Disinformation: Dealing with the Disaster

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Acknowledgement

We would like to acknowledge that we work and live on Treaty 4 and Treaty 6 territories, homeland of the Métis Nation. We give thanks to the original caretakers of this land, the Cree, Dakota, Nakota, Dene and Saulteaux people. As non-Indigenous librarians, we dedicate our work to directing people to the appropriate sources of information to help them understand the historical and ongoing harms that continue to occur on this land. We acknowledge the privileges afforded to us as descendants of settlers of this land. It is due to these circumstances we have been able to become educated and employed professionals in the field of information. It has also enabled us to have the skill set to seek and attain funding for the project.

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Foreword

LYNN CALDWELL

A Note to Educators Using This Text

In offering a *Foreword* to this extensive and open work on the issues of disinformation, my purpose is to put the book in the context of efforts to address specific harms in society. The authors and their research assistant are library professionals who draw on the role of libraries and library work for the creation, acquisition, evaluation, and use of information across subjects. The book is organized to provide tools and practices to help readers understand information as something people take active roles in relating to. These are tools and practices from library workers as information professionals, shared for the purposes of all readers to learn from this expertise and knowledge, as we relate to multiple sources of information within various environments such as news sources or social media or online search engines. So that is a key consideration for how to use this as a teaching text. This text explains and teaches about relationships to information by drawing on the study of information itself.

Another consideration for where and how this book relates to other efforts to address information misuse and manipulation is that the content can be directed toward readers who have different, and even incompatible, perspectives. The harm for individuals and society from disinformation is named by people with very different claims about who is being harmed, in what way, and by what information. As a resource for "dealing with disaster" this book provides material and tools of assistance to people who may disagree on almost (or maybe even absolutely) everything else *except* that information can be manipulated, and that such manipulation causes harm.

Defining and describing disinformation, and the specific harmful manipulations that people do encounter in such environments as news, social media, search engines, political campaigns, or advertising, is one central task of the book itself. I leave that to the pages that follow. As an open text resource, these pages are widely available, as is the course it goes with. Definition of the issue itself is meant to be accessible to and in support of a range of interests and readers. In providing a definition, the authors and text do not

resolve differences or debates—rather, they describe in detail and with diverse examples how an understanding of information distribution and automation is important to its evaluation. Critically, what a text about disinformation — by information professionals — in the interests of naming and reducing the harm of information being manipulated offers, is a way for fact, evidence, accuracy, and accountability to be understood for what it is. For people who are locked in conflicts about what is real, or about what matters, there may be at the very least the possibility to agree on the importance of reducing the harm and avoiding the disaster of missing information or being misled about the options before us in any given debate or decision. Thus, this book is perhaps most particularly in service of learning to disagree more effectively and less dangerously.

The tools and methods to evaluate memes, read tweets, investigate the sources of images, may not end conflict over what to do and how to live well together. I would venture to say that these tools and methods for information evaluation *will not* end such conflict. They will, however, help us shift from people locked in conflicts about what is real, to become people exercising our agency and freedom to discuss, debate, and disagree about what to do and how, more effectively and less dangerously. One disaster that this open access text helps readers to avoid is that of forgetting and abandoning the human personal, cultural, and political agency and freedom carried in the wealth of cultures and histories over time. The ways to experience that agency and freedom in relation to how we encounter differences and disagreement on topics like health care, government budgets, air quality, school curriculum, sexuality, transportation, religion, and parenting are already and readily found *in* human cultures. The resources and strategies to live ethically and carefully in our communities and in relation to our differences, do exist and are being studied and created all the time.

How a book like this, and this book as an open resource, helps avoid the loss of agency and freedom in conflict and debate is in part by clarifying a distinction between interpretation and fact, without abandoning either, and therefore enabling readers to work and live more freely with both. That clarification comes through the level of detail provided about the structures and processes through which information does circulate, and the demonstrations of how those structures (e.g., search engines, algorithms, filters) can be examined and tested for reliability and accuracy. What is not detailed in the book, but left to the reader, is the work of recognizing and assessing what shapes our interpretations *as* we seek out and assess the facts about the life we share. That is not the work of the book; it is not the task here to advocate for or to summarize political, cultural, personal differences of readers who seek to make our ways through these information

environments. It is also essential work to understand and to be responsible for our own worldviews and values as these are sources of difference and conflict as well.

This book, situated in the broader terrain of disputes and cares about human health, the future of water and soil, or any number of issues where the stakes of debate are high, also requires reader attention to what, by choice or by habit, influences our judgements of the information we are assessing. We do bear responsibility for our judgements, as much as we rely on the accuracy of information. This book on disinformation, on how to effectively evaluate sources and assess the quality of information on any given subject, also supports a reader's efforts to consider the basis for their judgements.

Disinformation: Dealing with the Disaster is a companion to the deliberations we all must make about how our values and worldviews and intentions serve the good, the ethical, the practical or however else we might identify what motivates us in our actions and decisions as parts of the whole, of society, of these times, of this world. As is shared in these pages, there are answers for how to understand the sources and organization of the "chatter" (see chapter one) as the influx of information can be experienced. This book and the course it supports provide such answers and the tools to use them. To be sure that we are freely and fully able to make the decisions and express the views that are true to our realities and values, as we use these tools, and to figure how to do that without prejudicial harm to others, also requires attention, practice, and effort. Thankfully, there is a wealth of human history, written and oral cultural knowledges, and people to whom we can and must also turn to, across every geography past and present, with answers and ideas about ethical human life.

This book and its details help any reader to share that wealth and to be actively and confidently part of drawing on reliable information as sources for their own contributions to not only averting disasters and harm, but to shaping the good ideas and life we need.

How To Use This Book

What Is It?

This book is an accompaniment to a free, open, online course – Disinformation: Dealing with the Disaster. For those choosing to take the course, the book expands upon the topics, following the general structure of each module. For those only reading the book, it provides a foundational knowledge of the issue of disinformation in the online environment and provides a variety of tools to enable readers to become more informed digital citizens.

The educational theme that underpins the entire book is that an introductory understanding of various literacies (information, media, digital and meta) combined with critical thinking skills is the best path towards effective online information evaluation. Chapters one through four each cover a single literacy, providing background information on relevant associated topics and concluding with an explanation of that literacy. Those four chapters are tied together in the last chapter which offers tools and frameworks to help readers critically evaluate information. Finally, the appendix contains a glossary which includes important concepts.

Who Are We?

Our team works in libraries. For centuries library professionals have been the gatekeepers and organizers of reliable and trustworthy information across the globe and in all fields of study. One might consider a library just a place to find a book to read, but they are so much more. They employ information professionals who have made careers of helping people find truthful information. Increasingly, at all types of libraries, information professionals are developing teaching materials to assist patrons with the skills needed to differentiate between high- and low-quality information off and online.

We are academic librarians who have spent a decade delivering information evaluation sessions to students and in doing so we have experienced the impact that false information has on people's ability to function in society, whether that be as a community member, a student or a professional. With the help of a research assistant (also an information professional), we have written a book that is meant to provide a jumping off point for more learning. We do not consider ourselves experts in various disciplines that are featured throughout the book, namely: media, news, journalism, psychology, and computer technology. These are fields that are critical to an understanding of information disorder and disinformation, so in our efforts to effectively educate in our field (information), we have attempted to learn about and provide some facts from these disciplines as they relate to this topic. This writing is all based on our examination of literature, and we are open to scrutiny from experts from various disciplines. It is our hope that the book will spark meaningful conversations and, in a small way, make the world a slightly more balanced place.

Author's Note

Throughout this book, we will use the terms information disorder, false information, and disinformation to encompass various trends that are having an impact on the online information environment. When one of these terms is used, it is a reference to various concepts that have similar meaning. **Information disorder** and **false information** are catchall terms for misinformation, disinformation and malinformation. When we use information disorder, we are referring to those three concepts collectively. False information is used in place of misinformation or fake news at times when the use of those terms isn't clear. **Disinformation** is used when referring to concepts whose key purpose is to manipulate and cause harm – those include: malinformation, fake news, propaganda, deformation, and of course, disinformation. When we first embarked on this project, we felt that disinformation was the most harmful. We have since learned that all the different concepts come together to create an environment of disarray. However, we have chosen to continue to utilize disinformation, as it is still a concept of great concern that encompasses various other phenomena, and because it fits well into our clickbait title.

Introduction

We live in a world in which individuals of any background can generate beautiful web pages, online profiles, and large social media followings. They can author posts of any kind, those that support evidence and those that refute it. In this world, these individuals might become leaders and their posts might be perceived as authoritative. Large numbers of followers might begin to identify with their message and agree with their stance. Also, in this world there are deniers. Deniers of science and evidence. Those who create and support false information. In this world, where a lack of trust and a lack of profits has gutted the traditional news industry, those who want to publish false information become more powerful. Their messages are supported by malicious actors, both human and artificial, and are driven by politics, financial gain, and in some cases, the desire to promote suffering. In this world, people have been known to deny truly believing in the sentiments they themselves author. When finally confronted face-to-face, without their tablet or keyboard to act as a protective shield, about the false information posted on their own page, they might respond with "just because it's a post – does that make it a fact?" This was acomment made by James Bauder, one of the leaders of the 2022 Canadian Freedom Trucker Convoy, in response to a journalist questioning him about a post which stated that vaccine mandates in Canada were the beginning stages of World War III. The post has since been removed (Guerriero & Anderson, 2022).

This is, of course, our world. A world shaped by humanity's drive to create and share information. In the online environment, the issues we disagree about create tension and those who wish to cause harm, flourish. Our present state is a society made uncomfortable by the consequences of scientific consensus and government mandates. And our desire to engage with, create, and share information, in a way that makes us feel more comfortable, is leading to a dangerous reality.

In this world, who can we trust?

CHAPTER 1: INFORMATION DISORDER

1.0 Learning Outcomes

Summarize the evolution of information by:

- Identifying different types of information sources.
- Defining types of information including disinformation.
- Explaining the history of disinformation.

To begin, we look at how information is created and spread throughout society. The quantity of online information is continually increasing, and it is becoming available in many different formats, leading to **Information Disorder**. In this chapter, we will cover the following important concepts:

- Information overload
- Misinformation
- Disinformation
- Malinformation
- Deformation
- Propaganda

1.1 Information Evolution

The world of information is extremely complex. Some scholars have spent lifetimes searching for, organizing, and evaluating all the information on a single topic. Due to human interaction with information, one small concept can develop into an unimaginable amount of material. People and technology participate in the evolution of information by creating and sharing it. Nowadays we have the Internet, and with it, simple concepts, over time, become vast amounts of data. They do so quickly because there are so many participants generating content.

Let's imagine an example. We will consider the planet Mars and look at how information about it has grown over time. This example highlights the different formats that information can take and draws attention to the people and **mediums** (methods of sharing) involved.

Mars Example

In the past, people observed the planet Mars as a red circle in the sky. On a very clear night, it could be seen by the naked eye. People studied and discussed this circle creating both cognitive (thoughts, dreams) and oral (stories, conversations) information. Eventually Galileo, a scientist, would look at it through a telescope and record his observations (NASA, n.d.a). As time progressed, Western scientists would study Galileo's interpretations of the planet and make their own observations, document them, author books, create images and write articles (visual and written information). Many would analyze and publish their findings. Eventually fictional concepts about the planet would emerge, such as ideas about beings called Martians. People have imagined them in various ways–what they might look like, how they might behave. Some have imagined aliens from Mars attacking Earth. An author, H. G. Wells would write a story about this very idea in 1898, its title: *The War of the Worlds* (written information).

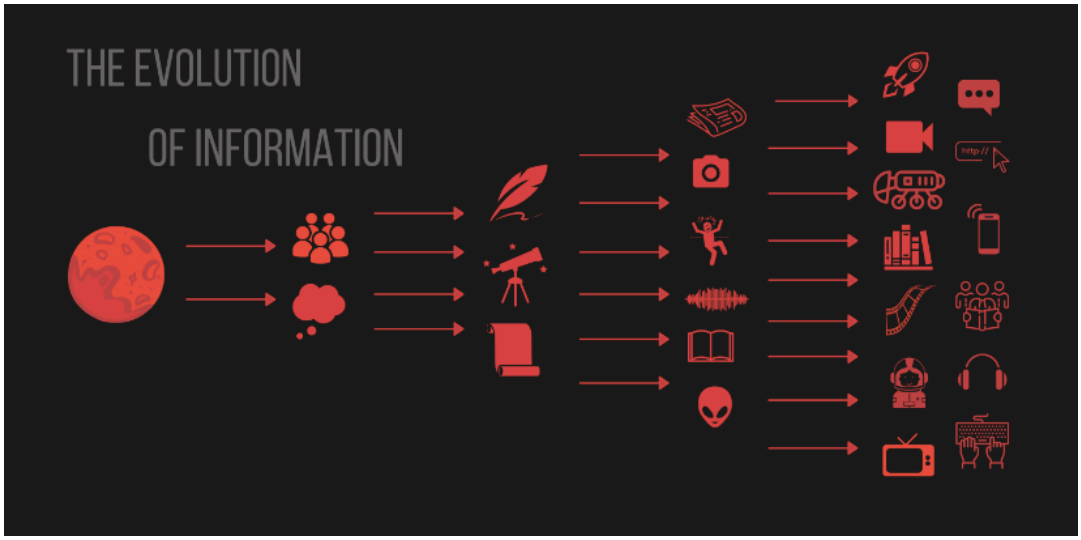


Figure 1: The evolution of information.

This story would impact future generations when four decades later, in 1938, Orson Welles decided to read it aloud on his radio show (delivering audio information and creating a recording). As the story goes, he read the novel so convincingly that people who were listening to the broadcast believed it was happening… that aliens were attacking the earth (Schwartz, 2015). In the coming days, as apparent panic spread throughout the state of New York, newspapers interviewed Orson Welles (creating more information in the form of newspapers, audio interviews, recordings). These interviews created more information about the event, now dubbed *The War of the World's Hoax*. The information explosion that began as just a red circle in the sky continued onward past the hoax. And here is where we begin to see the emergence of misinformation and disinformation. Did people believe that aliens were attacking the earth when they heard Orson Welles on the radio? Was the entire thing a public stunt created by Orson Welles to increase the popularity of his radio show (Schwartz, 2015; Campbell, 2017)? After all, he would go on to be considered one of the greatest filmmakers of all time.

Over the past couple of decades, scientific discoveries about Mars have continued to occur. Spaceships with rovers have visited the planet generating data and images (NASA, n.d.b). Along with these discoveries have emerged articles, blueprints, video footage, audio recordings and more. We have begun to imagine sending humans to Mars. We have written it down in books and recorded the ideas on film and TV series. We

have had conversations with our friends, in blogposts, and on social media. As the chatter continues, the creation of information about Mars continues.

This is just *one* example of *one* concept adding to the information available about *one* topic – Mars. Now reflect on the many other pieces of information that have emerged about the red planet – the concepts, ideas, and discoveries that were not discussed in the example. What information do we have about other planets? About the solar system? How much information is there and how quickly is it multiplying? Now consider the fact that this is true for basically every concept known to humanity. Any idea or thing can go in multiple directions, be observed, discussed, shared, and received by any number of humans. Humanity has created and has access to what feels like an infinite amount of information, so how do we go about managing it?

1.2 Information Overload

It is common to become overwhelmed by the amount of information available on any topic. Information multiplying in the way described in the Mars example, combined with the digital tools and resources available to humanity, has resulted in people having access to unimaginable amounts of information. Additionally, humans are consuming information in a variety of new ways.

Numerous sources have said that by the year 2020 there would be 40 times more data in the digital realm than there are stars in the observable universe. To put that into perspective, "there are about 1,000,000,000,000,000,000,000 stars in space…[t]his amount is about equal to the number of grains of sand on all the beaches on planet Earth" (UCSB ScienceLine, 2013). Statista, a company that collects data from across the world for various purposes, releases an infographic each year which captures one minute on the Internet (Jenik, 2021). The graphic below shows how each item shared, viewed, downloaded, or uploaded is adding to the online information landscape. This is the stuff that begins to show up in searches, on newsfeeds, and in daily conversations.

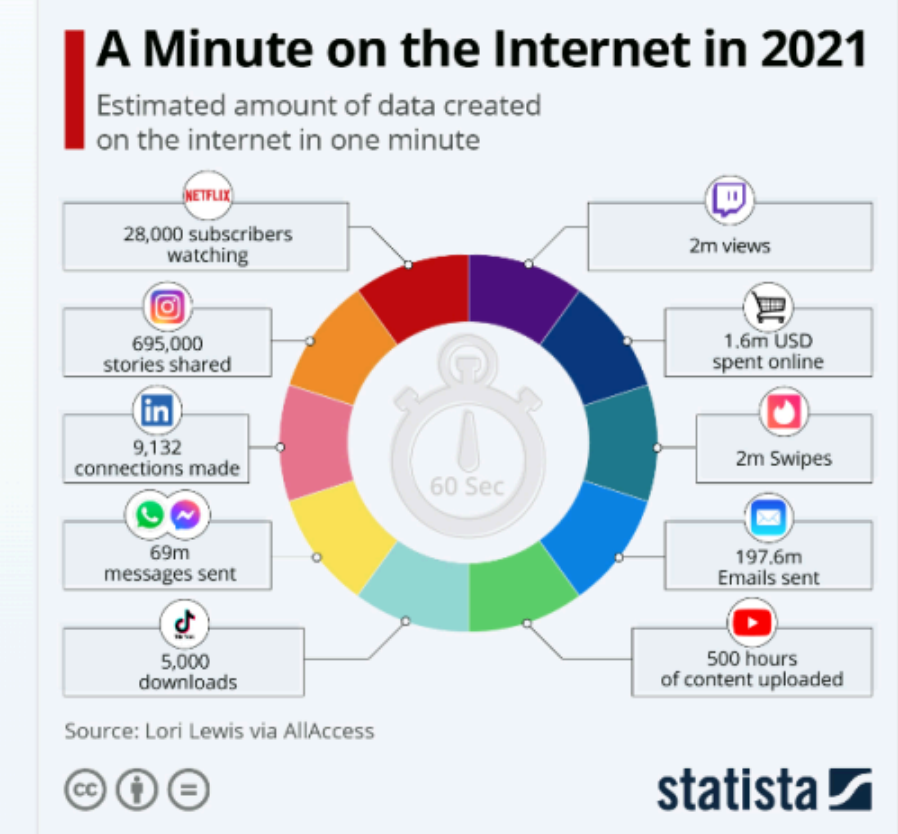


Figure 2: A minute on the Internet in 2021 (Jenik, 2021).

This oversupply of information has resulted in many people experiencing **information overload**. This occurs when a person is exposed to more information than they can cope with and results in them having difficulties "processing and handling it" (Liu et al., 2021, p. 2). Information overload can lead to stress, an inability to analyze effectively, and a feeling of detachment. So, although the present is an exciting time in which unlimited information is available with the simple click of a button, problems are emerging.

Humanity is having a difficult time keeping up. Viewing the most recent trend, being in the 'know', and continually receiving updates has begun to consume people's attention. The constant flood of information engulfs even the most careful observers. The result is that often people only have time and the capability to scan information briefly (Menczer & Hills, 2020). When it comes to information — if people are skimming, viewing portions, and missing pieces completely, how accurate and reliable is the lens through which they see the world?

1.3 Information Disorder

"In the digital sphere, all sources – whether reputable or not – can appear equal" (Gibbs & Castillo, 2021, p. 5). Knowing this, individuals who enjoy creating chaos and who intend to cause harm, can do so very easily. The spread of false information on the Internet occurs at a rapid pace and has been described by experts under the collective term **information disorder,** which encompasses misinformation, disinformation and malinformation. The diagram below shows that there is overlap between the three concepts. Together they encompass the creation and sharing of false information by individuals or artificial intelligence for various purposes (Stecula, 2021). The element that differs between the concepts is the creator's intent.

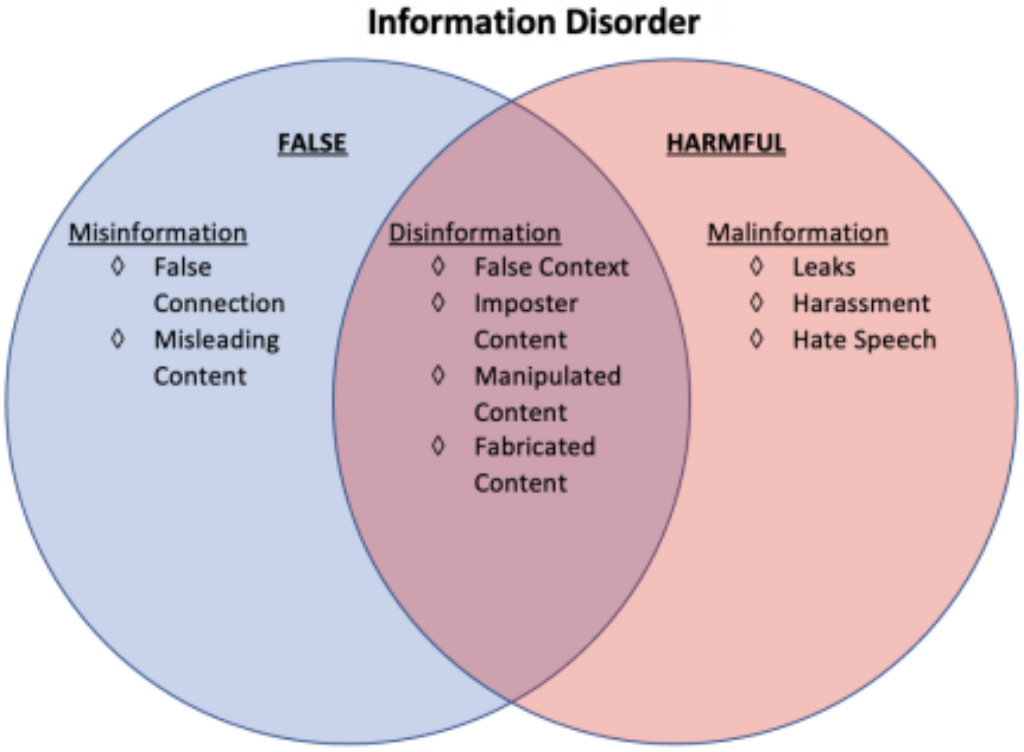


Figure 3: Venn diagram of Information disorder (Wardle & Derakhshan, 2018; Stecula, 2021)

1.3.1 Misinformation

Misinformation is information that is false, but the person sharing it believes it is true. It may be incorrect or incomplete and the creator or sharer might not know that the information is untrue (Gibbs & Castillo, 2021). All people are vulnerable to misinformation, including people who are highly educated and very involved in thinking about these things. (Stecula, 2021). It is less dangerous than its partner concepts but can cause confusion and contribute to information overload because it can spread quickly on social media (Chen et al., 2015; Pennycook et al., 2018; Thomson & Finnegan, 2020).

Here is an example of misinformation. An individual receives a COVID-19 vaccine, they then post on their social media channel that they "got Moderna and now feel SUPER SICK, don't get that one!" Their social media circle might react in multiple ways. Someone may react by posting that they got Moderna, and it was totally fine. Another person may tell people in other social groups that they heard someone got Moderna and felt sick. A third person may silently store this information to be used when needed and find themselves at the vaccine clinic requesting Pfizer instead of Moderna, but not remembering why. Meanwhile, the original poster, the one who got vaccinated and posted about it, realizes that they had actually received a Pfizer vaccine.

This sort of occurrence is not that dangerous. But the post may have prevented an individual from getting vaccinated in a timely manner; it might have even spread this misinformation to other people. It has the potential to cause confusion, but it's not purposefully harmful.

1.3.2 Disinformation

Disinformation is information that is false. The person creating it knows it to be false and shares it with intent to cause harm (Gibbs & Castillo, 2021). It is made up of deliberate, intentional lies. The creators of disinformation intend for those who engage

with the information to be persuaded to a certain viewpoint (Chen et al., 2015; Wardle & Derakhshan, 2018). In the Internet age, disinformation spreads quickly due to the various players who might get involved including trolls, troll farms, bots, spoofers, influencers, governments, and normal citizens. It is often made up of exciting headlines that stir emotion and which people share with very little thought (Stecula, 2021). Those who are the most skilled at creating disinformation can easily make it appear sophisticated and well-researched, even when it isn't.

Here is an example of disinformation. In 2017, following the day of his inauguration (when he was sworn in as President of the United States [US]), Donald Trump said that his ceremony was the biggest of all time (it wasn't). It was later revealed that images of the day (which had been published online in various places) had been altered to make it appear that his crowd was a similar size to his predecessor, Barack Obama's (Finnis, 2021). Over time, the doctoring of images and constant barrage of Donald Trump's supporters claiming that his inauguration was a highly attended event, led to confusion, belief in false information and even more dangerously, disengagement with the truth. The facts are:

- Donald Trump's inauguration: 600,000 people in attendance (left) (Finnis, 2021)
- Barack Obama's inauguration: 1.8 million people in attendance (right) (Finnis, 2021).

Figure 4: Comparison of images of inauguration attendance Trump (left) and Obama (right) (Swaine, 2018).

The creators of disinformation create and share it for various reasons, many of which are unknown, but some of which include financial gain and public notoriety (Buchanan & Benson, 2019). In the case of Donald Trump, he is famed for doing whatever he can to ensure that everyone believes whatever he says, whether it is true or not.

1.3.3 Malinformation

Malinformation can be used to describe two different situations. The first occurs when real information is slightly altered or misrepresented to cause harm to a specific country, organization, or person (Chen et al., 2015; Wardle & Derakhshan, 2018). The second situation occurs when true and private information is 'leaked' at a particular moment with the intent to create a large effect (Bajwa, 2021; Stecula, 2021). An example of 'leaked' information is personal videos or emails that are released to the public. The concept of malinformation is difficult to understand and gets even more confusing because much of it that appears online disappears when people become aware of its falseness.

Here is an example of malinformation where real information is altered to cause harm. Since the release of the COVID-19 vaccine, fake news sites have been linking deaths and side effects (such as infertility) to 'getting the jab'. These sites will find a story about a person who received the COVID-19 vaccine, then died in a car accident three hours later, and create a new story with a headline "woman dies 3 hours after receiving COVID-19 vaccine!!!" They do not care about a direct correlation to the actual vaccine and they do not care how long the story stays up. It only takes a couple clicks and shares to make a post viral and convince people of its truth.

This occurred in March 2020, when rapper DMX died of a massive heart attack. In the couple of months following his death, basic Internet searches were not successful in identifying the cause. His family took to the press denying that the heart attack was induced by a drug overdose (a common assumption). They deflected and mentioned that the rapper had received his COVID-19 vaccine a week prior to his death. A connection between his death and the COVID-19 vaccine began and spread on social media and reality star Kailyn Lowry shared a headline in her Instagram Stories:

Figure 5: Screenshot of Instagram story 'DMX Received Covid Vaccine' (kailowry, n.d.).

In the weeks following the publication of this and other articles like it, the story connecting the vaccine to DMX's death disappeared completely. No trustworthy sources have verified that DMX's heart attack was related to getting the COVID-19 vaccine. In fact, no sources can verify that he received the vaccine at all and articles linking his death to the vaccine no longer exist, but for those who read and believed them, the damage is done. Numerous sources now corroborate that the heart attack was the result of a cocaine overdose (Frishberg, 2021; Bekiempis, 2021; Robinson, 2021). The vaccine-death connection only existed for a moment in Internet time, but it likely caused real damage.

1.3.4 Deformation

Information disorder can also be created by taking information apart, this is called **deformation**. It occurs when someone shares a part of a story, out of context, and makes that portion appear as a fact (Brennen, 2020). Twitter's word count limit lends itself to 'deformation' because it is challenging to explain complex concepts in 280 characters (Brennen, 2020).

Here is an example of deformation. An Instagram story in 2017 emphasized the risks of consuming ramen noodles. The caption claimed a Harvard study revealed that ramen does damage to the body, but the statement is not true. The study was not associated with Harvard and it has never been repeated–meaning it doesn't follow the scientific method. A careful review of the entire study reveals that there is no way to isolate ramen as the sole cause of the adverse health effects (LaCapria, 2016). By trying to report on a complex study, this Instagram story does not provide enough information to give an accurate explanation of the real findings.

Figure 6: Screenshot of Instagram story about ramen (NextShark, 2017).

1.3.5 Propaganda

Propaganda is a term for information that is manipulated to influence and control a target group of people over a long period of time (Gibbs & Castillo, 2021). This often occurs by presenting facts selectively, sharing partial facts and omitting certain facts. A propaganda campaign has a leader, a set purpose and a goal. O'Connor and Weatherall (2019) define propaganda as "material produced by a government or political organization, to promote a particular viewpoint–or to challenge one" and they point to the fact that much misinformation takes the form of propaganda (p. 9). Adolf Hitler, for instance, developed an entire Ministry of Propaganda (called the Reich Ministry of Public Enlightenment and Propaganda) under which Nazi agenda dictated all information given

to the German public from 1933-1945 – they controlled films, theatre, music and the press (United States Holocaust Museum, n.d.).

Another form of propaganda is industrial propaganda which appears as advertising and campaigns to undermine truth and evidence. Big Tobacco's decades long advertising campaign, which sought to misinform people about the harms of its products, is an example of this type of propaganda (O'Connor & Weatherall, 2019). In chapter five we will discuss the successful efforts by major tobacco companies who created confusion, doubt, pseudo-science and propaganda to ensure that they would continue to profit off of tobacco sales, even as scientific evidence pointed to the now well-known health concerns related to their products.

Concepts discussed in this chapter have existed throughout history. Misinformation, disinformation, malinformation, deformation and propaganda are distinctive and frightening trends which flourish in the Internet age, but they are not new. They are increasing and have become a repetitive, sometimes inescapable, aspect of everyday life. The next section examines instances of disinformation throughout history to highlight its consistent presence and to shed light on how, in the Internet age, false information has the potential to spread at an alarming rate.

1.4 The History of Disinformation

This section explores three examples of disinformation throughout history. They come from different cultures and different time periods. Each historical example is followed by a more contemporary event or story to show that although it might look, sound, and smell different in today's world, it is much the same.

The First Roman Emperor

In 44 BC, the famous Roman General Julius Caesar was assassinated. In this year, his nephew Octavian (who would later become known as Augustus) began a lengthy disinformation (defamation) campaign to eliminate his rivals and come to power. First, he needed to defeat his political opponent Marc Antony. He used a disinformation campaign to convince the Roman people that Marc Antony did not represent Roman values. Most of the disinformation campaign focused on Marc Antony's love affair with the African Queen Cleopatra–who was viewed by the Roman population as a foreigner who could not be trusted. In songs, poetry, and short lines on coins (which people have referred to as ancient tweets) Marc Antony is referred to as a degenerate–which, in politics throughout history, suggests that a person's physical or mental health is declining (Hughes, 2013). Degeneration also calls into question an individual's morality – their ability to understand the difference between right and wrong. Augustus ultimately defeated Marc Antony in battle. Even after Marc Antony's death, and after Augustus became the first emperor of Rome, the campaign continued. Augustus dedicated decades to glorifying his image with stories, monuments, statues and coins. He portrayed himself as Augustus the Statesman, Augustus the Peace Bringer and Augustus the Commander (Kaminska, 2017; Pollock, 2017). These images have outlived the emperor and they have become a propaganda roadmap for politicians throughout modern history.

Figure 7: Roman Aureus with Augustus coins (Wikimedia Commons, 2018).

The practice of calling a political rival's health into question is still used today. For instance, the health status of the current President of the US, Joseph Biden, is often remarked upon in the media. He has been nicknamed "sleepy Joe" by his rivals and his family is often tasked with defending his advanced age in interviews (Kalter, 2020; Mangan & Wilkie, 2021; Smith, 2022). Even though his doctors have said he is in good health and the summary report for his medical examination is available, his mental capacity and his physical health is still questioned (Mangan & Wilkie, 2021).

Figure 8: Meme questioning the mental capacity of Biden (WayneUrso, n.d.).

The meme below gives an example of a propaganda-like attack on Biden's health. It is easy to share over the Internet and its comedic nature may appeal to many groups of people. Some experts have claimed that memes are the new propaganda. A look at the meme of Biden below might prove that exact point. Augustus reigned over approximately one million people in the city of Rome-not including the entire Roman Empire (Storey, 1997). How long would it take for the Biden meme to reach one million people today? Imagine how much quicker Augustus could have taken Marc Antony down if he'd had access to the world wide web, graphic design tools and a constant 24/7 audience. It probably wouldn't have taken fourteen years, which is the amount of time between the deaths of Julius Caesar and Marc Antony (the length of the defamation campaign).

The Great Moon Hoax

In 1835, the *New York Sun*, a relatively new newspaper, created a **hoax** to poke fun at a science writer who had made claims that the moon had billions of inhabitants. The suspected author of the articles claimed to be a scientist who was friends with a famous astronomer, Sir John Herschel. The article claimed that Herschel, using a telescope, had seen life on the moon, including humans with bat-like wings, bison, goats and tail-less beavers. The series of six articles included illustrations of the civilization (see Figure 9) which were widely believed. The newspaper's sales shot up and a committee of Yale scientists began to search for the original observations published by Herschel. When asked about the telescope through which the amazing images had been viewed, the paper claimed that it had been destroyed in an unfortunate melting accident caused by the sun. In September of the same year, the newspaper acknowledged that the entire thing had been a hoax, which is the creation of misleading information, which intends to make someone believe something outrageous. The paper continued to do well until 1950, and most people who read it were said to have been amused by it (History.com, 2020).

Figure 9: Herschel's drawing of creatures on the moon (History.com, 2020).

Now for a modern-day hoax, in 1995, Fox broadcast *Alien Autopsy: Fact or Fiction*. The creator of the show presented it as authentic footage of an alien autopsy in Roswell,

New Mexico. However, the director along with other experts who had consulted on the film tried to alert Fox that the film seemed to be fake, calling the featured footage a hoax. But Fox did not want that information to get out before the broadcast, as they knew that if the public believed they were viewing an actual alien autopsy, their ratings would skyrocket (Wikipedia, 2022). Sure enough, each time the show aired, it had higher and higher ratings. Finally, in 2006, the filmmaker admitted that the footage was not authentic, but he maintained that there was actual video footage of an alien autopsy that was too degraded to be used in the 1995 film (Wikipedia, 2022). Could this be considered a modern-day example of hyping up a false story to increase ratings and profits?

Influenza Pandemic Disinformation Campaign

Throughout 1918, a pandemic of the influenza virus killed an estimated 20 to 40 million people worldwide. It is famously known as the Spanish flu, even though its origin has been traced to a US Army camp in Kansas (Davis, 2018). The illness spread during World War I. Some speculate the reason it is known as the Spanish flu is because Spain, a neutral country, meaning they didn't take a side, didn't hide the number of infections happening daily in that country. They openly published their numbers which made them appear to have more infections than other countries who were purposefully misinforming the public (Davis, 2018).

But why would a country suppress their infection numbers? The countries that were actively fighting in the war wanted their populations to focus on war efforts, not on the flu, so they claimed that the virus was under control and even refused to publish letters of warnings from the medical community (Davis, 2018). People living in Philadelphia would become the victims of the US's disinformation campaigns. In March of 1918 the city hosted a Liberty Loan March to raise funds for the war effort. Editors at a newspaper refused to run doctors' letters warning people not to participate in the event to avoid spreading and contracting the flu. Additionally, the medical community was unable to convince the city's public health director to tell people not to attend. Over the coming weeks more than 12,000 Philadelphians died from infection. The March has widely been considered the super spreader event that catalyzed the enormous number of infections and deaths (Davis, 2018; The Week Staff, 2020; Flynn, 2020).

Dishonesty and manipulation can have an impact on health issues today, as well. In recent years, evidence is appearing to indicate that Big Pharma companies led

disinformation campaigns pertaining to opioids. Purdue Pharma has been found to have made misleading claims about Oxycontin calling it a weak opioid that is safe for chronic pain. They have been accused of claiming that use of the drug would not result in addiction (Bavli, 2019). To add to this, they had used an aggressive marketing strategy to get more people to use Oxycontin. Between January 2016 and September 2018 there were 10,300 opioid-related deaths in Canada (Bavli, 2019). In 2018, a group of physicians and opioid experts asked for an investigation into Purdue Pharma's claims, feeling that as a medical community, they had been misinformed and manipulated in ways that led them to over-prescribe the drugs to their patients (Bavli, 2019). In 2020, the company pled guilty to felony offenses including fraud, they are now facing a multi-billion dollar fine (Department of Justice, 2020).

1.5 Moving Forward: Information Literacy

As we have seen, false information is nothing new and is present in many forms. So how do we know what to believe? How can we judge the quality of information? A meaningful step is to learn about information creation and engage in critical thinking. **Information literacy** is one of the most achievable methods to combat information disorder (Batchelor, 2017). Information literacy is a concept with a lengthy history and an evolving definition.

It is a concept used in information studies within the realm of libraries and is taught by librarians and information professionals. In 1989, the American Library Association stated that "an information literate individual should recognise when information is needed and have the ability to locate, evaluate and use effectively the needed information" (As cited in De Paor & Heravi, 2020, p. 3). In 2018, CILIP, a library and information association out of the United Kingdom (UK) expanded the definition adding that, information literacy is "the ability to think critically and make balanced judgements about any information we find and use. It empowers us as citizens to reach and express informed views and to engage with society" (as cited in De Paor & Heravi, 2020, p. 4).

Even those of us who think we are immune to false information, are not. Very few of us recognise our own limits. The only way we can combat information disorder is to learn about it, then do our best to detect it and stop its spread. Understanding the information environment and asking questions are among the first steps in becoming information literate individuals.

1.6 Discussion Questions

1. Can you think of a time when you experienced information overload?
2. Which aspect of information disorder seems the most dangerous? Why?
3. What does the history of disinformation tell you about our current information climate?

CHAPTER 2: INFORMATION DISTRIBUTION

2.0 Learning Outcomes

Examine news creation and distribution by:

- Recognizing key aspects of information circulation.
- Explaining the various forms of media and news bias.
- Differentiating between types of news.

In chapter one, we discussed information disorder, defined concepts, and presented examples of disinformation throughout history. In this chapter, we will introduce the methods used for distributing information, describing them in very simplistic terms. We call this **information distribution.** Circulating information has a long and complex history, and a basic understanding of three key concepts-news, journalism, and editing-is critical to understanding information disorder in the Internet age. This chapter will cover:

- News sources
- Journalism
- Editing
- Media bias
- Fake news

2.1 What is News?

News is made up of stories considered "interesting, important or unusual enough to be newsworthy" (Harcup, 2014, para. 1). It usually covers important events happening locally (in a specific town or city), nationally (in a specific country) and internationally (around the world). Historically, news has appeared in various mediums including print, television, radio, search engines and social media. The news industry recounts the things that are happening at a specific time in a formal way to a targeted audience, usually by geographical location (Chandler & Munday, 2020). This activity involves many professionals who gather, put together and distribute information–including reporters, journalists, correspondents, printers, editors and more.

In almost all societies, news is available in some form and is widely considered to be made up of truthful and accurate information (Vos, 2018). People expect news sources to provide a balanced overview of the stories presented (Harcup, 2014; Vos, 2018; Chandler & Munday, 2020). A balanced approach considers multiple sides of a story and presents more facts than opinions. The complex nature of the news and media industries showcase the need for people to read with caution, ask questions, and dig deeper. When an individual comes across an interesting news story, they should ask: why should I trust this source? One way to identify a trustworthy news source is to examine its journalistic and editorial standards. If an online news source doesn't have either – ditch it.

2.2 Journalism and Editing

Most mainstream news sources and all dependable news sources adhere to journalistic and/or editorial standards of practice. To understand this better, we first need a basic understanding of journalism and editing. Craft and Davis define **journalism** as "a set of transparent, independent procedures aimed at gathering, verifying and reporting truthful information of consequence to citizens in a democracy" (as cited in Vos, 2018, p. 3). Most descriptions of journalism include the key concepts of truth, facts, and informing. When describing the profession, most mention that to be considered a journalist one must adhere to guidelines that uphold social values. Journalism is not meant to support private business or financial gain but to inform society in a well-rounded way. Journalism might include collecting information (researching), preparing it (writing and editing) and distributing it (reporting, broadcasting or publishing). It is threaded throughout most news media (Martin, 2018).

Editing is another important part of the news process that separates good information from bad. In Canada, an editor is likely to follow the *Professional Editorial Standards*, a document that outlines "the knowledge, skills, and practices most commonly required for editing English-language materials" (Editors Canada, 2017, para. 3). Editors following standards ensure that articles are consistent and correct. When a writer or reporter invites an editor to review their work, they are usually looking for **neutrality**. To be neutral means to not favour one viewpoint over another. Ideally, an editor is someone who does not have a strong stance on the issue being written about.

Some organizations that publish trustworthy online information, for instance in medicine and health, hire knowledgeable editors to proofread articles and ensure their accuracy. Mayo Clinic (2018) is an example of a health information website that has a strong medical editorial staff. It includes a chief medical and specialty medical editors who review and update every article published. A specialty editor is an expert on a particular topic, so a doctor specializing in cardiac health is likely to review any articles pertaining to heart health. On websites such as these, the medical information provided is written based on the best research available. It is also interesting to note that the Mayo Clinic (2011) has a strict advertising policy, stating that they only accept advertising and sponsorship from companies that support their mission of "making reliable health information available to the public" (para. 1).

It is the hallmark of a good editor to be unbiased, to uphold standards, and to assist authors in presenting the facts in a way that is understandable to their audience. These elements of journalism and editing inform many news outlets' codes of ethics and standards. It is through the history of journalism that we see the emergence of terms and concepts that uphold truth: neutrality, objectivity, verifying facts (Jordan, 2021).

2.2.1 Journalistic and Editorial Standards

Disinformation is often present in the media; in fact, it has a long history throughout traditional news. An example that continues to occur is the use of questionable headlines during periods of unrest (like wartimes). News outlets from the countries involved have often felt required to publish censored news to ensure that populations continue to support wars. **Censoring** is when a person selects which part of a story to include and which to remove with a specific purpose. During the first World War, also known as the Great War (1914-1918), the British government enacted regulations so that news articles were heavily controlled. *The Defence of the Realm Act* was enacted to stop news outlets from publishing anything that might cause "disaffection or alarm" among the British population – in other words they did not want the truth about the atrocities of warfare to leak to the public (Greenslade, 2014, para. 3).

We have repeatedly seen people's frustration with false information in the media. This always begins when the public realizes they have been misinformed and they begin to demand more accurate information. Turning back to the Great War, in America, shared exhaustion with the publication of misinformation and propaganda by newspapers led the New York Times to embrace professional ethics (Jordan, 2021). The mechanism that allowed news companies to do this was the subscription model, in which people select what newspapers to subscribe to, and halt their purchase if they were dissatisfied with what they read. Within this structure newspapers adopted objective reporting to differentiate themselves from tabloid journalism and to maintain a balance to satisfy all readers (Giansiracusa, 2021; Jordan, 2021). This started the creation of journalistic standards and it eventually led to the *Fairness Doctrine*, which stated that American television and radio broadcasters must "present all sides of important public questions fairly, objectively and without bias" (Jordan, 2021, para. 18).

Today, most large news providers in Canada adhere to standards that are made publicly available. They do this to prevent the publication of false or misleading stories. Here are three Canadian examples:

- CBC Radio-Canada Journalistic Standards and Practices
- Global News Journalistic Principles and Practices
- CTV News Editorial Standards and Policies

There are three important promises presented in each of the policies listed above. First, *corrections policies* stating that the source will fix errors in a timely manner. Second, *conflict of interest policies* stating that the source will not accept gifts in return for reporting a story in a certain way. Third, *fact-checking standards* which describe how the source ensures the information shared is correct. A person who is seeking accurate information can be more certain they are reading high quality reporting if they begin by looking for and reviewing the journalistic and editorial standards.

However, it is important to remember that to be considered news, one does not have to adhere to guidelines such as those listed above. There are various websites that claim to produce news but provide readers with inaccurate or skewed information to achieve a specific goal. Millions of the news sites, blogs, and social media channels that have emerged in the Internet age do not adhere to standards. Some may even claim to adhere to journalistic standards, but often don't. It is important to read these statements closely and ask questions when reading an article of interest, before trusting the information.

2.3 News in the Internet Age

The entire world is experiencing a rise in the creation of disinformation and a decline of the creation of reliable news coverage. What is contributing to this change? The rapid sharing and creation of web 'news' across various platforms is impacting the news industry. First, a huge portion of advertising revenue which used to go directly to media companies is being diverted to large tech companies who share news but don't produce it. Second, in the fake news era, public skepticism has increased. Third, traditional media has changed formats to be available online which enables less reliable sources to create content that mimics traditional news while not being credible (Stecula, 2021). And lastly, social media has made it very easy to share news. Individuals who may not have had a voice before can now share their opinions widely. This has created an environment where more extreme viewpoints get more attention, and where stories meant to be humorous are taken as reality (Horner et al., 2022).

News Consumption

Before social media newsfeeds, Twitter notifications, and up-to-the minute access to information, people engaged with news very differently. Some read a print newspaper each morning, others waited until the evening news broadcast on television or listened to the radio's rebroadcast as they drove to work. Regardless of which format they engaged with, in this environment, news and media companies had time to collect, investigate, fact-check, and edit the stories presented (Martin, 2018). This process was not completely flawless. There have always been some circumstances that make information less reliable, breaking news being a good example of this. It is broadcast very quickly, and the time required to investigate and fact-check the reporting is sometimes rushed (WNYC Studios, 2013). A very pertinent example occurred during coverage of the Hurricane Katrina disaster in 2005 when news outlets in a panic to get information out published articles that were "exaggerated or just plain wrong" including stories about rape, drowings and robberies (News Literacy Project, n.d., para. 3). It is not unreasonable to say that Internet news, being that it is often reported as soon as it is happening, should also be met with a critical eye.

News Revenues–Paying the Professionals

In the new media environment, traditional news outlets are losing money rapidly as their advertisers turn to Google and Facebook. This has led local and mainstream news outlets to lose profits and consequently eliminate thousands of employees who, as a part of their professions, uphold journalistic and editorial standards (Lindgren, 2020). News media companies are often owned by corporations looking to generate revenue and so, those corporations may cut positions held by high salaried professionals in favour of hiring freelance writers. This has contributed to the disappearance of journalism jobs (Jolly, 2021).

2.3.1 Advertisers

The COVID-19 pandemic revealed something very interesting about news consumption. It appears that during times of public crisis, people turn to mainstream news for information. A survey done by Statistics Canada (2020) revealed that, throughout the pandemic, 51.3% of Canadians sought information from news outlets, while 9.8% sought it from social media. What is unusual about this occurrence in 2020, is that at this time, the news industry was being devastated by falling advertising revenues (Lindgren, 2020). In the past, everyone might have paid for their news by subscribing to a local newspaper. However, local TV broadcasting relied mostly on advertising revenue to pay their expenses. **Advertising revenue** continues to fund news content on the Internet. Although it may seem obvious, not many have considered the fact that the news industry has relied on advertising revenue to cover 80-100% of their costs throughout the 20th century (Law, 2021). Subscription fees cover only a small portion of the cost of producing news, and people have come to expect news at a very low price or for free. Presently, the idea of paying for news is not one that people accept easily.

So, where is advertising money going? It's going to big tech companies (such as Google and Meta) who consume 80% of the online advertising market in Canada-billions of dollars (Jolly, 2021). Many Canadians worry about a lack of reliable national and local news due to the loss of Canadian news publishers, and they should (Jolly, 2021). As more people engage with and share the news on their platforms, tech companies gain more advertisers, and the news outlets producing the content do not. As one writer aptly put it "by producing or linking to articles they don't create, but earn ad revenue from… these big tech companies seem to deprive news publishers their rightful due" (Gil, 2022, para. 3).

How does an industry in decline survive? The online news industry is in a circumstance of having to 'give people what they want' (Stecula, 2021). Often, they must turn to sensational stories that catch people's attention and encourage them to click on the headline (Stecula, 2021). Advertisers usually pay web companies based on the popularity of a source and 'clicks' is one way to measure this. Of course, this leads to 'clickbait' headlines which are those that create a strong feeling of emotion in readers, leading them to engage with the story (Suciu, 2020). These trends also impact the information that is reported because journalists and editors will make more money for media outlets if they write stories that are shocking. This is called **novelty bias,** which refers to reporting stories that are new and exciting, rather than reporting based on representative statistics (Gibbs & Castillo, 2021, p. 22). For example, plane crashes often make the news even though they are much less frequent than car crashes (Pinker, 2018). Why? Because they are more sensational.

Governments are beginning to develop legislation to deal with these issues, so that news and media companies are no longer 'cornered' into creating clickbait headlines. In 2019 the European Union instituted a link tax which requires search engines and social platforms to pay a fee to publishers whose content they host but do not create. In Australia, Google and Meta must hold financial negotiations with the media industry to post their content (Government of Canada, 2022; Woolf, 2022; Gil, 2022). In Spring 2022, the Canadian government introduced legislation to ensure compensation for news media outlets and to sustain local news. Bill C-18 the *Online News Act* is meant to "ensure that major digital platforms fairly compensate news publishers for their content and enhance fairness in the Canadian digital news marketplace…" (Government of Canada, 2022, para. 1). The government also claims that the way news outlets are defined in the bill will aid in curbing the spread of false information online.

Questions have been raised concerning this new bill–critics point to the fact that only wealthy news companies will have the ability to negotiate with big tech companies, leaving smaller news outlets to fall by the wayside, while others question the harms of Big Tech to begin with. Some argue that Google has enabled some news outlets to develop an online following that would not have otherwise occurred (Gil, 2022). Some question the language within the bill itself and suggest that it might actually aid in the spread of disinformation rather than curb it, due to the very loose definition of news outlet which would essentially allow any two-person journalistic operation to negotiate with Big Tech (Woolf, 2022). Another criticism is that government should not be allowed to decide which companies are considered credible journalism or not, as this ignores the principles of a

freedom of the press, which in the simplest sense states that the press should be free from interference from the overarching government (Woolf, 2022; Gil, 2022; The Centre for Free Expressions, n.d.). The external meddling that occurs from various sectors who have a stake in media and news leads to various forms of bias within the industry.

2.3.2 Media Bias

Many news organizations have been accused of **bias** (favoring one side over another); this is particularly the case in the US where major news networks are thought to be supporters of a specific political party (e.g., Fox News is known to support the Republican party)(Harcup, 2014; Chandler & Munday, 2020). Media bias is present in Canada, too, where journalists or companies may have a bias toward a political party or the company for which they work. There are many aspects of the news industry that introduce bias, some of which are difficult to avoid (even if the news producer wants to). Some examples of inevitable bias include placement of a story and bias by selection and tone. The first refers to where a story is found in the paper. It is more likely that someone will read something on page one or two of a print newspaper, less likely they will get all the way to page eight. Selection and tone refer to the way the writer presents information, applying to what describing words they use to tell the story. For example, saying someone shrieked versus saying someone spoke with emphasis changes the way a person envisions the event or person described. Some forms of bias are unavoidable, but much media bias is systemic, the consequence of factors like ownership.

Ownership Bias

The companies that own newspapers, news websites and television broadcast stations should also be considered when thinking about bias. In countries like Canada, it is common for large corporations to own multiple media companies. For example, the TorStar corporation owns more than 80 newspapers in Canada (Tattrie, 2019). This poses questions about who pays for news and the impact that has on what is presented to the public. Ownership can affect the independence of the news sources and their staff, including the journalists. The company they work for might impact what news is

covered in their communities. In the US, PostMedia owns many as well (Tattrie, 2019). One historical example of problematic ownership centers on the exaggerated and much contested assumption that a newspaper initiated the Spanish-American War. In the late 1800's, William Randolph Hearst, who owned multiple American newspapers, sought a way to boost his paper's sales (Giansiracusa, 2021). Hearst knew he would sell more papers if he had something troubling to print such as the US in conflict with another country. He published fake drawings of Cuban officials searching American women, in an attempt to garner support for the war. Soon after these drawings were published, the Spanish-American war began (Giansiracusa, 2021). Although it has been contested by historians that this story could have led to a war, it is an example of the sway that an owner had over what is reported in his newspaper. Hearst purposely published disinformation to make profits. This sort of behavior leads to distrust in all media, not just a single newspaper.

Political Bias

Also consider the fact that some newspapers, or media companies, support particular political parties. This is often called being **partisan**. Someone who supports a political party's platform or belief system is politically partisan (Merriam-Webster, n.d.d). If a company is partisan, how might this change the news that is reported? Various fact-checking and bias websites have been created that try to identify the political leaning of news sites. Many of these are freely available. We recommend checking more than one of these websites because the people creating them may also be biased, as they categorize news sites based on their existing beliefs.

Media Bias Charts

Ad Fonte Media (2022) has a static media bias chart which focuses on American news sites but does include some from around the world (https://adfontesmedia.com/static-mbc/?utm_source=HomePage_StaticMBC_Button&utm_medium=OnWebSite_Button).

For a Canadian perspective, there is a blog post written by Maliszewski (n.d.) that offers a variety of different charts (https://aml.ca/the-bias-in-media-bias-charts/). Within the post itself, there is some discussion about the accuracy of these charts.

2.3.3 Fringe News

Fringe news sources have a similar appearance to mainstream outlets as they publish stories and are formatted to look like traditional news sources. Fringe news is made up of "media outlet[s] that disseminate information that is significantly different from mainstream views" (John Gray Park '28 Library, 2022, para. 7). This type of news source may also be called alternative media. Here is an example of a fringe news site's About Us page (Westphalian Times, n.d.). Fringe news sites don't necessarily spread false news, rather they take true information and alter it in a way to meet a specific purpose. You might recall from the last chapter that this is called malinformation. Fringe news is a growing practice in our current information landscape.

2.4 Fake News: The Term that Can No Longer be Used

We are currently living in what has been coined the post-truth era. Oxford Dictionary's word of the year in 2016, **post-truth** is defined as "relating to circumstances in which objective facts are less influential in shaping public opinion than emotional appeals" (BBC, 2016, para. 2). It is the idea that people prefer to believe things that make them feel a certain way, rather than accepting facts. There is an easy connection to be made here to another term made popular around the same time, that is **fake news**. In this section we will examine how this term has changed in our recent history, making it an impracticable term for teaching purposes.

The term 'fake news', which originally meant *news that is false*, took on new meaning throughout the US Presidency of Donald Trump (2016-2020). Trump used the term to create distrust in the media, calling major news outlets "the enemy of the people" (Lee, 2018, 1:37). Some audiences agreed with his accusations towards the media and began to accuse mainstream news outlets of spreading fake news. This especially became the case when the news outlets criticized Trump and his supporters, which can be seen in the way Trump often reacted to reporters from major news outlets like CNN during press conferences. In one example, a reporter repeatedly asked Trump to take a question from their news outlets and Trump, rather than answering the questions, responded by repeatedly saying 'fake news' (Sutton, 2017). People in positions of power might do this when they disagree with a story, or when a story presents them in a negative way, as we often saw with Trump (Ipsos, 2018; Zimmer et al., 2019). Over time, these interactions had the impact Trump seemingly hoped for, creating distrust in the media, who might represent him negatively at any given time. Some leaders from other countries, seeing his successful attacks on the media, began to do the same (Lee, 2018).

But news and media are supposed to hold governments and leaders accountable. It is their job to report on leaders' activities to ensure the public is in-the-know. When leaders claim that a news story is fake, simply because it does not match up with their plan or image, it is very dangerous. A study has shown that when credible news stories are labeled as fake news, people may increasingly disregard factual information (Freeze et al., 2021). A *Citizen's Guide to Navigating Information Disorder* aptly classifies the use

of the term fake news, in the post-truth era, as having "assumed a role as a political weapon against opposition, primarily used by those who don't trust the traditional news media outlets" (Stecula, 2021, p. 5). When populations begin to distrust the media, the result can be devastating. For example, many people are worried about climate change; however, their trust in governments, business and media is low (Economist Impact, 2022). These factors lead to inaction because they undermine climate initiatives proposed by these organizations: i.e., if the media or government cannot be trusted, why should we respond to their suggestions about climate change action? This leads to a situation where a concern held by most people is not being acted upon due to distrust and disinformation (Economist Impact, 2022).

Many scholars and information professionals refuse to use the term fake news. Its meaning has been twisted to such a degree that it holds very little legitimacy in serving its actual purpose. In the next section, we will discuss the dangers of fake news as a phenomenon that has had major impacts, but we will use the term false news, as we too want to separate our work from the politicized term. We define **false news** as information that is made to look like real news content and is usually created with the intent to cause harm. It usually contains controversial opinions, or it can be completely made up (Lee & Ma, 2012; Pennycook & Rand, 2019).

2.4.1 The Dangers of False News

Some false news stories, like this one about Vin Diesel moving to Saskatoon, a Canadian prairie city with a population of 250,000, are harmless and sometimes even fun.

Figure 10: *False news story about Vin Diesel (Schneider, 2016).*

Other instances of false news have resulted in violence and destruction. A Belgian newspaper *Het Laastste Nieuws* published a story that claimed exposure to 5G radiation might be linked to becoming infected with COVID-19. This circulated on social media and five percent of UK residents believed it to be true, when questioned. This resulted in the reduction of protective health barriers, such as masks for some, but it didn't stop there (Hassan & Barber, 2021). In 2020, there were 77 attacks on cellular towers and 40 assaults on repair workers in the United Kingdom (Hassan & Barber, 2021). Throughout the pandemic, several countries experienced incidents that were a part of what has been coined as the 5G-COVID digital wildfire, including the kidnapping of eight telecommunication technicians in Peru (June 2020) as well as arson attacks in South Africa (early 2021) and Canada (March 2021). Experts have correlated the attacks to the spread of false news on the topic (Langguth et al., 2022).

2.5 Sources Mistaken for News

There are other news types that go beyond being simply credible or not. Certain types of news are a part of a nuanced group that can be mistaken for truth, or cause confusion without intention. Included here are satire websites, blogs, Reddit, and podcasts. These sources may provide information that is largely opinion-based without being thoroughly researched. They may be mistaken for truth or cause confusion without intention.

Satire News Sites

Satire news sites produce news stories that are purposeful jokes. Sometimes these stories become viral and are mistaken for truth, becoming unintentional misinformation. To determine if a post is satirical, visit the source's website because most clearly identify themselves as satire sites on their *About Us* page. Popular Canadian satire news sites that often appear on social media feeds are *The Beaverton* and *The Onion.* Below is an example of a satire news story from *The Feather News*, a site that focuses on Canadian Indigenous content. It features a story claiming that the Prime Minister of Canada chose to get a lower-back tattoo to "double down on reconciliation efforts by unveiling his eagle feather tramp stamp" (The Feather, 2019). The story circulated in the online environment and people began to think it was factual, which came as a surprise to the website's editor (R. Moccassin, personal communication, 2022, February 7). Belief in this sort of content is not particularly harmful, but it is important to be mindful that this sort of information exists, and although it is not meant to manipulate, it could result in widespread belief in false information.

Figure 11: Viral satire news story about Trudeau (The Feather, 2019).

Blogs

Blog posts are another source that may be mistaken for news. **Blogs** are online publications that contain personal commentary on a topic (Merriam-Webster, n.d.c). There are many different types of blogs. For example, a travel blog might discuss restaurants, hotels, and museums but the content is the opinion of the author. Some blogs may focus on reporting news and may call themselves citizen journalism, claiming that the author has investigated and is now reporting on the topic (Agarwal & Bandeli, 2017). These blogs are effective at spreading disinformation because they are often written in the first-person using persuasion, but the content of the post may be biased and partial (Agarwal & Bandeli, 2017). If a blog is created to purposefully spread disinformation, it will most likely be shared across many social media platforms (like Twitter, Facebook, etc.), there will be very little interaction with posts (almost no comments), and the About Us information will be sparse (Agarwal & Bandeli, 2017).

Online Communities – Reddit

Reddit is sometimes mistaken for news, too. It is a social media platform that contains multiple discussion groups called communities designed to give users a sense of belonging (Reddit, n.d.). These communities are defined by the users that create them and many focus on news reporting (Reddit, n.d.). These groups may share news stories that only present one perspective or that may be false. On the other hand, it is also likely that a group may establish rules that require comments to be supported by verifiable evidence. Either way, there are no overarching standards as to what is shared, and each community can take on a completely different form.

Podcasts

Podcasts are online programs that contain music or talking (Merriam-Webster, n.d.b). Due to the popularity of the hosts or the topics discussed, podcasts are sometimes mistaken for news. Since they are not monitored like other types of media, there is concern about the subject matter which often contains baseless claims (Bogle, 2020). For example, a guest on the Joe Rogan Experience claimed that the COVID-19 virus escaped from a lab owned by Elon Musk. This guest was not a medical expert and did not have evidence for the claim (Bogle, 2020). Spotify, the platform that hosts the Joe Rogan Experience, has been criticized for hosting podcasts that contain misinformation about vaccines and racial slurs (Sisario, 2022). They have tried to avoid removing content by purposefully not describing themselves as a publisher because publishers have obligations to make sure that material is correct. Spotify states that they would not be able to edit or review every single podcast, due to the sheer volume they host (Sisario, 2022). Despite these obvious concerns, many people say that podcasts provide them with more information and can delve deeper into topics when compared with other forms of media (John, 2021). As with any type of information, it is important to keep asking questions about the author, or reporter and their motivations.

2.6 Moving Forward: Media Literacy

Throughout this chapter, we have explored the ways that news has changed over time, how social media and the Internet have shifted creation and sharing, leading to an increase in disinformation. Disinformation can take many forms, but a potent example is false news. In addition to this, there are several online information sources, like blogs and podcasts, that may look like news, but aren't.

A person who is media literate can read media critically and understand how its messages shape us and everything around us (Media Literacy Now, n.d.). Media literacy experts suggest that individuals should always evaluate what they are seeing, hearing or reading. Caulfield (n.d.) provides useful tools for evaluating news sources in the book *Web Literacy for Student Fact-Checkers*. Asking the following questions when looking at a news source is a good place to begin the journey to becoming media literate:

- What was the process for accuracy and corrections?
- Is the information sourced and verified?
- Does the outlet employ professional journalists?
- Is their mission to inform? (Caulfield, n.d.)

The next step in becoming fully media literate is to encourage change. What steps might an individual take to enact positive change? It could be as simple as a conversation about some of the issues discussed in this chapter to inform those in your social circle, or as involved as writing government officials about your concerns.

2.7 Discussion Questions

1. Why is it so important that media and news organizations present stories neutrally?
2. Does having ethical or journalistic standards mean that a mainstream news source absolutely will not publish incorrect information?
3. Do you think information professionals should use the term fake news? Why or why not?

CHAPTER 3: INFORMATION AUTOMATION

3.0 Learning Outcomes

Analyze how algorithms affect the spread and use of information by:

- Listing the ways algorithms affect displayed information.
- Identifying automated methods for influencing information dispersal and retrieval.
- Examining how automated systems combine with human interaction to impact user experience.

As we have seen, the online information landscape is complex. News is published in many places, using a variety of methods by various players. Various automatic systems thread throughout the entire online information landscape and dictate what searchers and social media users are exposed to (or not exposed to). We call this **information automation,** and it underlies everything we do online. In this chapter, we will cover:

- Search Engines
- Algorithms
- Social Media Newsfeeds

The chapter will examine several malicious players who use algorithms to spread false information and conclude with a look at the large online companies whose technology is intensifying the problem.

3.1 Search Engines

Search engines, in particular Google, have become tools trusted by society. When looking for an answer to a question, people Google it and assume the results page will be filled with reliable information. Because of this unchallenged faith, programmers of search engines have become the gatekeepers to and the organizers of vast amounts of information. Should these companies be trusted blindly? Consider the fact that most who use search engines don't understand how they work. It would require a lot of learning about computer programming to reach a minimal level of understanding of the various technologies involved (Noble, 2018). Let's examine, at a basic level, how search engines and algorithms work.

3.1.1 The History of Search Engines

A web search engine is "a software program that searches the Internet (bunch of websites) based on words that [users] designate as search terms" (Seymour, et al, 2011, p. 1). The history of search engines encompasses decades of programming, algorithm creation, competition and major profits. People began inventing search engines in the early 1990s, and at that time they were difficult to use. The first known search engine, called Archie, made its appearance in 1991. Its developers created an index of file names and website titles. To find a website an individual had to type the *exact* title of the file or webpage into the search box. **Keyword searching** (Scanning an entire website for specific words) and **natural language searching** (Using sentences and questions to search rather than just keywords) did not yet exist (Seymour et al., 2011). At this time, search engines were used mostly by computer programmers and those in the tech industry. In 1994, WebCrawler became the first well-known, public search engine that could perform keyword searching within a webpage (Seymour et al., 2011). Yahoo!, also created around this time, incorporated both browsing and searching capabilities. Alta Vista, launched in 1995, was the first to incorporate natural language into its search capabilities (Seymour et al., 2011).

Bolded search engines still exist today!	
Year	**Search engine**
1992	Veronica
1993	Jughead
1994	**Yahoo**
	Infoseek
	Webcrawler
1995	Alta Vista (purchased by Yahoo)
1996	Backrub (the original Google)
	Ask Jeeves / Ask.com
1998	**MSN Search (becomes Bing in 2009)**
	Google

As new search engines were released, the battle began to become number one and corner the market on advertising profits. The search engines we still use today (Yahoo, Ask.com, Bing and Google) became the clear front runners with Google quickly becoming the most popular search engine after its release in 1998 (Seymour et al., 2011). Over time, algorithms and design have both evolved, but in many ways, the engines of the early 90s are reflected in their current versions.

Figure 12: Yahoo search engine in 1995 (Goldman, 2015).

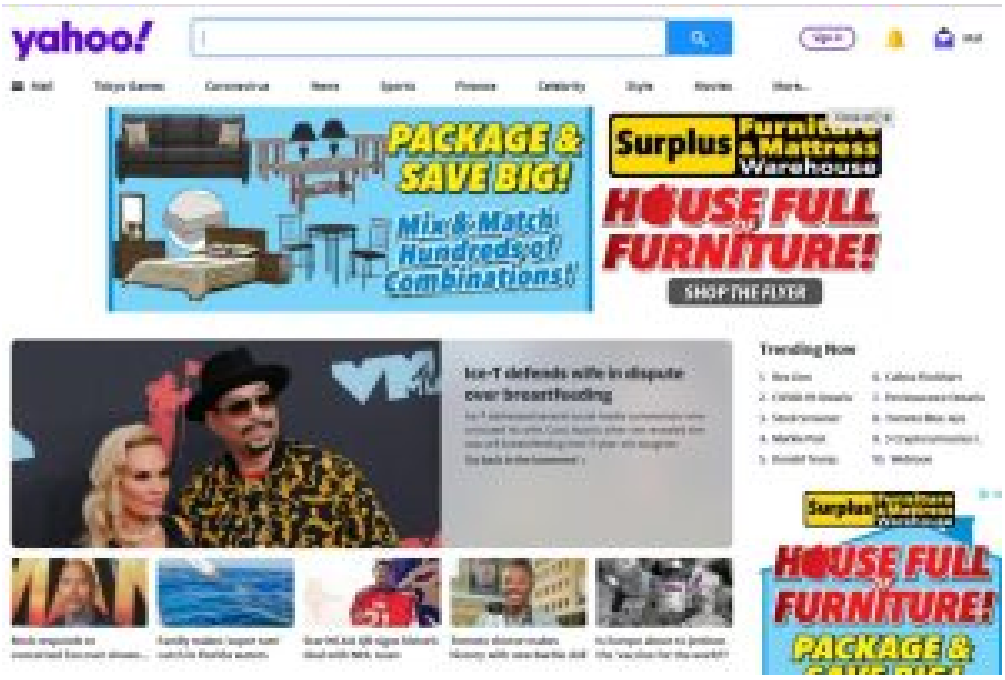


Figure 13: Screenshot of Yahoo! search engine in 2021.

Figure 14: Google search engine in 1998 (Shontell, 2013).

Figure 15: Screenshot of Google search engine in 2021.

3.1.2 How do Search Engines Work?

Being the most used worldwide, this section will focus on Google Search, which has continued to evolve and change since its creation. Google's founders claim to have won the search engine wars because they created an algorithm that searches like a human by using natural language and prioritizing the results that are most relevant (StatCounter, 2022). When it first emerged, Google Search ranked the popularity of a website based on how many other pages link to that website (Seymour et al., 2011). This, according to Google's founders, provides users with reliable results (Hooker, 2016; Press, 2016; Heitzman, 2017, Special to the Denver Post, 2013). Since day one, the company has been mapping hundreds of millions of websites and placing them all into a central location called an **index**. When a user searches for something (for example, pizza), Google's ranking system tries to figure out what they are looking for using various factors such as location, past searches, and more. Once Google Search identifies what it thinks the searcher is looking for, it assembles a results list with the pages most relevant to the search.

Google also claims that their professionals spend a great deal of time adjusting the algorithm to recognise scam sites. For instance, a website might assume that people will frequently search for 'pizza' and use a search for the word to lure a person into landing on their webpage. How? They might create a webpage that repeats the word pizza nonsensically and in multiple places making it rank higher in people's searches. This will happen because, with all the mentions of pizza, the webpage looks like it is a good fit for the search. In this case, the scam site gains clicks which might result in profit or might enable them to put a virus on the searcher's device, and the searcher is not finding their desired results. Google (2019b) claims that when they find scam sites like this, they delete them from their index. Bing also tries to protect its users from scams by labeling websites that contain harmful content. Links to these pages are removed from search results but the website is still listed "to give you both relevant and safe results" (Microsoft, n.d., para. 4). All of these efforts, to eliminate or add tags to certain sites, are a part of the search engine's algorithm.

The specifics of how algorithms function are often kept secret because companies want to protect their intellectual property. A good search engine algorithm can lead to major advertising income, recall the discussion about Google taking vast amounts of profits from the news industry. They owe this success to the popularity of their algorithm

(Brisson-Boivin & McAleese, 2021). It is important to keep in mind that “Google Search is an advertising company, not a reliable information company” (Noble, 2018, p. 5).

3.2 Algorithms

As indicated in the previous section, Google and all search engines function and exist because of algorithms. An **algorithm** is a set of instructions that helps something (a search engine) find an answer to a problem (an information need), some have described them as "computer programs designed to make predictions" (Brisson-Boivin & McAleese, 2021, p. 4). In an algorithm, a set of rules is followed in order. This can be very complex or seemingly simple, like a recipe or a math equation (Brisson-Boivin & McAleese, 2021). Internet companies develop and use algorithms to help users perform tasks online, but also to track, manipulate, make recommendations, and maximize a user's time on a site (Sadagopan, 2019; Brisson-Boivin & McAleese, 2021; Saurwein & Spencer-Smith, 2021). Therefore, these rules are a set of decisions that are predetermined for a user, whose search behavior, in turn, decides (via the algorithm) what sort of advertisements and results they will see. In many cases this leads to unintended results for the users: some big, some small, some destructive, some harmless. Algorithms can make life easier, but they also limit a user's exposure to vast amounts of information.

Concern about the control search engine companies have over information consumption is on the rise. Some governments are passing legislation that will require companies to explain what decisions their algorithms make. For example, in 2022 the Canadian Government proposed the *Canadian Digital Charter Implementations Act* which, if passed, will give citizens the right to request clarification on how companies apply automated 'decision-making' systems like algorithms and artificial intelligence to make recommendations or choose search paths and results (Gibbs & Castillo, 2021). This Act carries significant impact because algorithmic designs, and users' lack of knowledge of them, can reinforce and exacerbate existing social inequalities. This is referred to as algorithmic bias (Brisson-Boivin & McAleese, 2021). Recall from chapter two that bias refers to the act of favoring one side over another.

3.2.1 Bias in Algorithms

Algorithmic rules are created by the people and the companies that program the

system. Often programmers are unaware that they are including their personal biases into their coding. These individuals may favour a particular viewpoint, as everyone has their own biases. Those biases may be balanced and well-meaning, or they may promote injustices like racism and sexism (Noble, 2018). Because algorithms are privately owned by large corporations, it is extremely difficult to find out what or who influences their creation (Noble, 2018; Saurwein & Spencer-Smith, 2021). Studies have shown that at certain times throughout the history of search engines, the results generated by searching for certain topics have been very problematic. For example, researcher Safiya Umoja Noble realized in 2010 that a Google search for 'black girls' persistently retrieved explicit pornographic results. It wasn't until the release of a new updated algorithm in 2012 that this offensive trend came to an end (Noble, 2018). Are there other examples? Test some searches to see if there are any hidden biases in the search algorithm.

3.2.2 Impact on Your Search

Let's look at Google's algorithmic rules to understand how bias can creep into search results. First, Google tries to guess the meaning of a search. For example, if a user types something in the form of a question "where is mercury?" versus "mercury" the results will be different. The algorithm splits words apart and searches them individually. So, for the above searches, the question might produce information about the planet mercury and its location in the universe or the element mercury and where it is placed in a thermometer. For the second search, Google would not search for location but for definitions of mercury. In this case, the algorithm is considering search history to try and guess what the searcher is looking for. If they had done previous searches on planets in the solar system, Google will probably assume they are looking for the planet not the element (Google, 2019a). This is quite harmless *if* people take the time to review their results and continue to research for the best information.

How does Google define relevant? It does this based on two things: the keywords used–it searches for the keywords that match the search (especially in webpage titles); second, the newest sites–it selects the webpages most recently published or updated based on the topic. The highest ranked website (whichever the algorithm deems most important) appears at the top of the results list. Google also attempts to identify websites that it considers to be the most reliable resource on a topic–it does this based on how

many people have visited the site. So, the website with the most visitors is considered the most trustworthy (Google, 2019a). This also happens with topics that are trending or popular at the time of the search (Brisson-Boivin & McAleese, 2021). The most 'usable' sites, as categorized by the algorithm, are also driven to the top of searches. Websites that are easy to use or that display well on a variety of browsers are more likely to be featured higher in a search. So, too, are websites that load quickly (Smith, 2015). Does popularity, usability, functionality or newness make something more relevant?

Endless Advertising. Endless Revenue

You may have noticed that ads are always at the top of your search results. Google Ads (n.d.) allows companies to pay for the top spot. These companies are charged each time a searcher clicks on the link and navigates to the company's website. Companies get to pick which keyword searches their ad will appear on (Google Ads, n.d.). So, a company that does kitchen renovations might pay to have a link to their website pushed to the top every time an individual searches the word "fridge" in their geographic area. Perhaps the user is searching for a new fridge or a fridge accessory but based on their keywords, the renovation company will appear as the top result, even if the searcher is not looking for a renovation company.

Another determining factor in a Google search is location. As a person searches, they will notice advertising for local businesses. Although this is useful when looking for a place to eat, it might interrupt or stall other research activities (Smith, 2015). Past searches also impact future searches. A person who uses a Google account regularly, especially someone who doesn't clear their cookies and browser history, often will notice products that reflect past searches appearing in advertising everywhere they go in the online environment. Search engine algorithms track spending habits and purchases, then adjust results and advertisements accordingly (Google, 2019a).

Manipulative Coding

Just as a company can pay to have their website appear at the top of a search engine, so can they write code so that their website does not appear in a results list. Why would a company not want to appear in a results list? Sometimes, coding is added to stop

the public from accessing internal or private company websites. In other cases, it's to suppress sites that will take potential profits away. In 2019, the Federal Trade Commission in the United States sued the income tax company Intuit Turbotax for manipulating code to avoid profit loss (Elliott, 2019). The company had written the html code on a specific site to hide a 'file for free' option. At the same time, they coded the site's paid version to appear in the Google search results. So people who searched for a site to file taxes and who may have been eligible for the US Government *Free File Deal* were driven to a paid site instead, and many did pay–as they were unable to see the free option. Turbotax and its smaller counterpart H & R Block have been called out publicly for using the coding "noindex=nofollow" on these pages (Elliott, 2019). Months after the publication of the news story referenced, TurboTax removed the code.

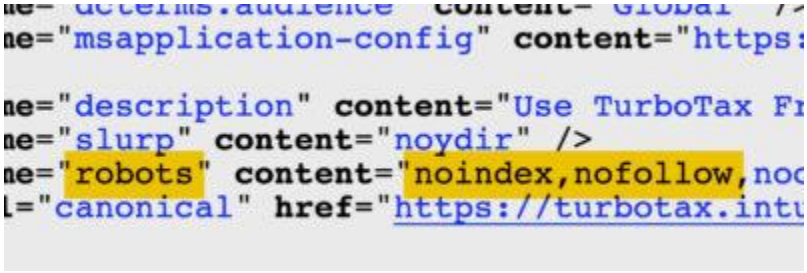


Figure 16: Coding used to remove the free file option from Google results (Elliot, 2019).

3.2.3 Filter Bubbles

Filter bubbles, also known as preference bubbles, alter the way people encounter ideas, and impact how they view and understand information. As a user searches, algorithms keep track of the links they click, then continuously deliver similar content to that person (Brisson-Boivin & McAleese, 2021). This creates a list of search results that is personalized and may contain websites that people with different interests would not see (Zimmer et al., 2019; Brisson-Boivin & McAleese, 2021). This has two outcomes; while the algorithms are selecting and displaying results that will appeal to each individual user, they are also cutting the user off from information the algorithm has selected as not appealing to the user (GCFLearnFree.org, 2018; Brisson-Boivin & McAleese, 2021). If an individual is only exposed to one side of a story, they may believe it to be true and become

overconfident in their opinion, and close-minded about other perspectives. This video about How Filter Bubbles Isolate You describes the issue very well.

One or more interactive elements has been excluded from this version of the text. You can view them online here:
https://pressbooks.saskpolytech.ca/disinformation/?p=197#oembed-1

To understand how a filter bubble may work, we will look at the varying opinions about the issue of climate change. Thousands of online articles discuss the fact that humanity is quickly warming the globe to dangerous levels that will become unlivable. While at the same time, thousands of online articles argue that climate change is a myth being spread to manipulate people into behaving a certain way. Depending on a person's search behavior, they are likely to encounter one or the other. A person who is an avid gardener often searching for ways to live sustainability, will likely see the articles that maintain that climate change is an issue. An individual who is suspicious of the government, and commonly shares posts that are critical of government decisions related to things like carbon taxes, is more likely to come across articles critical of climate change. As an individual selects the article, on either side, they will continue to see articles that confirm what they previously clicked on. This can lead a user down **rabbit holes** as they are continuously fed more and more articles on the same topic, often with content increasing in extremity (Saurwein & Spencer-Smith, 2021; Hall, 2022).

The biggest issue with all of this is that although human beings create algorithms, those who are engaging with them by using the Internet do not consent to the filtering and censoring of their search results. Since algorithms are embedded into the entire web experience, it is very difficult to avoid being placed in a filter bubble, even if it is partially of our own creation.

There are some ways to seek out varied sources and perspectives, try:

- Following accounts or friends who have different, even disagreeable opinions.
- Clicking on articles that are both personally agreeable and disagreeable to get more balance (Zimmer et al., 2019).
- Clearing search history and cookies.
- Using a search tool that does not collect data.

- DuckDuckGo is a search engine that claims to protect privacy and avoid the creation of filter bubbles.

3.3 Algorithms on Social Media Feeds

In the same way search results are altered based on a combination of personal factors (such as search history and account preferences), social media newsfeeds are also manipulated to show users what they 'want' to see. A social newsfeed is a constantly updating list of stories posted by or about a person's community within each specific platform (on Facebook: friends; on Instagram: those the individual follows). It prioritizes what a person will find interesting and in doing so filters out other content. The algorithm impacts whose content each user sees and when they will see it. Sometimes a post from Thursday might appear on your Instagram feed on a Sunday, this is a part of the algorithm's design and is impacted by each user's behavior.

Figure 17: Facebook newsfeed on Internet browser and mobile device (Guynn, 2018).

Although a 2020 Reuters study found that 22% of people surveyed in the US trust the news they gather from search engines, while only 14% trust news that appears on their

social media feeds (Vorhaus, 2020), it is evident that individuals worldwide are continuing to seek news on their social media feeds. Chapter two provided a description of social media and discussed its impact on news consumption. It is worthwhile to reiterate some points here: 41% of Canadians surveyed in 2021 stated that they get their weekly news from Facebook (Watson, 2022). The pandemic resulted in an uptick of both television and social media news consumption, especially on platforms owned by Meta–Facebook (Facebook, Instagram and WhatsApp). An international report on news consumption asking individuals living in the UK "which of the following have you used in the last week as a source of news" found that most access their news online, especially those under the age of 35 (Newman et al., 2020, p.12). Those over 35 are more likely to watch news on their televisions while very few people get their news from print sources, so let's look at the algorithms that drive the information presented to each person.

3.3.1 Facebook

Facebook's algorithm considers several elements when presenting information in a newsfeed:

- *Friends' posts the user has engaged with*. Specifically, those that have been liked, commented on, or shared. Facebook will present content from these friends more often, while at the same time not presenting information posted by friends whose posts users have not engaged with for a long time (Facebook Help Center, n.d.a).
- *Content deemed to be of high interest*. If an individual clicks on a certain type of post often, they will increasingly see posts with similar content (Facebook Help Center, n.d.a).
- *Likes based on previous searches*. Facebook tracks IP addresses and cookies to select content for newsfeeds including advertisements (Facebook Help Center, n.d.b). When a person searches for something in Google, for instance, a cat costume for Halloween, advertisements for cat costumes will suddenly flood their Facebook newsfeed.

Users can avoid these aspects of algorithms by constantly clearing browser history and increasing privacy settings. However, some aspects of the social algorithm are

unavoidable, such as when content is presented to users based on its popularity. The more people react to a post (in any way), the more it will be placed on others' newsfeeds. Therefore exciting, funny or ridiculous false news stories tend to become viral. People become interested in the headline, so they are likely to pause while they scroll, hover over the title for a second or two, click or share (Guynn, 2018).

3.3.2 TikTok

While Facebook is the most visited social media platform among Canadian adults, Generation Z (those born after 1996) are captivated by a video platform featuring a powerful **Recommendation System** (Connell, 2021), TikTok. Like those used on shopping sites and streaming services, TikTok's (2021) algorithm uses preferences and interactions to create a unique rolling feed. The user experience is created based on three drivers that decide the content presented. The first driver is the make-up of the *For You* page, which appears when a user opens the app. There is a constantly populating video content feed that can be changed with a swipe up. This plays a large factor in the content people continue to see (or not see). Within the For You page, TikTok tracks numerous things including accounts followed, comments made, videos liked, videos that are hidden or marked as inappropriate, and perceived interests determined by interactions with advertisements (Newberry, 2022). The algorithm records many other actions, then takes all the information and uses it to determine what users will see in the future (Newberry, 2022).

The second driver is the content searched for in the *Discover Tab*. This is where users can search for specific accounts and hashtags (Newberry, 2022). The third driver is the type of device used and account settings. This means that TikTok accounts for language, geography, and even what type of phone a person is using when determining what content to show them (TikTok, 2021; Newberry, 2022).

But how do the recommendations begin in the first place? If a user hasn't used the app yet, how does it determine what content to show? When a person creates their account, they are met with several optional questions. If the user answers the questions, they will see content that aligns with their answers. If a user chooses not to answer the questions, they are met with a general suite of popular videos in their area and based on

personal information they have shared (for instance, age). Their actions going forward will shape their future experience (TikTok, 2020).

There are downsides to the never-ending recommendation functions utilized by TikTok. The most concerning is that they promote addictive behaviour (Saurwein & Spencer-Smith, 2021). This is a purposeful design to try to get users to stay longer. Netflix and YouTube use similar algorithms in their autoplay software which allows users to continue watching without making a conscious choice. This results in people watching more videos than intended and engaging with unexpected content (Saurwein & Spencer-Smith, 2021). This may seem harmless and even good because everyone loves watching a great new series; however, there are circumstances where the autoplay function can be harmful. There have been multiple instances of autoplay showing violent or sexual content in the children's version of YouTube (Maheshwari, 2017). These videos are automatically shown to kids despite the app being marketed as family friendly and despite the filter whose purpose is to remove questionable content. And these videos generate ad revenue for both the creators and YouTube (Maheshwari, 2017). Autoplay occurs so quickly that many parents may not even realize their children are watching questionable videos.

As we have seen, the online systems that seem to make our lives easier, dictate much of what we encounter in our searching behavior and on social media. Now, we will examine how automated systems can spread information and disinformation as we review a few malicious characters that thrive in this automated environment.

3.4 Sock Puppets and Bots on Social Media

Adding to the complication of algorithms and programming that filter search results are new technologies that purposefully reproduce the false information users encounter. Here we will look at two: sock puppets and bots.

A **sock puppet** is a "fictitious online identity created for the purposes of deception" (Kats, 2020, para. 3). They appear as multiple fake accounts controlled by a person or group. Sock puppets repost information from one central account to multiple accounts to spread false information quickly (Kats, 2020). They fabricate the popularity of a post by sending out multiple messages across their various accounts, so that users see what they otherwise would not. They often emerge in times of political disagreement, such as elections. They are active on Facebook and Twitter and are becoming more common on Instagram and Wikipedia (Kats, 2020).

During the 2016 US Presidential race between Hilary Clinton and Donald Trump, sock puppet networks introduced radical ideas to social media communities. For example, they compared Hilary Clinton to Adolf Hitler by referring to her as "Hitlery." Other networks created a sentiment of pro Trump messages, while constantly referring to Clinton as a crook (Nott, 2019).

Social **bots** are fully automated social media accounts that spread information quickly and sometimes create posts or content (Kats, 2020). They are used to influence public opinion on all social media platforms, including Facebook, Twitter, Instagram, YouTube, and Reddit (Stecula, 2021). Bots create lots of posts extremely quickly from many accounts, driving up popularity on specific stories or trends. They may even promote other posts through liking and sharing (Menczer & Hills, 2020). When this occurs, it may look like many people agree with a post or share the same idea (Bajwa, 2021). Due to the lack of identity information associated with the accounts and the large numbers of posts, they are very difficult to spot (Nott, 2019; Hao, 2020; Stecula, 2021). Experts have suggested that up to 15% of all Twitter accounts might be bot accounts (Menczer & Hills, 2020).

Bots played a pivotal role in the spread of false information throughout the

pandemic. A 2020 study estimated that around 50% of the Twitter accounts posting about COVID-19 in the early months of the pandemic were bots attempting to spread disinformation. This is a concerning trend. Historically, throughout other contentious events, such as elections or natural disasters only 10-20% of those posting were identified as bot accounts. Researchers think that the high number of bot accounts spreading disinformation about COVID-19 is linked to the fact that it is an international crisis–everyone in the world experiencing the same thing at the same time. This is a playing field for those who seek to manipulate others (Morgan & Shaffer, 2017).

3.5 Google and Facebook are Big, But False Information is Bigger

In 2021, US President Joe Biden chastised social media companies for their lack of action against the spread of false information. Speaking about the COVID-19 pandemic, Biden said that social media platforms were "killing people" (Reuters, 2021, para. 1). When he said this, he was referring to the fact that (at that time) most people who were dying from COVID-19 in the US were unvaccinated. He claimed that vaccine disinformation was to blame and that social media platforms should be doing more–Biden pointed his finger specifically at Google, YouTube and Facebook (Reuters, 2021). In doing research for this book, we ourselves have thought along these lines. The companies who run search engines and social media platforms are aware of disinformation and fake news, filter bubbles, and information overload. They are very wealthy and they have resources, so why don't they just fix everything? Unfortunately, as with everything we've discussed so far, it's not that simple.

The next section will examine efforts taken by large tech companies, specifically Google, Meta and Twitter to combat false information on their platforms. It is important to note this section is a reflection of the time period within which we conducted research and wrote the book. The systems described have continued to evolve and it is likely that many of them will have changed by the time it is read. Case in point, mere weeks before publication, Elon Musk acquired Twitter. Immediately following this acquisition, he dubbed himself a "free speech absolutist," reinstating accounts that had previously been banned for posting content that had violated Twitter's policies (Lee, 2022, para. 1). Under Musk's leadership, several thousands of employees have lost their positions, making it even more difficult for the company to maintain its standards (Lee, 2022). To add to this, Musk introduced a profit generating system which enables anyone to purchase a verified account (Schreiber, 2022). All of these changes will result in major interruptions to Twitter's ability to uphold reliable information. A stunning thing occurred the day after Musk took over the platform, the use of the 'N' word went up more than 500 times and in the week following, anti-vax and pseudo science accounts purchased verified profiles making them look like legitimate sources of health information (Murphy, 2022). As you read the next section, consider that everything described is in a constant state of flux and

change. It will provide a base understanding for the tools that can be used by social media companies and how they might be effective; however, they could be modified or disappear at any given time.

3.5.1 Attempts to Fix the Problem

Google. Google LLC says "it is one thing to be wrong about an issue. It is another to purposefully disseminate information one knows to be inaccurate with the hope people believe it to be true or to create discord in society" (Google, 2019b, p. 2). The company highlights four initiatives they're taking to fight disinformation. First, they point out their ranking algorithm and the fact that it is designed to ensure that users find useful resources that do not support specific viewpoints (Google, 2019b). They claim that their search engine stops spam and any bots or individuals who try to manipulate their algorithm to be placed higher in search results (Google, 2019b). Remember the pizza search from a previous section, Google's algorithm is designed to find and remove clickbait sites from the index. Second, Google has policies against misrepresentation. For example, a news site that claims to report from Ireland, but whose activity is coming from Canada is misrepresenting their location, the algorithm is designed to flag these instances and eliminate them from search results. The third aspect relates to the amount of information made available: A LOT. They claim that by providing more coverage in a variety of ways, they are helping searchers to evaluate information (Google, 2019b). Lastly, Google claims to support journalism and fact checkers. Google financially supports organizations who have the goal of fighting disinformation (Google, 2019b).

Social Media. Social media platforms have also dedicated resources to services and policies to stop the spread of false information. TikTok's (2020) owners state that they are very aware of the dangers of their recommendation algorithm, citing specifically the potential for people to end up in unintentional filter bubbles. They have a Transparency Center that works to battle the potential harms of users viewing biased information. They invite experts to view and understand their algorithm and they have designed aspects of the algorithm to populate diverse content. Occasionally, a user may see a video that is unlike their regular preferences. TikTok (2020) cites this as a purposeful part of the calculation. They also point to users' ability to hide, mark "not interested," or report content and creators of unappealing and even troublesome content.

3.5.2 Policies

In addition to adjusting algorithms, many social media companies have been changing their policies to address the spread of disinformation. We will look at Facebook and Twitter. In Facebook's (n.d.) *Taking Action Against Misinformation*, they claim to remove content that violates their *Community Standards*, reduce misinformation, and provide people with context so that they can decide what to read, trust, and share. They state that they reduce misinformation by using fact-checkers and labels to identify posts that violate their *Community Standards*.

Twitter has adopted similar strategies. In *COVID-19 Misleading Information Policy*, Twitter (n.d.) claims to label or remove false information about the virus, treatments, regulations, restrictions, or exemptions to health advisories. They also limit the 'reach' of content if it is posted by users who have repeatedly posted false information (Twitter, n.d.). Accounts that violate the policy go through a 'strike process' that follows these steps: tweet deletion, labeling, and finally, account lock and permission suspension. In their policy, Twitter (n.d.) specifically states that they recognize their platform is used by people to debate, express strong opinions, and post about personal experiences, which indicates that they are mindful not to censor content too severely.

Reporting

An early feature adopted by many social media platforms is the 'report' button that indicates a user believes a post is in violation of that site's policies, or frankly and more likely, posts that the individual finds personally offensive or problematic (Khan & Idris, 2019). This is an example of community-driven evaluation. Reporting a post flags it so that it will go under review by someone working for the company. It is an important act of digital citizenship to report posts that are known to be misinformation, disinformation, malinformation or propaganda to slow their spread (Stecula, 2021). However, there is a fine line between reporting posts that are outright false information and reporting them because they include content an individual does not agree with.

Barriers and Two-Factor Authentication

Barriers are another social media feature designed to verify that the person

interacting with a website is a real person, not a bot. CAPTCHA is a commonly known example of this. Before allowing a user to sign-in, complete a purchase or add comments, it asks users to engage in an activity a computer cannot complete, often to select pictures of a particular item within a larger frame (for example, select all the sections that have boats) (Menczer & Hills, 2020). Two-factor authentication is another example of a barrier where the system verifies a user's identity by asking specific questions or sending a personalized code to a second, known device, which can then be entered for login. Why is this necessary? For a multitude of reasons, but one that relates to our examination is the fact that bots have the ability to guess passwords. Because they are robots, they can continually try different options until they succeed. Requiring multiple pieces of information places more barriers in front of the bots and provides more security for users and platforms (Klosowski, 2022).

3.5.3 Labeling

The use of labels on posts is a recent and constantly changing adoption by social media companies. Labels are used by each company in a slightly different manner (Stecula, 2021). Facebook is one of the first social media platforms that incorporated labeling. When a person attempts to engage with a post, their action is paused, and the label appears. The first labels placed on posts said that the claims in the post had been disputed by fact-checkers (Silverman, 2017; Pennycook et al., 2018). Over time, the company took it a step further by adding links to authoritative information (which users could choose to click on). At the time of writing, Facebook is using a warning system, which places a veil over the false content (so the user cannot see it or share it), as well as a misinformation warning (Grady et al., 2021). To view the content, a user must click past the warning. It is very interesting to note that some of these labels are applied to posts by an algorithm or bot, not a human fact-checker (Facebook, n.d.).

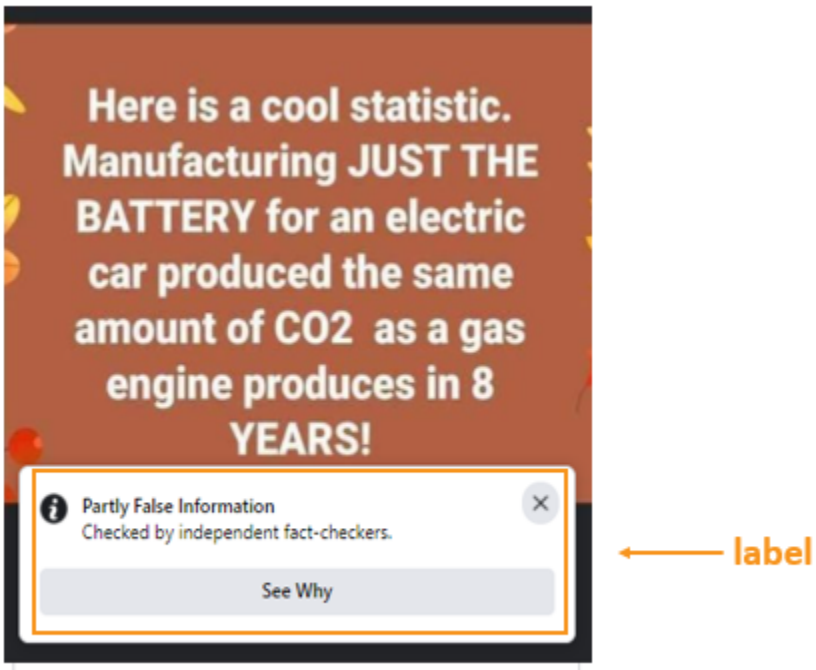


Figure 18. Facebook labels partly false information.

In 2020, Twitter began using labels. Their labels shade the text on a tweet and require followers to click through to see content, much like the label system currently being used by Facebook (Bond, 2020). In addition to this measure, users cannot share a labeled tweet without commenting on it. The requirement for people to engage, rather than just click, is an effort to slow the spread of disinformation because it not only requires people to be thoughtful about their actions but it also limits the ability of bots to re-tweet false information (Bond, 2020). Since Twitter adjusted its labeling system in July 2021, their new labels say either "Stay informed" or "Misleading" and appear prominently below tweets of concern (Twitter Support, 2021). Additionally and importantly, once a tweet has been labeled, it no longer appears to users through the recommendation algorithm (Bond, 2020).

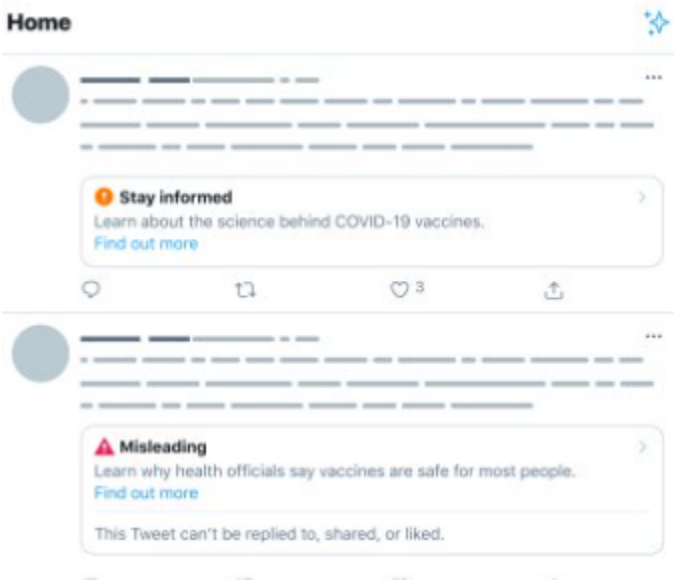


Figure 19. Twitter labels (Twitter Support, 2021)

Spotify, too, has recently started labeling some podcasts. So far, these labels are only used on podcasts that specifically have misinformation about COVID-19 (Zukerman, 2022). If a user is listening to a podcast about COVID-19, they are prompted by a label containing a button that leads to more information about the virus.

While labels may seem to be a good intervention to limit the spread of misinformation, they do highlight other problems related to sharing information on social media platforms. One concern is that people will become familiar with labels on false information and begin to assume that any unlabelled post is trustworthy. This is worrisome because, due to the sheer amount of information shared online, there will always be a huge amount of unlabelled posts (Dizikes, 2020). There is also trepidation that accurate but controversial posts may be labeled, transforming the practice into a tool for censoring by big tech companies, i.e., Facebook could potentially label information that *they* deem inaccurate or unfavourable (Menczer & Hills, 2020). As we have seen above, companies are trying to balance free speech with decreasing the spread of misinformation by shading posts, but will that continue to be the case? Finally, there is the overarching debate over whether we can trust those that are assigning the labels (Menczer & Hills, 2020). Similar to the concerns related to coders bringing their personal biases into the creation of algorithms, tech companies selecting what is flagged is in itself a problematic system.

Facebook, Twitter, and Spotify have used labels in different ways. Why does their approach keep changing? As we learn more about how disinformation affects human psychology, labels are changed to align with findings. In the next chapter we will discuss something called the *Illusory Truth Effect*, which postulates that the more individuals see information the more likely they are to believe it. The use of labels is an attempt to limit the amount of disinformation we see in the first place (Pennycook et al., 2018; Buchanan, 2020b). One study found that if participants had seen false information in multiple locations, even though they knew it to be false, many still considered it acceptable to share that information because they had seen it multiple times (Buchanan, 2020b). However, another study found that labels increase a user's skepticism, providing a chance to pause and consider before sharing information (Pennycook et al., 2018).

3.5.4 Moderators and Fact-checkers

Moderators and fact-checkers are the human element deployed by several social media companies in their continual effort to combat disinformation. These individuals are tasked with evaluating posts that have been reported and verifying the information with trusted sources. Some fact-checkers are called third parties which means they don't work for the company and are more likely to be neutral. These individuals are often certified in evaluating information and focused on finding the most accurate answer. Facebook and Instagram employ independent fact-checkers to label some posts. Facebook will remove content that has false claims about COVID-19 (Facebook, n.d.) while Instagram removes the 'explore' option and searchable hashtags on the post to limit spread (Stecula, 2021).

Twitter uses a community-driven method called birdwatch that is similar to Wikipedia's verification method (Dizikes, 2020). Random users are assigned to review tweets reported to be false information and they volunteer to add notes about why the tweet is incorrect. Twitter claims that a "community driven approach to addressing misleading information can help people be better informed" (Coleman, 2021, para.1). However, one must ask, when does birdwatching turn into **censorship**? Censorship is suppressing words, images or ideas that are considered problematic by those doing the censoring, and since there is a human component to fact-checking, it will always lead to the question: what right does a person have in deciding if information presented to a user

is good or bad? Also, how many people are willing to participate in unpaid work? Definitely not enough to solve the ever-growing problem.

As we have seen, and it is especially the case with Twitter, false information is created and spread quickly by bots. Fact-checking systems, especially those that utilize real live human beings, cannot keep up with the large amount of false information created each day (Dizikes, 2020; Stecula, 2021). Some social media companies have tried to develop AI moderators to assist with the review of posts with low success. A review of Facebook's moderating system found that 300,000 mistakes were made a day as it tried to work through all the content reported (Stecula, 2021). A study that looked at several social media platforms found that 95% of the content that was reported to be problematic was never reviewed (Jarry, 2021). If the largest and most profitable tech companies in the world cannot keep up with the amount of false information posted and shared each day, how can the average user be expected to identify it?

3.5.5 Removing Content and Users

Some social media platforms have removed problematic content or suspended users' accounts. For example, both Facebook and YouTube remove content that specifically aims to misinform people (Grady et al., 2021). Facebook published a report that outlines the disinformation campaigns that they have removed from their platform (Fisher, 2021). Removing content does reduce spread but the content often moves to another platform on the Internet (Grady et al., 2021; Zukerman, 2022). This practice comes with some concerns because the line between censorship and stopping misinformation is unclear (Zukerman, 2022).

As we have seen, the large companies online are attempting to combat disinformation. They are being called upon by world leaders and populations to fix the problem but, as we've also seen, the problem is very complex. Those creating disinformation range from small operations to well-funded websites supported by powerful people. Sometimes disinformation is spread by those with good intentions, unaware that they are even doing it. Social media and search engine companies can put endless amounts of resources and money into this problem, but they are still unlikely to catch up with it, so it ultimately comes down to users who must be aware and always

consider the purpose and agenda of the information source. In the next chapter, we will see how human interaction with online systems lends to the spread of false information.

3.6 Moving Forward: Digital Literacy

In this chapter, we learned how automated algorithms, technologies meant to cause harm, and people's online behavior combine to impact the online information they encounter. The best method to ensure we understand how to distinguish true information from false in this increasingly complex digital environment is to become digitally literate. **Digital literacy** is a set of skills that includes both information evaluation and the ability to use technology (Leaning, 2018). People who understand how information is created and spread over the Internet are less likely to spread false information and they are better able to evaluate the truthfulness of a source (Buchanan, 2020). Being digitally literate includes simple things like knowing when to report posts on social media or understanding how search results are presented. A basic understanding of algorithms and newsfeeds is a positive step towards effectively evaluating information.

3.7 Discussion Questions

1. If you perform the following two searches on Google, do you think you'll get the same results?
2. Is the paleo diet good?
3. Paleo diet AND good
4. What concerns do you have about large tech companies labeling, fact-checking, and suppressing posts based on their company policies?
5. Will systems like birdwatch allow for fact-checking without censoring content?

CHAPTER 4: INFORMATION MANIPULATION

4.0 Learning Outcomes

> "Social media [-] allows us to construct and prune our social networks, to surround ourselves with others who share our views and biases, and to refuse to interact with those who do not. This, in turn, filters the ways in which the world can push back, by limiting the facts to which we are exposed. Propagandistic tools are especially effective in this environment." (O'Connor & Weatherall, 2019, p. 16).

Analyze how humans share and create information online by:

- Explaining how false information is created on different types of social media.
- Recognizing people's role in sharing and creating information on social media platforms and how it is adding to the spread of false information.

So far, we have examined information and various related concepts. We have discussed how the Internet has impacted the creation, sharing and distribution of information, with an emphasis on the news industry and an examination of the algorithms that underlie and impact all online search behavior. In this chapter, we will discuss social media platforms and how people interact with them. Social networks often blur the lines between trustworthy information and false content. Newsfeeds have become environments in which disinformation thrives. This chapter examines the consequences of human interaction with online information, we call this **information manipulation**. In this chapter we will cover:

- Disinformation on social media
- Online social communities
- Influencers

4.1 Social Media Defined

Social media includes online services and applications that allow individuals to create, share and seek information, to communicate and collaborate with friends and to exchange content (Chen et al., 2015). Across the world, there are an unimaginable amount of social media networks and sites, each defined by various characteristics and attributes. For our purposes, **social media** refers to any site that allows individuals to engage with one another. This includes: blogs, social network sites (Facebook), news sites (Reddit), knowledge bases that allow comments (Wikipedia), sharing services (Instagram, YouTube), and social apps (WhatsApp). Although we will focus on the platforms popular in the Western world (Facebook, Twitter, Instagram, TikTok), they are few among many (Chen et al., 2015). As each platform has evolved, systems for building friendships and staying connected online have shifted towards an online market economy. Many sites now include various functions, such as live streaming, marketplace applications, and social audio features which appeal to business users looking to advertise (Wong, 2021). Various websites exist to aid businesses in making decisions related to social media, including building followings and developing marketing strategies. This means that individuals who are on social media are being presented with a flurry of information for a multitude of reasons, people trying to sell, people trying to advertise, people trying to manipulate (Wong, 2021).

4.2 Social Media and Disinformation

Social media has impacted how people share and consume news. A 2018 survey of Americans showed that 50% of Internet users hear about news on social media before hearing it through a traditional news outlet (Martin, 2018). This trend hasn't changed much, a 2020 survey indicated that 48% of US adults say they get their news from social media often or sometimes (Walker & Matsa, 2021). From 2019 to 2021, 21% of Canadians surveyed, stated that they get their weekly news from social media, with Facebook in the lead (41%), followed by YouTube (32%) (Watson, 2022; see figure 20). As we saw in chapter two, throughout the pandemic as the issue of disinformation worsened in relation to healthcare and vaccine-related topics, people's use of traditional news outlets went up. However, it is very likely that many individuals were still accessing these news sites via social media, and they probably continue to do so. Newsfeeds run by and on social media platforms have become the place where many people access information about current events.

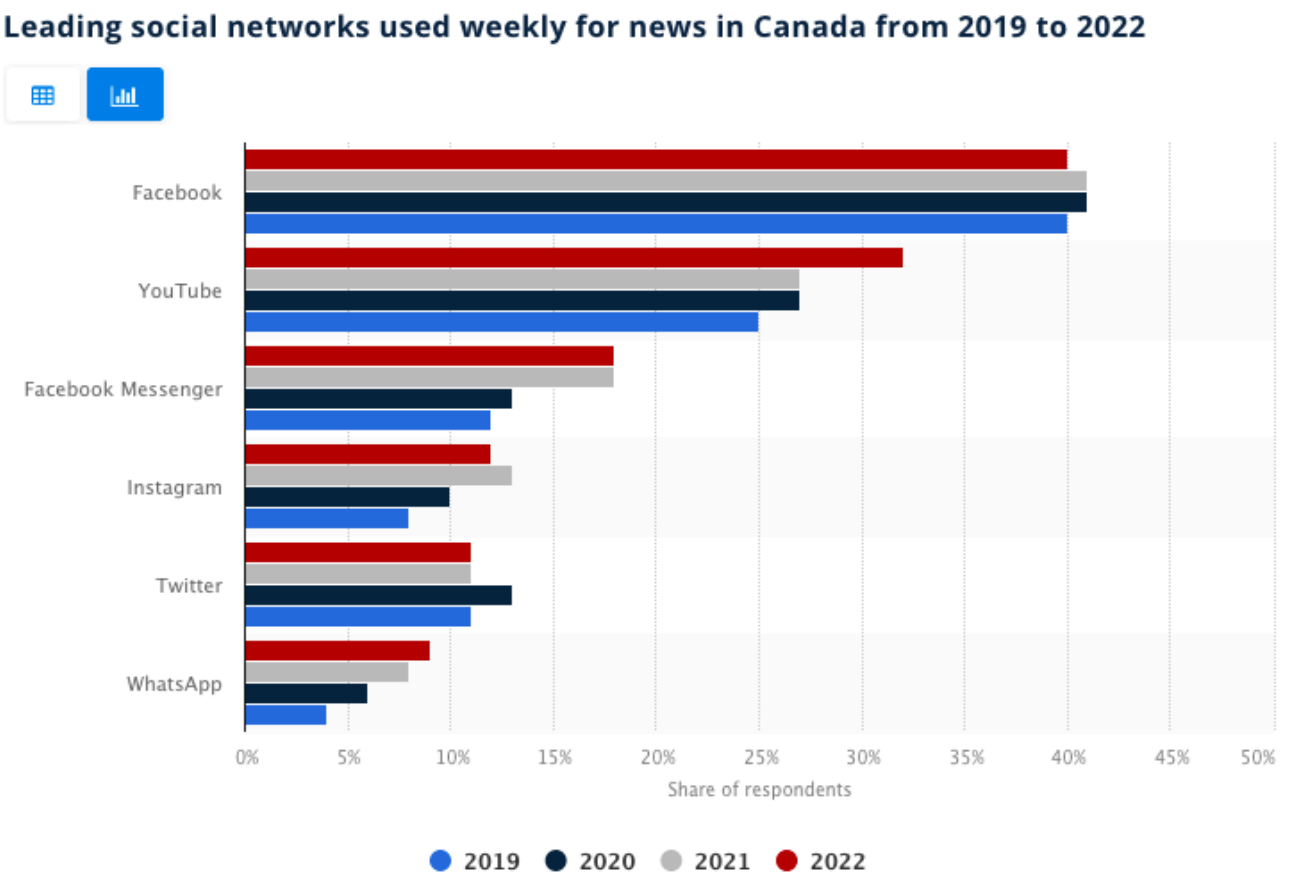


Figure 20: Leading social networks used weekly for news in Canada from 2019 to 2022 (Watson, 2022)

The trend of seeking out news on social media platforms is especially popular among younger generations, some of whom admit that they like to learn about important issues from famous individuals, such as activists, on social media. Activists are individuals who support one side of an issue strongly and are often well-known for participating in protests (Merriam-Webster, n.d.e). Greta Thunberg is an example of a young environmentalist who has become popular for her activism; many people of younger generations follow her for information about climate change (Walker & Matsa, 2021; Wikipedia, 2022). Meanwhile, those who are relying on online personalities (activists, celebrities, influencers) for their information often do not effectively evaluate the information they find online. One survey found that more than half of college-aged students examined do not verify the truthfulness of the articles they read and that those who do might consider things like appealing web design to be the deciding factor of good versus bad content (Chen et al., 2015). Considering the Greta Thunberg example: at what

point does gathering information from an activist become problematic? What makes an activist an authoritative figure? When does an activist become an influencer and why should that concern social media users?

4.2.1 Social Media Makes People More Susceptible

Disinformation has been a problem throughout known history. But in the Internet age, the problem has worsened. Why? In large part, it can be attributed to the social media environment. Throughout our research, we have come to find that *four* main reasons are cited for people's belief in false information online and each of these reasons encompasses other social media trends that are worth discussing. It all begins when an individual views a post on their social media feed–it might be a sponsored post (placed there by social media advertisers and algorithms), something shared by a friend, or something shared by a page they like. After the person sees the post, the following four things might impact their reaction to it:

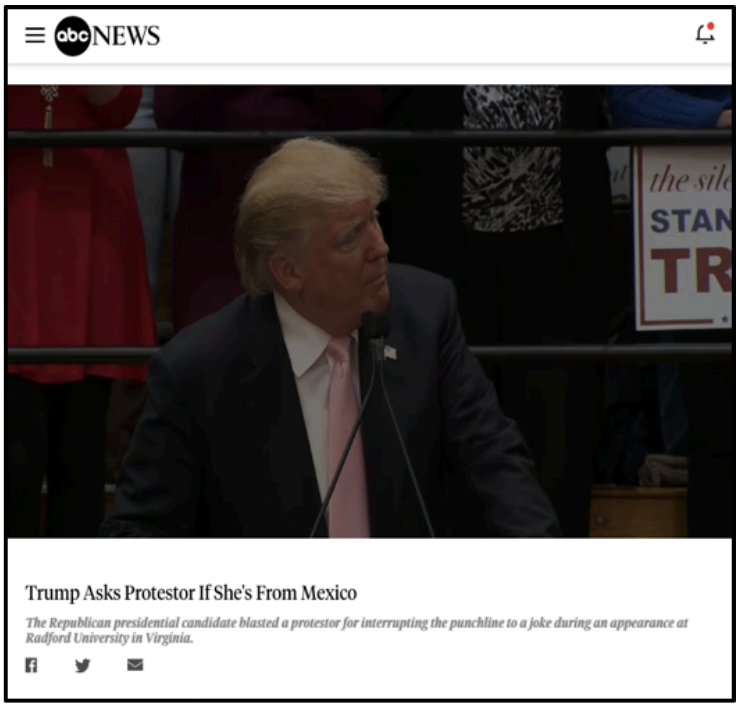
1. the post appears to be credible,
2. the post stirs emotion,
3. the post is something that the individual has seen repeatedly,
4. the post is something the individual already believes to be true.

The post appears to be credible

One only needs an idea and access to a device to create content that looks official. With the various information technology tools available, such as graphic design tools, website builders, access to photography, video creation and editing tools, many are able to create professional-looking websites and social media posts (Horner et al., 2022). This environment has caused new and troubling trends to emerge, among them **mimicking**. This is a technique where a false news site will mimic the design of a reputable news source (Stecula, 2021). The false news source will have a url that is similar to a reputable news source, but when examined closely the *About Us* section will be sparse (lacking any journalistic or editorial standards, or faking them), and the stories will be sketchy and biased (Molina et al., 2019). Most of these sites are created to generate ad revenue quickly (Molina et al., 2019). However, when these stories are detached from the website and

shared on social media, they can appear credible (Stecula, 2021). In this way, technology can become a powerful enabler of disinformation. The example below shows two different websites with the abcNews logo at the top; can you tell which one is the authentic news site and which is the mimicked site?

Screenshot of fake abcNews site (Jacobson, 2016).



Screenshot of abcNews site (abcNews, 2016).

Figure 21: Comparison between fake abcNews website (left) and the authentic abcNews site (right).

Another concerning trend that can be credited to advanced technology is the creation of **deep fakes**. These are videos that appear to show well-known people doing things that did not actually happen (Dickson, 2020). Technology has made it possible to take the face of one person and transpose it onto the face of another. It is also possible to create sound that mimics a specific individual's voice (Dickson, 2020). A common example of a deep fake is nonconsensual pornography where a celebrity's image is imposed on the actual person appearing in the film (Dickson, 2020). Other deep fakes show politicians doing and saying things that are out of character. These videos spread quickly on social media and are difficult to detect. It is important to seek other sources to verify the content of videos that seem a little weird or unrealistic.

Technology also deserves credit for how quickly information spreads. Face to face interactions spread information slowly and while paper *can* spread it quite quickly, publishing in print is expensive and time-consuming (Horner et al., 2021). Social media allows information to be shared immediately with a much larger group at a low cost.

The post stirs emotion.

On social media, knowing that information has been proven false doesn't dissuade people from engaging with it, rather it tends to make it more appealing and shared more widely. Those responsible for the creation of disinformation online understand that causing viewers to be emotional will fulfill their goal of getting more engagement. Engagement is "the number of reactions, comments, shares and clicks on a post" (Meta, n.d.). Most posts, especially news stories, insight an emotional reaction in people, it might be excitement and joy, annoyance and anger, and everything in between. People might even experience a feeling of vindication ("I knew I was right!"). Or after reading a post that they know to be untrue, they might want to make a comment to ensure their friends know the information is wrong.

In the past decade, numerous psychologists have studied the emotional responses of social media users. They have found that in the current environment of information overload, our brains have learned to prioritize information that triggers a high level of emotion, while glossing over unexciting information that doesn't cause a reaction (Barr, 2019). When people have an emotional reaction to something they read, they are more likely to engage with it – by liking, commenting, or sharing (Horner et al., 2021). The more upsetting a post is, the more viral it will become (Barr, 2019). When a person is feeling especially emotional, they are more likely to believe what they read (Pennycook et al., 2019). During times of political disagreement or public fear, posts that stir emotion multiply and circulate at an exponential rate.

The amount and pace of conflicting views circulating around the Internet is leading to a circumstance which challenges people to examine their reactions and fact check before sharing. Pennycook et al. (2019) recommend using Google to search for the headline that has stirred emotion because it is often the case with false news headlines that by the time an individual sees it, it has already been debunked by someone else. By doing a quick search, the user may stop themselves from sharing disinformation and save themselves the emotional energy they might have otherwise wasted on a false headline.

Most Google searches take less than one second to complete, is that a reasonable amount of time to invest in ensuring something is true?

The post is something that the individual has seen repeatedly

The more a person is exposed to a particular piece of information, the more likely they are to believe in it (Dwyer, 2019; Buchanan, 2020a; Hassan & Barber, 2021; Stecula, 2021). As discussed in the previous chapter, social media algorithms select what stories to show users based on popularity, meaning the more people that have commented on or liked a post, the more likely other people are to see it. Some experts state that dangerous repetition or the **illusory truth effect** explains why advertisements, disinformation, and propaganda are so impactful (Buchanan, 2020a; Hassan & Barber, 2021). Many scientific studies have confirmed that repetition will increase the belief in and circulation of rumours, false news and disinformation, whether or not the information has been openly debunked and no matter when the repetition occurred (within a day, a week, or a year) (Hassan & Barber, 2021).

Those who want to spread disinformation understand these algorithms and use bots and trolls to boost the popularity of specific content. These manipulative technologies or individuals (in the case of trolls) work to make sure that social media users see a piece of disinformation multiple times. They know that the more it is repeated, the more influence it will have. Once people process information, it is very difficult to remove its influence from their mindset (Dwyer, 2019). To add to this, the more familiar a person becomes with a concept, the more justified they believe they are in spreading it to their social networks, even if they know it has been proven inaccurate (Hassan & Barber, 2021).

The post is something the user already believes to be true

Confirmation bias is when someone confirms a belief they already hold to be true. People are better able to remember information when they can connect it to something they already understand. They also naturally try to fit new information in with their existing knowledge. Even when presented with a balanced viewpoint, people pull out the information that best fits into their current belief system (Chen et al., 2015; Buchanan, 2020b; Stecula, 2021). For example, imagine a person is reading an article about caffeine that includes two facts. The first fact is that caffeine can help with concentration and the second fact is that caffeine can lead to problems with sleeping patterns. The first fact is familiar to the person, they have heard it before, and they believe it because they have experienced that effect. This part will be more 'sticky' for them, meaning they are more

likely to remember it. But they don't believe the second fact because it's new, they haven't experienced it. This second fact is more likely to be forgotten because it doesn't fit with what they already know. Confirmation bias can impact the information that appears on social newsfeeds, because the more a person likes a particular type of content, the more they will see similar posts, the more they will think their beliefs are true, and so on and so on (Chen et al., 2015).

Disinformation that confirms what we already believe is repeated, stirs emotions or looks credible plays on human psychology and the way our brains work. It is the reason why those four concepts are the most likely causes for our trust in and sharing of false social media posts. In the next section, we will discuss several other online phenomena that can lead people to believe disinformation.

4.2.2 Online Communities, Affiliations and Echo Chambers

Just as a person is more likely to share disinformation that confirms their current belief system, they also are likely to share information that was posted within a trusted community (Buchanan, 2020b). Many social media users seek out communities that hold similar beliefs. When individuals find a community that shares their own biases they feel a sense of belonging, which fulfills a significant human need (Buchanan, 2020b; Bajwa, 2021). Often, they trust whatever their 'friend' has said, and share or engage with posts without considering the authority of the person posting the information (Chen et al., 2015).

While some communities might be positive and encourage exploring differing viewpoints, this is not the case with all online groups. Some communities hold extremist beliefs, which in recent years have led to real world events and consequences. Take, for instance, the Trucker or Convoy protests that occurred in Ottawa, Ontario, Canada in February of 2022. Individuals with very specific agendas began to build followings with like-minded individuals on social media. Over time, an enormous real-life protest developed and gained momentum. Across the country, various individuals with different backgrounds stood on both sides of the debate. Many who supported the convoy felt they were standing up for freedom and described the protests as peaceful and friendly. Did they know that a group of extremists were leading the protests via social media channels?

James Bauder and his wife Sandra are said to have been the original organizers. They intended to arrange a demonstration in Canada's capital city and bring a "memorandum of understanding" to Parliament in hopes of ending vaccine mandates (PressProgress, 2022). They had already been organizing protests throughout Canada in a generally peaceful way in the months prior. It wasn't until Canadian truck drivers were mandated to become vaccinated to remain employed that more of the Canadian population became involved. Many of the leaders who joined at this time were famed for extremist viewpoints across social media (PressProgress, 2022).

James Bauder and another convoy leader Pat King both claimed that in the lead up to the protests they might not have even believed in the social media posts they created. In interviews both expressed sentiments that they would often create content or make statements to see *if* those in their community were thinking the same thing (Guerriero & Anderson, 2022). In doing so, these individuals were treading a fine line between harmless conversations (which they were claiming to have) and inciting violence (which occurred). Pat King stated in videos that the only way the convoy in Ottawa could be "solved is with bullets" (PressProgress, 2022, para. 9). He also stated that Prime Minister Justin Trudeau needed to "catch a bullet" (Guerriero & Anderson, 2022, 29:04). Imagine being a supporter of the convoy at its inception, believing it to be a peaceful protest and getting caught up in the excitement of an online community fighting for freedoms. Then imagine that the leaders of the initiative begin to talk about using bullets to end the protest. Has participation in the community now become dangerous? People who participate in online communities must remember to step back and evaluate whether the community they have joined is driven by a specific agenda, to consider if the values of that group are values they would still support if questioned outside of the social media environment.

4.2.2.1 Echo Chambers

Much has been made of the online spaces individuals find themselves in. It is believed that, in drastic circumstances, engaging with content that confirms personal belief systems, unfriending those with whom we disagree and joining communities that make us feel seen or heard, might result in people landing in echo chambers. An **echo chamber** is a way to define a user's online social space. Over time, as a social media user engages with certain types of content and ignores other content, they begin to create an

invisible user profile which is driven by the algorithms of each platform (Zimmer et al., 2019; Menczer & Hills, 2020). The video below What Is an Echo Chamber helps to describe how algorithms work. It is the job of algorithms to push content that each user will enjoy, so that they will continue to come back for more. For example, a person who believes that healthcare services like CT scans and blood tests should be available for purchase might only like posts that confirm this belief, meaning they will see more posts like that over time, which will continue to confirm their beliefs, disconnecting them from information about the importance of public health systems.

One or more interactive elements has been excluded from this version of the text. You can view them online here: https://pressbooks.saskpolytech.ca/disinformation/?p=233#oembed-1

Since echo chambers can place people into opposing online environments pertaining to politics, religion, race, and more, they can become dangerous by contributing to divisions in society (Stecula, 2021). In these circumstances individuals are fed information that confirms their viewpoint so frequently that they feel very strongly their argument is correct. Over time, they become so convinced of the truth in what they are seeing that they refuse to believe anything else.

Recent articles have pointed to the fact that echo chambers might be less widespread than previously thought, particularly in relation to the spread of online disinformation. Some researchers have made the argument that social media is actually 'information expanding,' as it opens people up to more viewpoints than they would have been exposed to if not on social media (Ross Arguedas, 2022). In any case, it is important to understand that our social media preferences and behavior have the potential to illuminate certain types of stories over others. Regardless of if a user finds themselves in an echo chamber, the way they behave online still has the potential to lead to inaccurate representation of facts by their chosen online community.

Several of the behaviors discussed in this section are problematic, even if they don't result in people finding themselves in echo chambers. Studies show that those who gather their information from social media channels only scroll, read, and engage with the pieces that are most interesting to them (Martin, 2018). Many choose to interact with content that appeals to them and refuse to interact with the content of people

they disagree with. By hiding content or unfriending an individual, social media users are limiting the information they are exposed to (Fletcher, 2020). This impacts their personal algorithms–affecting what information shows up on an individual's newsfeed (Fletcher, 2020).

4.2.2.2 Trolls

Some malicious actors, such as Trolls, make a career out of manipulating algorithms to alter the information that appears on people's social feeds. **trolls** are groups of people intending to create a strong reaction in those they communicate with. They support the spread of disinformation by developing fake accounts and creating content that stirs emotion (Pelley, 2019). They often share the same information from more than one account to try to increase the repetition and popularity of posts. Many attempt to inflame both sides of an issue, simply to increase engagement with an account (Pelley, 2019; Bajwa, 2021).

Troll accounts often reset their online personas, change their handle, change the description of the account and mass delete posts to maintain a following and spread a different message. Most who follow the accounts (especially on Twitter) don't notice the change. Below is an example tracked by Canadian journalists who examined a Twitter account that changed three times in a 15-month period (Zannettou & Blackburn, 2018). In this example, all iterations featured far-right viewpoints and used inflammatory hashtags such as #NeverHillary and #NObama. The evolution of the account looked like this:

Figure 22: Table outlining changes to one Twitter account (adapted from Zannettou & Blackburn, 2018).

Date	Account (Handle)	Profile (Description)	Following (right before changeover)
May 15, 2016	Pen_Air	National American News	4,308
Sept 8, 2016	Blacks4DTrump	African Americans stand with Trump to make America great again!	9000
Aug 18, 2017	Southlonestar2	Proud American and TEXAN patriot! Stop ISLAM and PC. Don't mess with Texas	Unknown

The troll account created strife on issues, but more importantly, gradually gained followers. Changing the focus of the account allowed the creator to appeal to different audiences over time. This is an effective way to contribute to dangerous repetition or at the minimum make sure people are exposed to the content. Remember that the more a person sees something, the more they are likely to believe it.

Some trolls work together to create coordinated efforts to ensure that a user's algorithm will continue to feed them targeted information (Saurwein & Spencer-Smith, 2021). In these scenarios, there is a specific political or economic agenda. For instance, in Russia, people go to an office each day and are paid to spread disinformation (Brown, 2022). This is known as a **Troll Farm**. Similar to this practice are troll armies or cyber troops which are groups of people who coordinate and attempt to influence public opinion by spreading disinformation (Brown, 2022). These groups are found throughout the world and are often associated with governments and politics (Bradshaw & Howard, 2017). They spread information on social media, using both real and fake accounts. They may post positive or negative comments to increase engagement on their posts, trolling both sides of an issue to increase division and distrust within a society (Bajwa, 2021). In extreme cases, troll armies may target and harass a specific person to discredit their message (Bradshaw & Howard, 2017). Various experts have identified Russian sponsored troll armies as having a major impact on the public unrest and the spread of disinformation that occurred during the 2016 US election (Stringhini & Zannettou, 2020).

However, trolls are not exclusive to Russia and some individuals troll 'just for fun'. Individuals who get a thrill out of provoking others, for no political or financial gain are plentiful online and they play a part in the spread of disinformation (Pelley, 2019). Take, for instance, "Tina" who in the quote below is responding to a journalist asking her if her online behavior makes her a troll. She said:

I find in real life, I could stand in the middle of the mall and scream my thoughts, and virtually no one will engage with me. In real life, confrontations scare us because we might be physically hurt, so we cower from them. Online though, people have more courage. It's like social media gives people pack mentality. So I say contentious things, to get a rise out of people, and prompt comment threads that will go on all day. It's just something to get me through the workday. Also, I like to upset people and steal their time away. I don't mean half the crap I say. I'm just sick of being made to feel small by this world because I am different, and by making people feel so desperate to be heard, or have their

counter-arguments understood, I am making them feel small and unheard like me. So yes, it is a malicious intent, and I guess I fit your bill as a troll. (Pelley, 2019, para. 4)

What danger does this sort of behavior create in the online environment? In communities?

Bonus fun:

Try out the Troll Factory Game, which leads you through a week of activities that someone working for a troll farm might engage in (YLE News Labs, n.d.).

4.2.2.3 Spoofers

Spoofers are another example of malicious characters who impact content that appears on social media feeds. They pretend to be someone else to gain confidence, get access to information, steal data, steal money, or spread malware (viruses). Spam or Phishing emails, which attempt to manipulate people into sharing personal information, are the most common examples of spoofing. On social media, spoofers are often behind fake accounts that attempt to 'friend' people to gain access to information. Spoofers might also appear on dating sites as 'catfish' which is when someone presents a false image of themselves to gain trust (Cambridge Dictionary, n.d.). The main goal of a spoofer is to gather information, infect a computer with a virus, or ask for money (Malwarebytes, n.d.).

4.3 Social Media Influencers

There are others online who profit due to their ability to persuade. These individuals do so based on their personality or content, hoping to gain popularity that will result in promotional money or ad revenue. Social media **influencers** are online celebrities who are famous on one or several platforms (Instagram, YouTube, Twitch) and their fame is measured by numbers of followers. Influencers existed prior to the Internet, as celebrities or athletes–think of the 1990's, Michael Jordan and his still famous Nike shoes, the Air Jordan. Nowadays social media enables everyday people to quickly shoot to similar levels of fame. Online influencer culture is a new area of study with lots of gaps but it is a phenomenon that those on and off social media encounter regularly (Jansen, 2020). For instance, it has become a new practice for news outlets to interview influencers on niche topics. For instance, this Global News story (2021) features an influencer discussing the pros and cons of an organic waste program. The influencer Maygen Kardash runs a blog that features "giveaways, events, activities and more" in the city Saskatoon, Saskatchewan, Canada. Her Instagram account @sneaksandlipstick has 19.2K followers making her a micro-influencer. She is a former writer, a stylist, and a mom (Kardash, n.d.). Does her biography qualify her to be interviewed about a city's waste-program? Why might a person want to hear from her as a citizen of their city? Why not?

Influencers are defined by their **following** (how many other accounts follow them) and this is directly related to how much they earn. Influencers fall into the following categories:

- Mega: 1 million + followers
- Macro: 100,000-1 million followers
- Micro: 10,000-100,000 followers
- Nano: 10,000 followers or less (Foxwell, 2020).

Influencers generally have sway over a group of people and they usually claim to have expertise in an area such as travel, cosmetics, or fitness (Lou & Yuan, 2019). They make money with brand deals; although the exact way that each deal works is not public knowledge. In general, it is understood that a brand will reach out to an influencer to promote a product, then the influencer will negotiate the content and expected deliverables based on their following. It can be a profitable endeavor and several

people's entire income is made through content creation on social media. For instance, one influencer who responded to a journalist's queries in 2020 claimed that with a following of 275,000 followers, they have negotiated brand deals for $700,000 over a six-month period (Bradley, 2022).

Most mega influencers are celebrities, already extremely popular by some other means. Kylie Jenner, from the popular series *Keeping Up with the Kardashians* and the owner of multiple successful cosmetic lines has 359 million followers–which translates into a huge amount of influence (kyliejenner, n.d.). Other mega influencers provide harmless fun for their followers. For instance, mr.pokee (2021) is a traveling hedgehog who posts images of travel destinations, assisted by his owner Talitha. At the time this book was written, mr.pokee (2021) had 1.8 million followers. Many macro and nano influencers are professionals in their field who use Instagram to build their business. For instance, Kelly LeVeque is a celebrity nutritionist with an education from UCLA and UC Berkeley. She has 445,000 followers and focuses her account on holistic nutrition (bewellbykelly, n.d.).

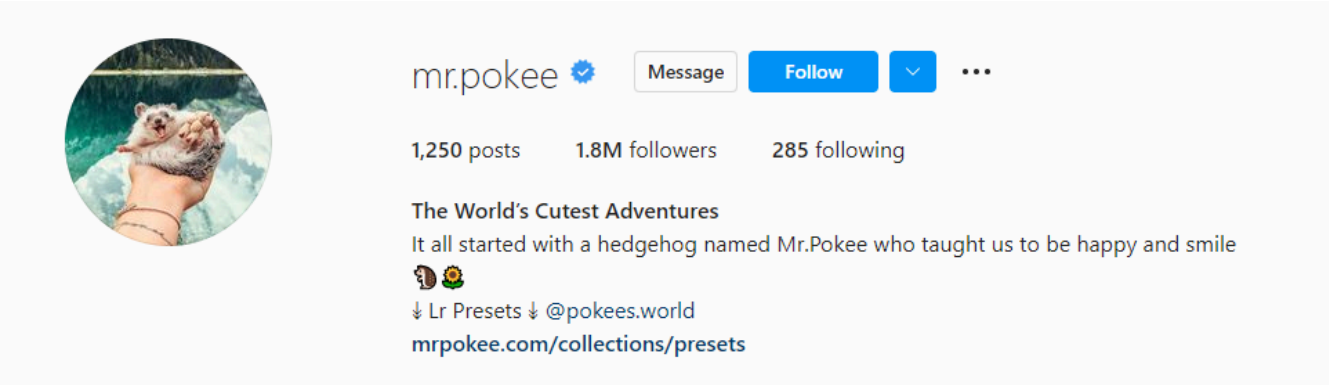


Figure 23: Screenshot of mr.pokee's Instagram followers (mr.pokee, 2021).

Influencers' impact on news and information is exemplified by the fact that, over the past couple of years, governments have hired them to spread messages (Jansen, 2020; Abidin et al., 2020). Finland, China, Japan, and South Korea have all used social media influencers in government campaigns (MediaKix, 2021). During the COVID-19 pandemic, the governments of Finland and the UK hired social media influencers to help spread accurate health information online (Abidin et al., 2020). Meanwhile, several influencers globally were responsible for the spread of anti-mask and anti-vaccine messaging. Many

were called out by their governments and medical professionals. In one situation, the Australian College of General Practitioners called out influencers telling them to be "silent on the topic" (Abidin, et al, 2020, p. 11). Meanwhile in China, a *wanghong* (influencer) apologized on their account on behalf of the entire country for starting the pandemic (Abidin et al., 2020).

One interesting example that occurred before the COVID-19 pandemic comes from Australia where the government spent AUD700,000 on a #girlsmakeyourmove health campaign. The campaign had young female influencers promote active lifestyles and sports (Lynchy, 2016). But, at the completion of the campaign, the Australian government realized that some of the influencers had used the platforms to promote unapproved trends, such as diet pills for weight loss. Following this discovery, the Australian government said that they would no longer hire influencers for government marketing campaigns. But just a few years later, they began to hire travel influencers to increase tourism to Australia (Lynchy, 2016).

4.4 When Influence Turns to Harm

Some people trust influencers as much as they trust their friends (Lou & Yuan, 2019). This is partially due to confirmation bias which leads people to like content that already fits with what they already believe (Buchanan, 2020b) and ties in with the concept of believing something that a person's social community supports. An influencer might impact a person's decision to purchase a certain shirt or travel to a certain place, no big deal. However, things begin to get dangerous when influencers claim to be experts but aren't. One popular influencer trend is exercise and nutrition. Many people follow the advice of un- or under-educated influencers for things that can seriously impact health and well-being. Vanderburg (2019) pointed out that the most cited level of certification for Canadian fitness and diet influencers is from the NFLCA (the National Fitness Leadership Association of Canada). This is a fitness leadership credential, someone with it is qualified to lead fitness classes, they are not qualified to provide health and diet advice, but many do. Following non-professional advice in these areas can lead to "injury, poor nutrition, ill health, and physical and psychological issues" (Vanderberg, 2019).

Another example of a disinformation campaign that attempted to use social media influencers to refute science focuses on COVID-19. In a news article from May 2021, social media influencers reported that they were offered financial incentive to falsely talk about the Pfizer and the Astra-Zeneca vaccines by an organization unwilling to share their information or purpose (Leicester, 2021). Although the influencers featured in this article did not accept the incentive to post about vaccines, it is very likely that there are influencers who did–meaning this false information has likely been spread in some virtual environments or echo chambers. **If influencers intentionally share disinformation, it can spread quickly.**

4.5 It's Not All Bad

It's important to remember that social media platforms are tools that are used by us. They can be used for negative things, or they can be used for positive change. Social media makes it easy to spread disinformation, but it also makes it easy to fundraise for a good cause (O'Leary, 2022). In both instances, social media extends the reach of the message. Both the #MeToo and Black Lives Matter movements used social media to bring people together for socially progressive causes that were not reliably covered by traditional news media (O'Leary, 2022). Social media is an important tool for Black Americans to get involved with social causes that are important to them (Auxier, 2022). Black Americans also say that social media tools can be used to keep those in power accountable for their actions (Auxier, 2022).

There are other positive examples for the use of social media in our everyday lives. They are tools for interacting with family and friends, for finding people with similar interests, for scheduling, and for emotional support (Schimmele et al., 2021). Can you think of other examples of social media positively impacting a community?

4.6 Moving Forward: Meta literacy

This chapter examined the notion that our emotional responses to social media posts impact our reactions to and belief in them. A foundational understanding of why we react the way we do is a step towards becoming metaliterate. **Metaliteracy** is a "model that empowers learners to be reflective and informed producers of information both individually and in collaboration with others" (Metaliteracy, n.d., para. 4). The concept is a broadening of the notion of information literacy (covered in Chapter 1) to include the modern, online world. You will recall that an information literate individual can identify when information is needed, can locate, assess, use and make meaningful decisions about it (de Paor & Heravi, 2020). Dr. Thomas McKay describes a metaliterate person as someone who will go a step further and engage in inner reflection when interacting with information. "Meta" refers to the idea of "thinking about your own thinking" (Academic Minute, 2021, para. 6). Not only will the metaliterate person consider the origin of the information (who created, why did they create it, where is it being shared, why am I seeing it?), they will also consider their role as a consumer, translator, and sharer (what should I do with this information, how will it impact me and my social network?). Due to the strong emotion that disinformation can cause, it is important to recognise those feelings and think about our own thinking.

4.7 Discussion Questions

1. Do you use social media? If yes, why?
2. We discussed the fact that some countries' governments have gone back and forth regarding their willingness to employ social media influencers. What does this reveal about the government's ability to provide reliable information to its citizens?
3. At what point does an influencer's influence become dangerous?

CHAPTER 5: INFORMATION EVALUATION

5.0 Learning Outcomes

Understand how to assess online information by:

- Appraising online information using various frameworks
- Evaluating information to determine if it fits a need
- Applying critical thinking to various information sources including news, online searches and social media.

So far, we have discussed fundamental concepts that support an understanding of the current digital information landscape. Chapter one, **Information Disorder,** examined information and its evolution, looked briefly at historical and contemporary trends in the areas of misinformation, disinformation, online propaganda (and more) and described the important educational concept of *information literacy*. Chapter two, **Information Distribution,** provided a simple overview of the news industry including journalism and editing, as well as the progression of fake news as a definition and politicized concept leading us into a post-truth world, and ultimately *media literacy* as a response to it. Chapter three, **Information Automation,** took us through automatic aspects of information exploration, examining search engines, algorithms, and associated concepts, concluding with an endorsement of *digital literacy*. Chapter four, **Information Manipulation,** explored human interactions with information, focusing mostly on how we share, consume, and interact with information on social media, with a reminder that when engaging with online information a person must practice self-reflection in order to become a truly responsible digital citizen and engage in *meta literacy*. Understanding the many subtleties that have led to our current information situation is the first step in becoming a responsible digital citizen. Those who have read chapters one through four are well-equipped to engage more effectively in seeking information more effectively.

This chapter is an extension of the teaching provided in earlier chapters. It takes readers into practical ground, covering simple and complex tools that can be used alone or in combination to develop the skills needed to navigate information. The use of any of the frameworks presented will place readers on the path to becoming more information, media, meta and digitally literate.

After finishing this book and re-entering the world of online information, select one or more of these tools to guide navigation and determine the trustworthiness of sources.

5.1 Big Tobacco

As we progress through this chapter, we will refer to a common example–a propaganda campaign that spanned most of the twentieth century known as *The Tobacco Strategy*. Led by Big Tobacco, a group of large companies who sold huge amounts of tobacco products, the impacts of the advertising campaign are still felt today, as people continue to fight tobacco addiction and combat health issues related to its consumption (Wikipedia, 2021; Bates & Rowell, 1999). Big Tobacco's disinformation campaigns spanned across decades and occurred despite the full knowledge of the health concerns related to tobacco consumption including serious illness and death.

Here's a little snapshot of what happened: in the 1950s the highly profitable industry faced a series of bad press. It began in December of 1952, when Reader's Digest published an article titled "Cancer by the Carton." The negative media attention continued into the following year when a summer issue of Time Magazine featured a study that provided evidence that exposure to cigarette tar produced malignant carcinomas in mice (malignant is something that spreads uncontrollably, carcinoma is another word for cancerous). The article's headline: "Beyond Any Doubt," left no room for uncertainty. At the same time, medical professionals were making public statements that were damning to the tobacco industry, saying things like "the male population of the United States will be decimated by cancer of the lung in another fifty years if cigarette smoking increases as it has in the past" (O'Connor & Weatherall, 2019, p. 94).

As the tobacco industry's profits fell, head executives from the largest tobacco developers held a series of meetings and planned what they called 'the Tobacco Strategy.' Their plan was to poke holes in the scientific findings and create doubt in the minds of the population (O'Connor & Weatherall, 2019). They wanted to "create the appearance of uncertainty: to find, fund, and promote research that muddied the waters, made the existing evidence seem less definitive, and gave policy makers and tobacco users just enough coverage to ignore the scientific consensus" (O'Connor & Weatherall, 2019, p. 95). It worked. As the decades progressed Big Tobacco would fund massive amounts of pseudo-science, they would create an enormous catalogue of propaganda, and their profits as well as the cancer and death they caused, would increase steadily until the end of the century. We will see glimpses of this propaganda campaign in this final chapter, and we hope that it will encourage you to always ask questions and think critically.

5.2 Evaluation Tools and Frameworks

The next section will cover the following frameworks and tools for evaluating online information:

- Fact checking tools
- Emotional assessments
- Checklists frameworks
- Lateral reading techniques
- The journalistic approach

5.3 Fact Checking Websites

Nowadays, there are several fact-checking or debunking websites online. To debunk something is to eliminate the 'bunk' or nonsense from it, for our purposes to debunk means to expose information from any source as being false (Merriam-Webster, n.d.c). Some experts suggest that before believing or sharing a story, individuals should look at fact-checking websites to see if the claim has already been debunked (Caulfield, n.d.). Sometimes a simple Google search is enough. If a person searches for the headline of the story they're curious about with the key term "fact check" or "verify" or "debunk," there is a good chance someone else has already evaluated it and identified any false claims.

Here is a list of fact-checking websites that were functional in 2022:

- Politifact
- Factcheck.org
- Snopes

Fact-Checking Website Example

Sheila has been having a difficult time quitting smoking. She knows that it's bad for her, after all the media has been screaming about it for decades. Even though her family pleads with her to quit, she doesn't understand why it's such a big deal. After all, in 2017 the Government of Canada legalized marijuana, and she's pretty sure that marijuana is much worse for you than smoking. She knows this because of an infographic that appeared on her Facebook newsfeed:

Figure 24: Infographic comparing tobacco and marijuana use in lungs (Evon, 2015).

If the government supports marijuana use then surely she can continue to use tobacco with minimal health risk, right?

Let's fact-check Sheila's infographic. A quick visit to snopes.com indicates that this infographic is considered a skewed version of reality. As suggested in the article, the claim made in the infographic is somewhat true (Evon, 2015). Inhaling smoke from marijuana does deposit more tar in the lungs of its users because it is usually not ingested through a filter, whereas cigarettes usually are. However, this is only one part of the story, an example of deformation. When examining claims such as these, individuals must review all the facts. An examination of other scientific studies reveals that when cigarette smokers' habits (20-30 smokes a day) are compared with the habits of a cannabis user (1-2 per day), the cigarette smoker, even with filters, will eventually amass much more tar in their lungs than a cannabis user (Evon, 2015). Further to that, several studies have discredited the suggestion that marijuana users are likely to get lung cancer (Evon, 2015). **Debunking the infographic took less than 1 second by searching Snopes and the review of the article took less than 5 minutes. This is a quick way to determine whether a claim on the Internet is true.** Perhaps if Sheila were to review this article, she might be more likely to consider quitting smoking?

Final Thoughts. Although fact checking and debunking websites are good tools for

quick answers about a website or an article, when it comes to academic work or research that could lead to serious consequences, such as health information, it is wise to evaluate using more robust methods such as the ones that follow.

5.4 Emotional Assessments

In chapter four we discussed people's emotions, and how an emotional response to an online news headline or a social media post increases the likelihood that a person will believe in false information and share it. Not only do human emotions have an impact on the widespread belief in disinformation, but they also heavily contribute to how people interact with false information (how they engage with a post). Experts suggest that when an individual experiences a strong emotion, such as happiness, anger, pride, or vindication, that they should "STOP" before sharing (Caulfield, n.d., chapter 3). Some scholars recommend that to reduce visibility, the best thing a person can do is nothing (Buchanan, 2020a). Alternatively, there is an argument to be made on the side of learning how to think critically and make responsible choices in the online environment. In line with this, we suggest a 'pause before sharing' method. It is exactly as it sounds. When an individual comes across a piece of information (on or offline) they should pause, consider a few questions, then make the decision to engage with it (or not).

How to use it:

In this section, we will reflect on the four things that make people susceptible to disinformation on social media. For each, we will present an image that might stir emotion and suggest discussion points to consider before interacting.

1. *The post looks credible.*

It's very easy to make fake content look real. The image below looks like any other news story, it has images, a web address and a title that grabs the attention, but just because it looks legitimate doesn't necessarily mean it's trustworthy or true.

Figure 25: Screenshot of Facebook post 'Study shows vaping far less toxic than smoking'.

Upon seeing this headline:

- **Pause before interacting.**
- **Ask**: Who wrote it? What makes them a professional? Is it credible? Read the article, taking note of the study mentioned, who conducted it? Was it a scientific study? If you don't have time to read the article, don't share it.
- **Choose how to move forward. Remember it's ok to do nothing.**

2. *The post stirs emotion.*

Most pieces of false information have been created with the intent of inciting an emotional response in viewers. This example shows a BuzzFeed story about a vaping company that creates tobacco-based products that look desirable to children, things like juice boxes and candies. It's easy to imagine the type of emotions people might feel upon seeing it: annoyance, frustration, anger… humour?

Figure 26: Screenshot of vape juice that looks like candy post (Kee, 2018).

If the post incites emotion:

- **Pause before interacting,**
- **Ask**: What reaction is the creator of the post trying to get from me? Why is it making me feel such an intense emotion? Who benefits from this reaction and how? Read the article. Is the company actually creating products that look like this? If so, why, and should we, as social media users, feel concern? If you don't have time to read the article, don't share it.
- **Choose how to move forward. Remember it's ok to do nothing.**

3. The post is something that has appeared repeatedly.

Figure 27: Screenshot of video: Breathing New Dehli's air is as toxic as smoking 50 cigarettes (Keppler, 2018).

If a user sees a post multiple times, they should ask why. There are 'bots' online with the single job of reposting disinformation. From chapter three, we know that a social media site's algorithm decides what to show based on popularity. The more people that have commented on or liked a post, the more likely it will appear. This has zero connection to the accuracy of the post. Just because a post appears repeatedly, does not make it more accurate.

- **Pause before sharing**.
- **Ask**: Have I seen something like this before? Was it similar or the same? If so, when and where? Is that impacting your belief in its validity? Watch the entire video. If you don't have time to do so, don't share it.
- **Choose how to move forward. Remember it's ok to do nothing.**

4. *The post is something a user already believes to be true.*

This is called confirmation bias, which is when someone confirms a belief they already hold to be true. Confirmation bias can impact the information we see on our newsfeeds because the more a person likes a particular type of content, the more they will see similar posts. Those posts will most likely align with what they already believe and the cycle will continue. This system of receiving information does not make it more accurate.

Figure 28: Screenshot of post 'The Case for Smoking in Prisons' (Santo, 2015).

- **Pause before interacting**.
- **Ask**: Is this something that I already thought to be true? Have I considered the other side of the issue? Is the post I'm looking at coming from a site with a biased viewpoint? Read the entire article before you decide if it's reliable. If you don't have time to read the article, don't share it.
- **Choose how to move forward. Remember it's ok to do nothing.**

Pause Before Sharing Example

If you were to come across a headline like the one below about non-smokers, how would it make you feel? What is your reaction to the suggestion that people who don't smoke are smarter than those who do? What questions do you have about the article?

Figure 29: Screenshot Facebook story from Reuters Health (2010).

It is likely that this post stirs emotion. When Barney came across this post, he felt vindication, he thought, "Yes, I'm a non-smoker and I am smarter than the smokers I know." He wanted to share this right away with his friends and family to say, "I told you so." Someone else may want to click on the story to read more. For any of these reactions, it is important to ask: who would benefit? If Barney shares the story because it reinforces one of his beliefs, he might feel better, but he won't know if the story is accurate. If he shares it with his family right away, they may get angry at him because he is trying to tell them how to feel or thrust his opinion on them. If he clicks on the story to read more, he needs to consider that the publisher may make money from his click.

The best course of action is for Barney to read the entire article before he decides to engage with it or share it. It may be that the headline grabbed his attention but the article itself isn't quite so shocking. He may decide to do nothing with the article.

5.5 Checklists

For decades, information professionals have created ways for people to see the difference between 'good' and 'bad' information online. Over time, they have developed and tested various frameworks for evaluating individual websites. A **framework** is a guide for what to do. For example, a recipe might be considered a framework for cooking dinner. One of the most popular frameworks is to use a checklist, which is easy to teach, easy to understand and easy to use. A checklist tells a person to take note of specific parts of a website, ask important questions, and decide if the website should be trusted based on the answer to those questions. Here is an example of a checklist:

Website Credibility Checklist		
	Yes	No
The website creator is trustworthy		X
There are spelling errors on the website	X	
There are broken links on the website		X
Is the website a good source of trustworthy information?		X

Library professionals have created many different checklists to help students evaluate information; generally, they all perform the same function. We will focus on **RADAR** .

5.5.1 RADAR

RADAR suggests considering 5 things when looking at a website: **R**elevance, **A**uthority, **D**ate, **A**ccuracy and **R**eason for creation. ***Relevance*** is the most important element. An information source may be great but if it doesn't fulfill the searcher's goal, it isn't very helpful. For instance, an article that presents medical research pertaining to carcinoma growth among patients in a clinical study published in a medical journal, might not be the correct reading level for the average person wanting to learn more about the

risks of using a vape pen. ***Authority*** considers the expertise of the creator and whether they can be trusted to provide unbiased, quality information on a research topic. ***Date*** looks at when a piece of information was published and if it is current based on the research topic. If it is a field that changes quite frequently, such as technology or health, it is better to pick sources that have been published recently. ***Accuracy*** asks whether the information can be verified and if it is supported with other sources, usually evident through references. Lastly, the ***Reason for Creation*** examines the possible motivations for publishing the resource such as advertising, scientific knowledge, or news.

Figure 30: RADAR checklist infographic (Delorme & Saskatchewan Polytechnic, 2020).

RADAR Example

In this example, we will provide an example of how RADAR can be applied to an individual website. Imagine Ying who is a psychology student writing a research paper about proposed methods to alleviate social anxiety. Throughout their searches, they

happen to find a website that suggests smoking can help in management of this ailment. They decided to review an article titled: “Smoking is good for you: here’s why.”

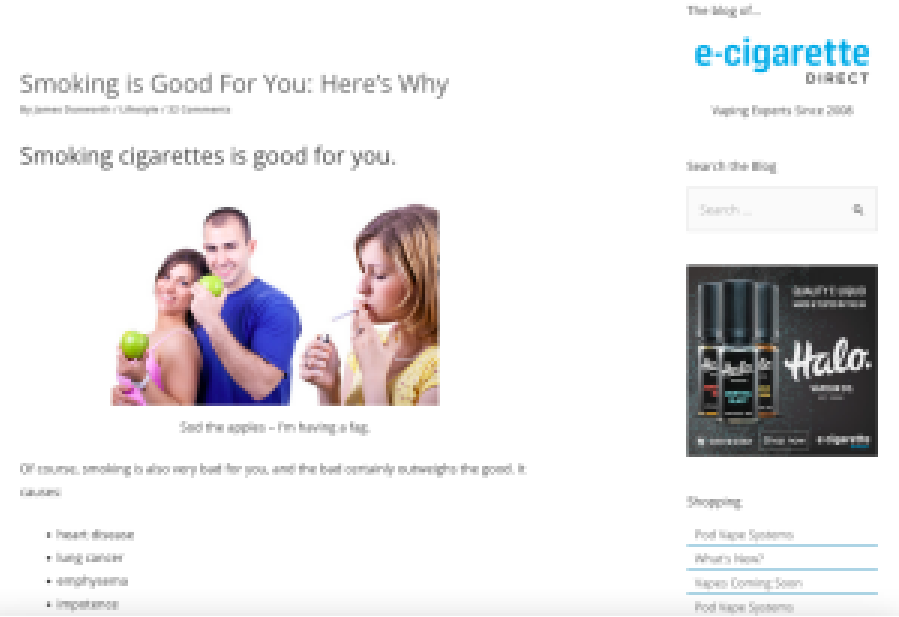


Figure 31: Screenshot of Smoking is Good For You (Dunworth, 2012).

While looking at this website, Ying decides to consider each part of RADAR. Their evaluation is outlined in the table below.

***Website*: Tobacco is good for you: here's why**	
RADAR element	Ying's Notes
Relevance: • Does the information answer the question? • Will the information meet the assignment requirements? • Is the information at the right level?	For my paper I am looking for methods to help patients alleviate social anxiety. The article suggests that smoking can both trigger and cause mental illness. It also states that smoking can in some cases "help people who already have mental illnesses." This could be relevant to my research if I were able to back some of the claims with articles written by medical professionals.
Authority: • Is the author trustworthy? • Are they an expert? • Do they have specialized knowledge on your topic?	James Dunworth is the author. He is the chairman on E-cigarette Direct and is known for running the Ashtray Blog. He states that he began his work in e-cigarettes when his mother asked him to build a website to sell them. He is co-author on an article that he claims is peer reviewed and was written alongside other researchers at the University of Alberta in Canada, however, the link to the article is to an open PDF – not to a journal homepage, nor does he list what journal it was published in. James seems to be a person who profits off selling e-cigarettes, which would make him very biased towards tobacco products.
Date: • When was the information published or last updated? • Is the information current enough for the topic?	The date of 2012 is in blog URL but it is not written anywhere on the site. Since it's a health topic, this information is probably too old. The links seem to be working.

Accuracy: • Was the information reviewed or were the facts checked? • Does it have references? Or does it link to other trusted sources? • What do other experts say on the topic?	The information seems relatively accurate, it cites some scientific studies and discusses the harms of using tobacco outright. However, it provides a very sunny picture of tobacco use, which might lead less critical people to gloss over the facts that the cons outweigh the pros of tobacco use.
Reason for creation: • Why was the information made available? • Is it to inform, sell something, or entertain? • Does it tell both sides? • Is it opinion?	It does tell both sides, but it seems that the websites' overall purpose is to sell e-cigarettes. It feels like it selects pieces from studies to make a point, but is largely based on the beliefs of the author to support the purpose of the blog.

Based on the answers in the right column, is this a trustworthy source of information? Should Ying use it to write their academic paper?

5.6 Lateral Reading

Lateral reading is a popular method for verifying information. It works like this: when someone searches for information on a specific topic, they open and read multiple websites side-by-side to compare the accuracy of claims in the original source (Pennycook & Rand, 2019). SIFT is a popular lateral reading framework, it has four steps. The first is to ***s****top* and take a minute to think about the source (Caulfield, 2019). It is particularly helpful for a person to think about their topic and decide who might be an authority on the subject because this helps to avoid confirmation bias (Caulfield, n.d.). The second step is to ***i****nvestigate* the source and determine if it is trustworthy. This is done by seeking more information with a separate search (Caulfield, 2019). The third step is to try and ***f****ind* better coverage on the topic by doing a search on the main point of the original source (Caulfield, 2019). This allows the searcher to verify the claims made by the author. Lastly, if there are claims or references to scientific studies, can they be found or ***t****raced*? Sometimes sources will have direct links within the text to outside sources. A searcher can check those links to see if they lead to the expected content. If they do, they can then read the portion that is referenced (Caulfield, 2019; Stecula, 2021). When one is reading information in the linked source, it's a good idea to evaluate the context and determine if it fits the original source the way it is meant to (Caulfield, 2019).

Figure 32: SIFT infographic (Caulfield, 2019).

Lateral Reading Example

To practice lateral reading, Mary is looking at a new and controversial topic: third hand smoking. She found an article with claims that she wants to verify. The article is from Ashtray blog and claims that third hand smoke is not scientific, that smokers are being discriminated against using science, and that Prue Talbot is a junk scientist (Dunworth, n.d.). The table below shows Mary's findings after completing a lateral search using SIFT.

Figure 33: Screenshot of Ashtray blog (Dunworth, 2010).

Stop.

Investigate the source: It's a blog. Author is employed by an e-cigarette company. Mentions University of Alberta study.

Trace claims: Some links do not work on the website.

Blog mentions two researchers: Prue Talbot & Brad Rodu.

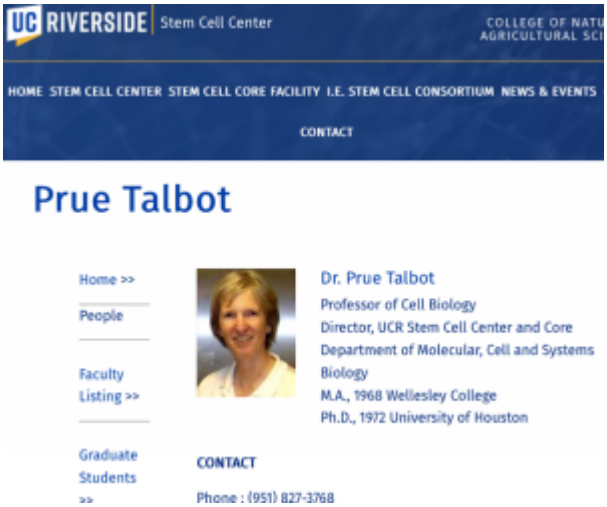


Figure 34: Screenshot of Prue Talbot's information page (UC Riverside, n.d.).

Trace claims:

Prue Talbot – looks like a legitimate researcher.

Biography indicates that she is researching thirdhand smoke.

Repeatedly says that not much is known.

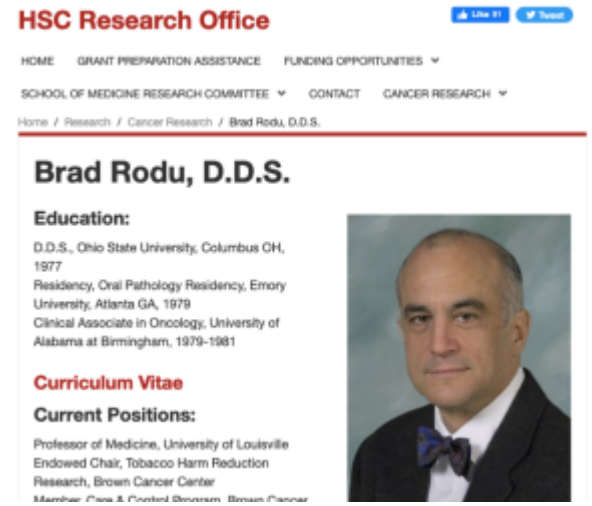


Figure 35: Screenshot of Brad Rodu's information page (U of L School of Medicine, n.d.).

Trace claims:

Brad Rodu – looks like a legitimate researcher. D.D.S. means dentist.

Biography shows research in smoking cessation and harm reduction. Does not claim that smoking is ok.

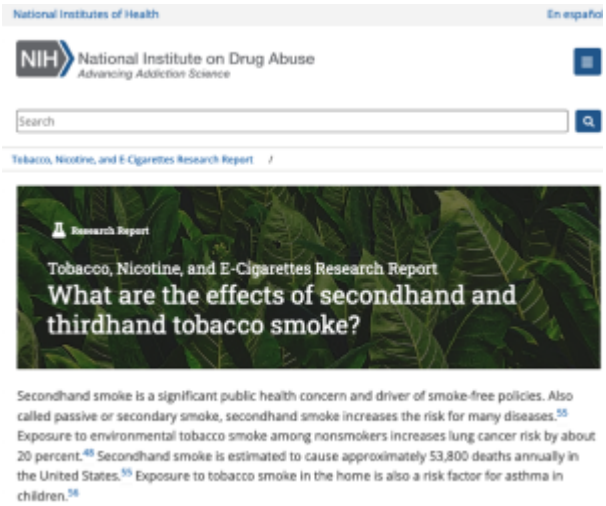


Figure 36: Screenshot of NIDA research report (NIDA, 2021).

Find better coverage:

The National Institute of Health is a U.S. government organization that supports health research. It is something Mary trusts. She visits the website directly.

It clearly states that more research is needed regarding the risks of third-hand smoke.

Using the SIFT method allows Mary to determine very quickly that there is not enough scientific information about third-hand smoke to clearly identify risks. The claims made in the Ashtray blog (Dunworth, 2010) are premature and cannot be verified without more studies. SIFT takes more time than using a checklist framework, but when done properly lateral reading is a much more meaningful way to verify facts. If Mary had used

RADAR, she would not have found the other websites that led her to realize that the sources and studies quoted in the blog post were not represented accurately.

5.7 The Journalistic Approach

The approach outlined here is based on the one outlined in an article written by Elmwood (2020) who adapted it from other scholars in various disciplines. As an information professional, Elmwood (2020) examined how to best teach post-secondary students web evaluation in the current, complicated online environment. The **Journalistic or Investigative Approach** offers students a somewhat structured framework (like RADAR) to follow but goes beyond the 'yes/no' oriented approach. The method suggests that seekers of information should use a series of questions utilized by professional journalists – what, who, where, when, why, and how.

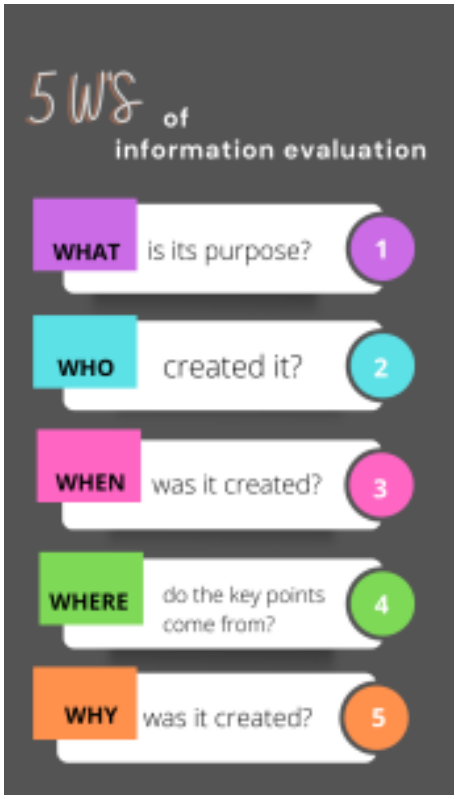


Figure 37: 5w's Infographic (Verishagen, 2021).

Each of these questions can be explored in detail. To find the answers, one may need to use techniques from both the RADAR and SIFT framework. They may also need to

find and read multiple sources to get adequate answers. They should be ready for unclear answers and be prepared to exercise judgment and make decisions about resources.

Journalistic Approach Example

Jean wants to apply the Journalistic Approach to a website called "Own it Voice It" (n.d.). The site was created to provide a voice for the tobacco consuming population. It aims to fight against a bill that will ban the sale of menthol cigarettes.

Figure 38: Screenshot of Own It Voice It (n.d.).

Below is the description of Jean's process using the journalistic method and some of their thoughts while searching. Jean continued searching until they felt like they had enough information on the website and the issues presented within it. This will vary every time the journalistic method is used.

Journalistic Approach	
What • What type of source is it? • What is its purpose?	It's a website. The purpose is to stop the ban of menthol cigarettes. It's US based and highlights states where the ban may happen. There is mention of personal rights. There is a claim that tax revenue will be lost.
Who • Who is the creator? • What is their relationship to the subject matter? • Who is facilitating the publication of this resource?	The copyright of the website is held by RAI Services Company, a subsidiary of Reynolds American Inc The About page doesn't give more information. A search for RAI company doesn't give much information. There is a page on Bloomberg.com that says it is part of the tobacco industry. A search for Reynolds American produces many results that identify it as a tobacco company.
When • When was the resource created or last updated? *Tip: if there is no date consider the following steps: • Are the comments dated? • Are there dates on any other pages connected to the webpage?	The copyright date is 2021. The contact form has a copyright date of 2022. The associated Facebook page was created in 2017, active until 2019. No recent posts. Associated YouTube page has one video from 2017

Where • Where (geographically) was the resource created? • Why is this important?	It appears to be created in the US. On the Terms of Use page it states that it is operated in the US. It looks like there might be legal reasons for this.
Why • Why was it created? • Who is the intended audience? • What has motivated the creator to publish this resource?	It is meant for US adult citizens. This is mentioned on every page. It looks like it might be a petition and so, it would be important to only have those the law affects, sign it.
How • How does the source use evidence to support itself? • Are there references? • Does it link out to other articles? • Are other sources mentioned?	There doesn't seem to be any evidence used. There are many claims about personal rights. There are no references. Links are only to social media accounts held by Reynolds American The FDA is mentioned as the organization banning menthol cigarettes. Information on the FDA website does explain the ban on menthol as a method to prevent young adults from starting to smoke. The CDC is mentioned to support the claim that tax revenue will be lost. Information on the CDC website does mention that Reynolds American is 1 of 4 top tobacco producers in the US. The claim on the website is taken out of context and doesn't tell the whole story. Here is the quote from the CDC: "However, in fiscal year 2021, states will receive $26.9 billion from tobacco taxes and cigarette company payments from the lawsuits they settled in 1998, but will only spend $656 million—less than 3% for tobacco control programs" (CDC, 2022).

Notes about the source. Final thoughts. Lessons learned.	"Own It Voice It" is a website owned by a tobacco company that is trying to increase support opposing the ban on menthol cigarettes. As a company that makes money on tobacco sales, it can be viewed as biased. It could link out to the sources it quotes, but it does not.

As seen in the example above, the journalistic method asks questions that need a deeper analysis of a source. It may not provide a definitive answer regarding if a source can be trusted, but rather requires that the searcher come to a conclusion on their own. Using this approach provides more context to make informed decisions.

5.8 Moving Forward

This chapter began with the simplest information evaluation tools and progressed to more complex approaches. Readers should choose the tool or approach that works best for them or their information need and searchers must always remember to keep their emotions in check in the online environment. A Google search is a fast and easy way to see if a news story or meme has been debunked. RADAR can be used to quickly evaluate the quality of a website and start the critical thinking process. Lateral reading is a good tool for checking the accuracy of claims within a source. The journalistic approach should be used for controversial or complex topics, such as climate change, where a thorough analysis is needed. This approach works for topics that may not have a clear answer. The two most important things to remember are:

- Stop or pause. Give yourself time to think about the information.
- Bring skepticism to information and ask questions about it.

These two things are crucial aspects of critical thinking which is the number one skill needed to evaluate information and avoid disinformation (creating it, sharing it, becoming a victim of it). Remember, most people who share false information don't do it on purpose, they simply aren't asking the right questions. By reading this book, you've just taken an important step on the path towards real change, now please go out and share it (but wait, did you read the whole thing? 😉

Glossary

Advertising revenue

Revenue generated by advertisements placed in newspapers, journals, television, and online websites by corporations. This revenue is used by media companies to fund their operations.

Algorithm

In relation to searching, an algorithm is a set of instructions that helps a searcher find an answer to a question.

Bias

When an individual or organization favours one side of an opinion over another, they have a bias.

Blogs

Online websites/pages that are written by individuals, groups, or organizations to comment on or discuss different topics.

Bots

Completely robotic accounts created to achieve a malicious purpose.

Censoring

Occurs when aspects of information are withheld or removed with the intention to keep information from a certain audience or population.

Confirmation bias

When someone confirms a belief that they already hold to be true.

Deep fakes

Fake videos created online where a video of one person is taken and transposed with

the face, voice, body (or combination of these) onto a video of someone else. The original video is digitally altered with the intent to portray someone as saying or doing something that they haven't done.

Deformation

A phenomenon that occurs when information is taken apart, and pieces of that information are shared outside of the original context, creating a different meaning.

Digital literacy

The acquired skills or knowledge to evaluate information hosted or generated online.

Disinformation

False or inaccurate information, created and shared by someone with the intent to cause harm.

Echo chamber

An individual's social media feed or space that has been curated by algorithms which track the content the individual has engaged with. Echo chambers will show or suggest content and information a user has previously shown interest in and can lead to a narrow or one-sided perspective.

Fake news

A highly politicized term that at one time referred to news that is false. Since 2016, fake news has been used as a weapon by powerful people to discredit legitimate news sources and media organizations. Note that most information professionals no longer use this term to describe false information.

False news

Information, news articles, social media posts, or content that is written or displayed in a way that makes it appear to be factual information. False news is often created with the intention of causing harm and can evoke emotions or stress from the viewer or reader.

Filter bubbles

A filter bubble occurs when a searcher is continuously exposed to similar types of content and information - placing them into a virtual bubble.

Framework

A guide for what to do – for example, a recipe might be considered a framework for cooking dinner.

Hoax

A hoax is created using misleading information, with the intention to deceive someone into believing something that can be outrageous or absurd.

Illusory truth effect

A psychological phenomenon which postulates that the more a person sees something, even something they already know to be untrue, the more likely they are to believe it.

Index

The central location where Google maps hundreds of millions of websites that have existed since the beginning of Google.

Influencers

Content creators, celebrities, or personalities who gain large followings on various social media platforms. Influencers can create sponsored content or promote products on behalf of companies.

Information disorder

A phenomenon consisting of three concepts: misinformation, disinformation, and malinformation. Together, they encompass the creation and sharing of false information, by individuals or artificial intelligence, for various purposes.

Information literacy

A person's ability to use information effectively in order to fulfill a specific goal. It may involve recognizing a need for information, seeking it, finding it, and evaluating it.

Information overload

When a person is exposed to more information than they can digest, resulting in feelings of stress and disorientation.

Journalism

The collection, research, analysis, and communication of information and news events for presentation to a larger audience. Journalism can be distributed in several different formats or mediums – print, web, television, and radio broadcasting.

Keyword searching

The act of scanning an entire website for specific words.

Lateral reading

A framework you can use to verify whether information is accurate by conducting an initial search on a topic, and then reading multiple articles or scanning websites to compare information or claims.

Malinformation

Information that is based on something factual but has been altered in order to cause harm to a specific organization, group, or person.

Mediums

Methods of sharing information or the platforms where information is shared.

Metaliteracy

An approach to information that asks learners to reflect on the information they are producing and sharing, as an individual or as part of a group (Metaliteracy, 2013).

Mimicking

When a false news source mimics the design of a reliable news source. Usually using similar graphic styles and company names, making them difficult to recognize quickly.

Misinformation

Information that is false but the person sharing or creating this information believes it to be true.

Natural language searching

The ability to use sentences and questions to search rather than just keywords.

Neutrality

A philosophical or political standpoint where a person does not favour one opinion or perspective over another.

Novelty bias

Occurs in journalism when news and media outlets report on sensational or captivating stories more than stories that accurately represent happenings in a location or amongst a population.

Partisan

Partisan or partisanship is a type of bias that occurs when news outlets, content creators, or public figures favour the leaders, platforms, ideologies of a political party or philosophy.

Podcasts

Online audio programs on different topics that can be streamed or downloaded. They can be in a similar format to radio programmes and are often hosted on apps or digital platforms.

Post-truth

Refers to a timeframe within society wherein people are more likely to believe information that aligns with their emotions or viewpoints rather than objective facts.

Propaganda

A term for information that has been manipulated or created (usually by political organizations) with the intention to sway social or political opinions or conversations.

Rabbit holes

A phenomenon that occurs when an individual discovers one source of online information and then continues clicking through threaded information within the original article, video, or content. As one clicks through to different linked content, they may discover the content becoming more and more extreme or bizarre.

RADAR

A framework you can use to evaluate whether information (particularly on the Internet) is trustworthy or accurate. RADAR is an acronym for: Relevance, Authority, Date, Accuracy, and Reason for creation.

Recommendation System

A recommendation system is an algorithm that displays or pushes content or advertisements based on information it has gathered from previous online interactions. The app TikTok uses a recommendation system for their "For You Page".

Satire

Humorous articles, stories or videos that are meant to be a joke and do not intend to disinform. Satire often comments on society or politics.

Social media

Any online website or app that allows individuals to engage with one another. Examples include blogs, social network sites (Facebook), news sites (Reddit), knowledge bases that allow comments (Wikipedia), sharing services (Instagram, Youtube), and social apps (WhatsApp).

Sock puppet

A false online persona created to deceive.

Spoofers

Someone who pretends to be someone else (usually someone known or a recognized and trusted organization) in order to get information, steal money, or spread viruses on devices.

Troll Farm

Teams of trolls working together to target algorithms by driving up posts and comments of information that aligns with their agendas. Troll farms can be contracted by political organizations to spread disinformation and arouse emotional responses from other social media users.

Trolls

Groups of users (actual people), who create fake accounts and engage with others online. Trolls will spread disinformation, argue with other users, and repeat falsehoods or offensive statements to get emotional reactions from other users.

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