

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Google Doc Version of This Book

Link to view-only Google Doc version of this book – make a copy to start editing! **Understanding Human Development: Prenatal Through Adolescence**.

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Detailed Outline

The following detailed outline lists the sequence of topics and sub-topics covered in each chapter. We hope that reviewing this sequence will help future educators who may wish to adapt parts of the textbook for a specific course or project. Please note that the Pressbooks Table of Contents offers a high-level outline of this sequence, whereas this detailed outline shows each subtopic. Content can also be located by keyword by searching this book (upper right).

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