Web Design Basics for Educators

Torrey Trust

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Torrey Trust

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Torrey Trust, Ph.D. is an Associate Professor of Learning Technology in the Department of Teacher Education and Curriculum Studies in the College of Education at the University of Massachusetts Amherst. Her work centers on the critical examination of the interconnected relationship between teaching, learning, and technology; and how technology can support teachers in designing contexts that enhance student learning. Specifically, Dr. Trust studies how educators engage with digitally enhanced professional learning networks (PLNs), how emerging pedagogical tools (e.g., HyperDocs), practices (e.g., Making) and technologies (e.g., 3D printers, augmented reality) facilitate new learning experiences, how to find, critically evaluate, and teach with digital tools and apps, and how to design and use open educational resources (OERs). Dr. Trust served as a professional learning network leader for the International Society for Technology in Education (ISTE) for five years, including a two-year term as the President of the Teacher Education Network from 2016 to 2018.

Dr. Trust's research, teaching, and service in the field of educational technology has received noticeable recognition, including the 2016 ISTE Online Learning Network Award, 2017 Outstanding Research Paper Award for the *Journal of Digital Learning in Teacher Education*, 2017 American Educational Research Association (AERA) Instructional Technology SIG Best Paper Award, 2017 ISTE Emerging Leader Award, 2017 Association for Educational Communication & Technology (AECT) Division of Distance Learning Crystal Award (2nd Place), 2019 AERA Technology as an Agent of Change for Teaching & Learning SIG Early Career Scholar Award, and 2020 AECT Annual Achievement Award. In 2018, Dr. Trust was selected as one of the recipients for the ISTE Making IT Happen Award, which "honors outstanding educators and leaders who demonstrate extraordinary commitment, leadership, courage and persistence in improving digital learning opportunities for students."
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Introduction

Torrey Trust

With the easy-to-use, yet powerful web design platforms available today (e.g., Wix, Google Sites, Weebly, Wordpress), anyone can create a website. However, that doesn't mean that every website will be valuable to readers. Nor does it mean that simply creating a website will enrich your students' learning. **Websites need to be accessible, well-designed, easy-to-navigate, and easy-to-scan**, otherwise, viewers will leave quickly and unhappy.

If you want to create an educational website that enriches student learning or presents information to students' family members or amplifies your digital reputation, then make sure to explore each of the five chapters in this book. This book offers a selection of tips, examples, and resources to ease your web design experience and improve your results.

The book was designed as part of a class project for EDUC 612: Educational Web Design at the University of Massachusetts Amherst. The following graduate students contributed to the book: Emily Ding, Michael Ferguson, Joel Flores, Sai Gattupalli, Jennifer Haugsjaahabink, Yaxin He, Margeret Hersey, Kay Lloyd, Adam Lopes, Jarvis Miller, James Swerzenski, and Chris Von Achen. Additionally, Trevor Takayama provided valuable insights and support with editing the chapters.

We hope that you find this book to be a valuable resource. Feel free to share it or use it in your class!

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User Interface & Visual Design

Jennifer Haugsjaahabink
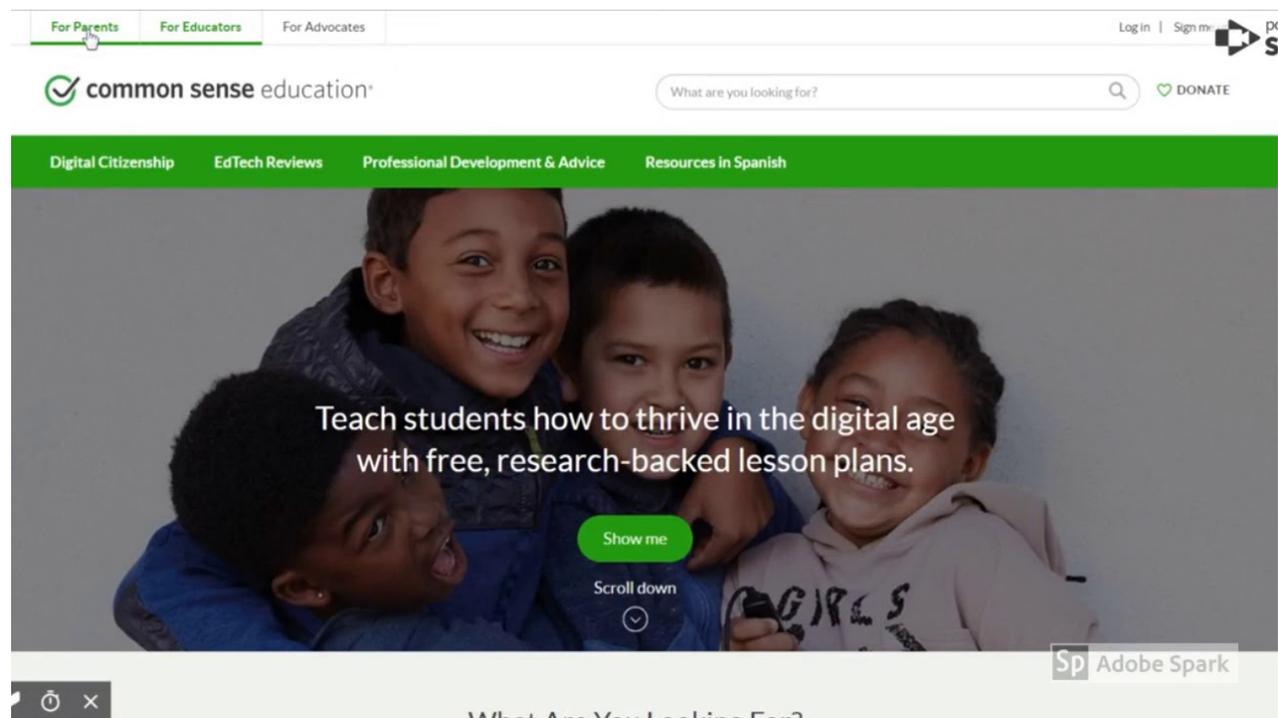
Purpose

Yogi Berra once said, "If you don't know where you are going, you'll end up someplace else." Before you start designing your educational website, it is important to identify the purpose of your site so that you know exactly where you are going to end up in terms of the finished product. To help you identify the purpose of your site, consider two things: 1) **Who are you expecting to visit your site?** (e.g., Students? Parents? Administrators? Colleagues? Your professional learning network?) and 2) **What do you want your audience to be able to do on your website?** (e.g., Access class assignments? View student work? Learn about your teaching practice?)

Designing an educational website is much different than other types of website development. You are not trying to get users to buy your product. Instead, your target audience is coming to your website for a reason - what is that reason? You may be setting up a site for your students to keep track of what is going on day-to-day in the classroom or for students to find online resources and activities that extend learning related to class topics. Your website may end up serving several different purposes, but starting with just one can help simplify the initial design process. Whatever the purpose of your website is, keep that purpose in mind at all times and continually check that you are meeting your goal.
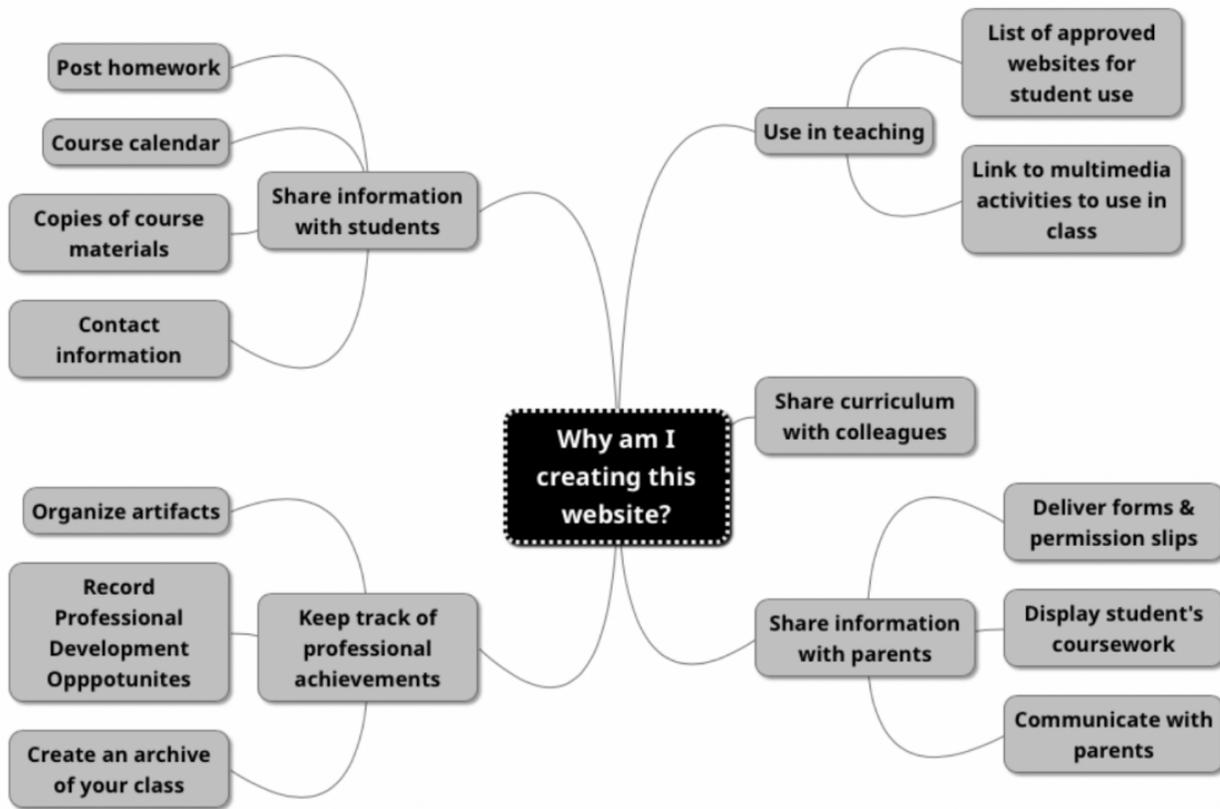
Figure 1: Mindmap of different reasons to create an educational website (created using Mindmup).

Planning

Building a website without some degree of planning can lead to frustration. If you don't have a plan, you may waste a lot of your time setting up your page with images, content, and menus only to find out that you need to start over because the setup does not satisfy the main purpose of the site. To reduce potential frustration, start your web design process with **researching** and **sketching**. For research, explore various websites, including ones that are similar to what you'll be producing. Look for sites that have a similar purpose as yours and identify sites that you found easy to use or particularly memorable. Jot down highlights from those sites that you could incorporate into your site design. You don't have to include everything at first. Just keep notes about what you liked and you can add features in over time.
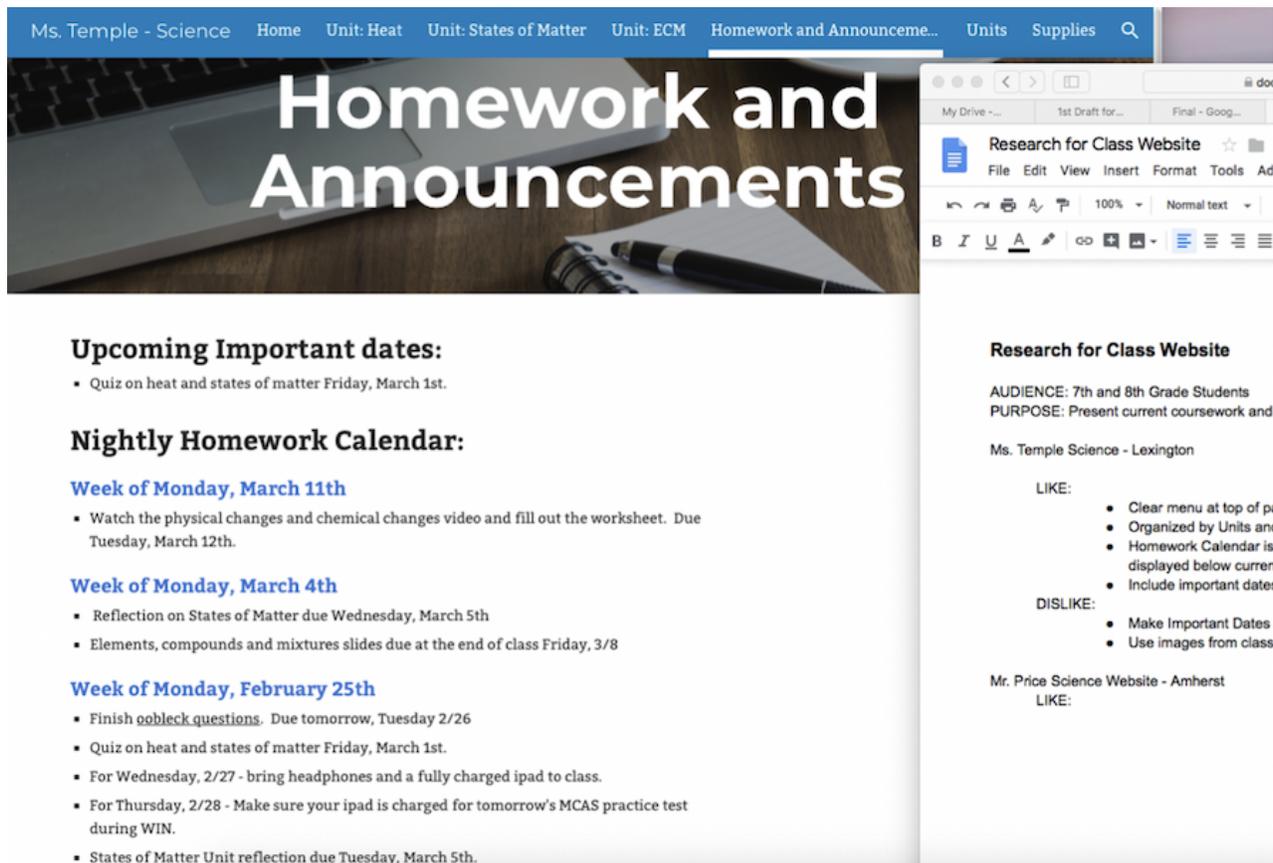
Figure 2: Using GoogleDocs to take notes on Likes & Dislikes of different websites.

Next, sketch out your website organization and visual design. Take a piece of paper and a pencil (several Post-Its work, too) and sketch the layout and content for each page. It is a lot easier in the beginning to rearrange post-it notes or switch around your layout on paper.
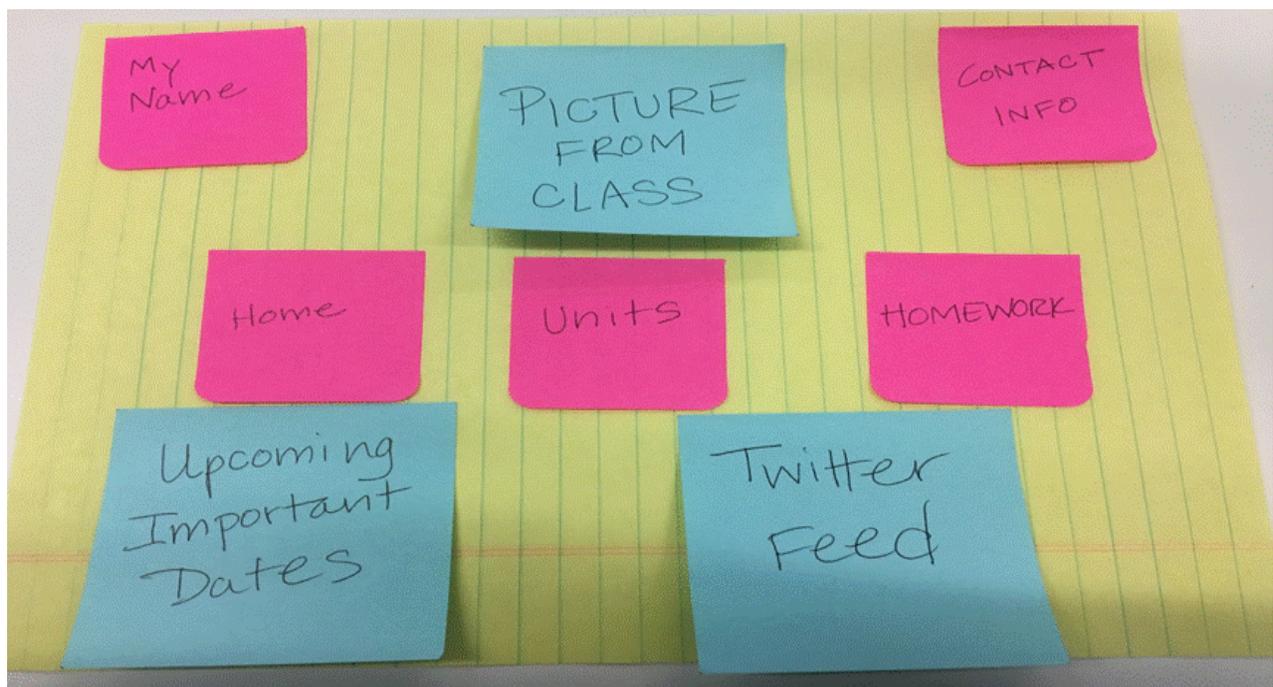

Figure 3: Use paper and pen to experiment with different layout options.

Visual Organization

Layout

The layout of a website defines the location of typical items on a website, including the menu, the banner or logo, the navigation bar, contact information, and social network icons The layout involves decisions about the position of each item on the page, the size of images and text, and placement of visuals. If you were to look at popular websites (e.g., Google, Amazon, and National Geographic) you would find **these typical items in similar locations**. On many websites, the menu, navigation bar, and logo are found near the top of the page. Contact information and social media icons can be found at the bottom of the page or sometimes in the upper right corner of websites.
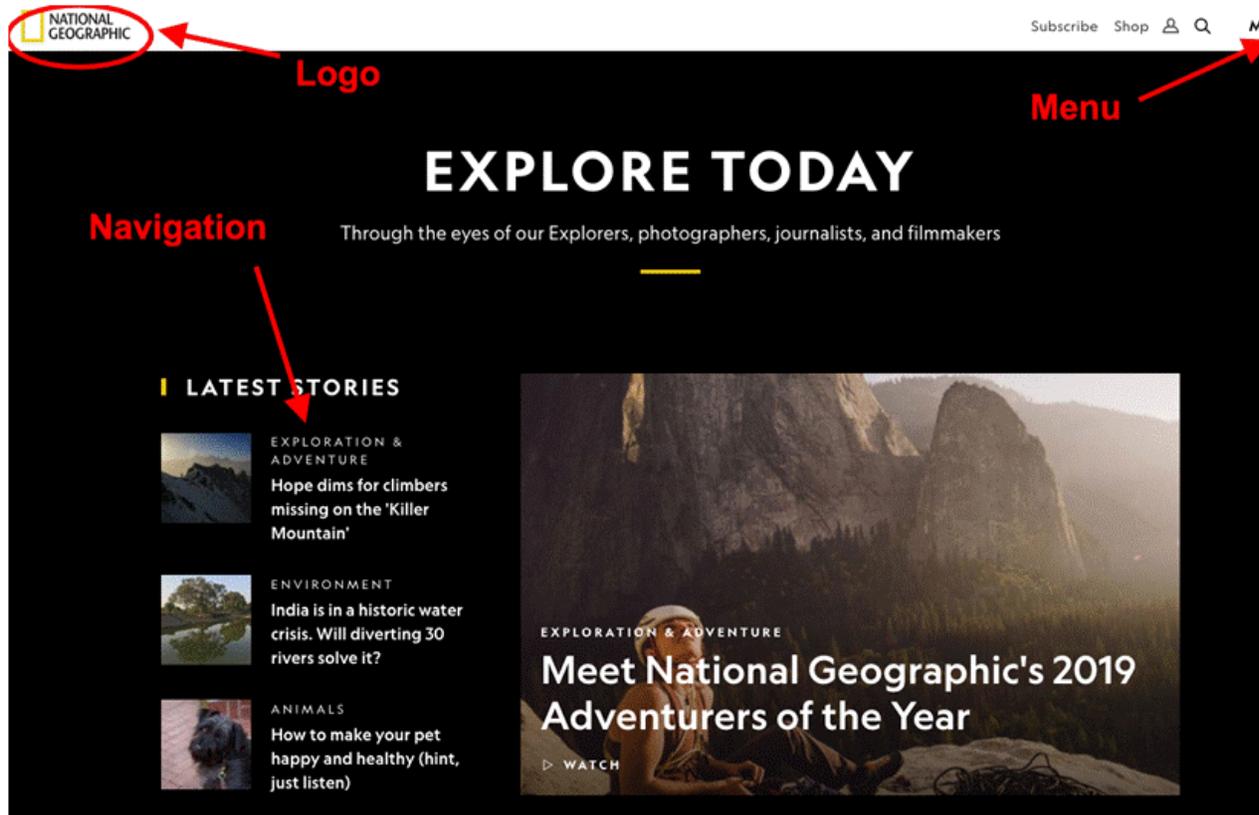
Figure 4: Screenshot of the top of National Geographic's homepage, noting location of logo, menus and navigation bar.
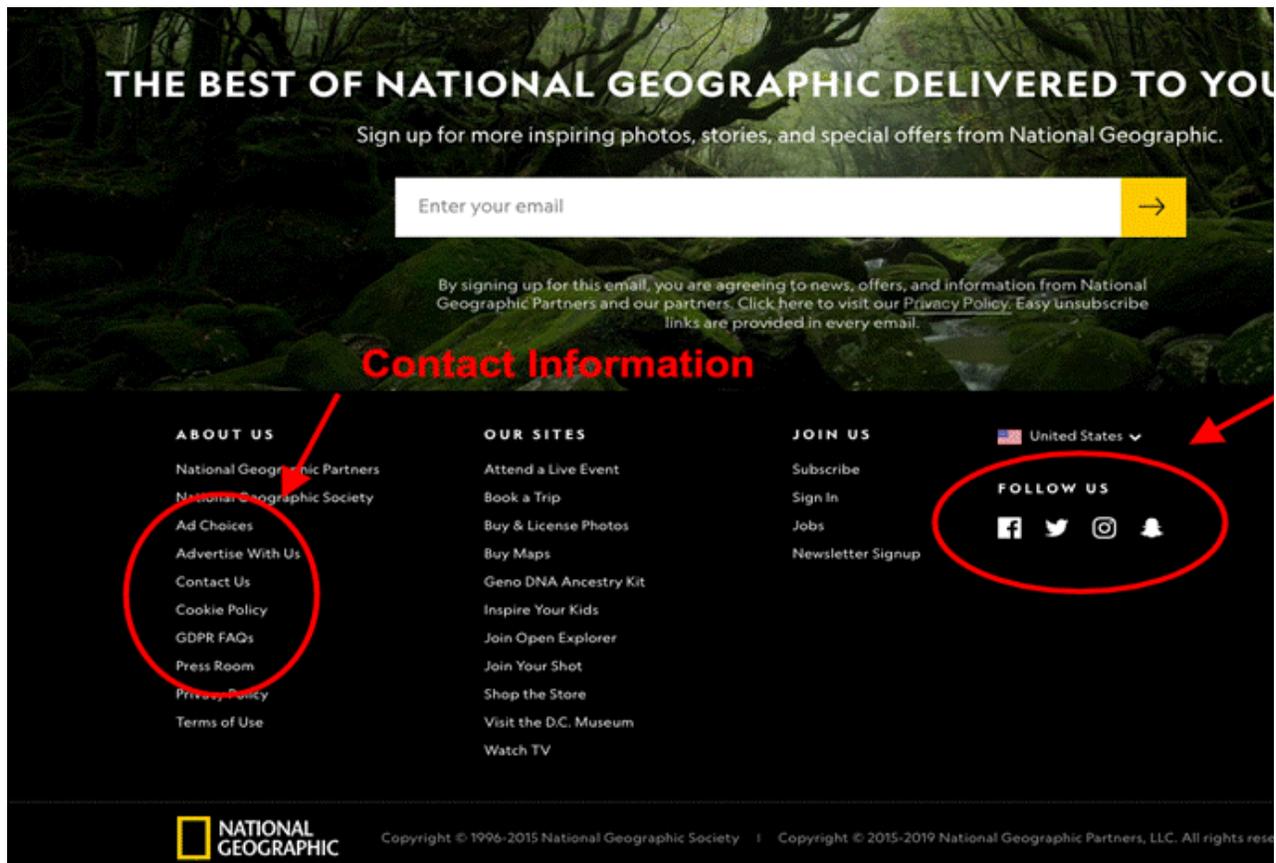
Figure 5: Screenshot of the bottom of National Geographic's homepage, noting location of contact information and social media icons.

Your visitors are most likely well-versed with website layout without even knowing it. They will look to the same place for the items they need to move around your website. For example, on most websites, when you click the header, you will be taken back to the home page. Keeping with this tradition on your site will ease user navigation. The graph below depicts the typical placement of common website elements:

Web Design Layout Standards

Logo at Top Left

Main Navigation Near the
Top of the Page — 88%

Social Media Icons at the
Bottom of the Page — 72%

Contact Information at Top
Right — 44%

0%   25%   50%   75%
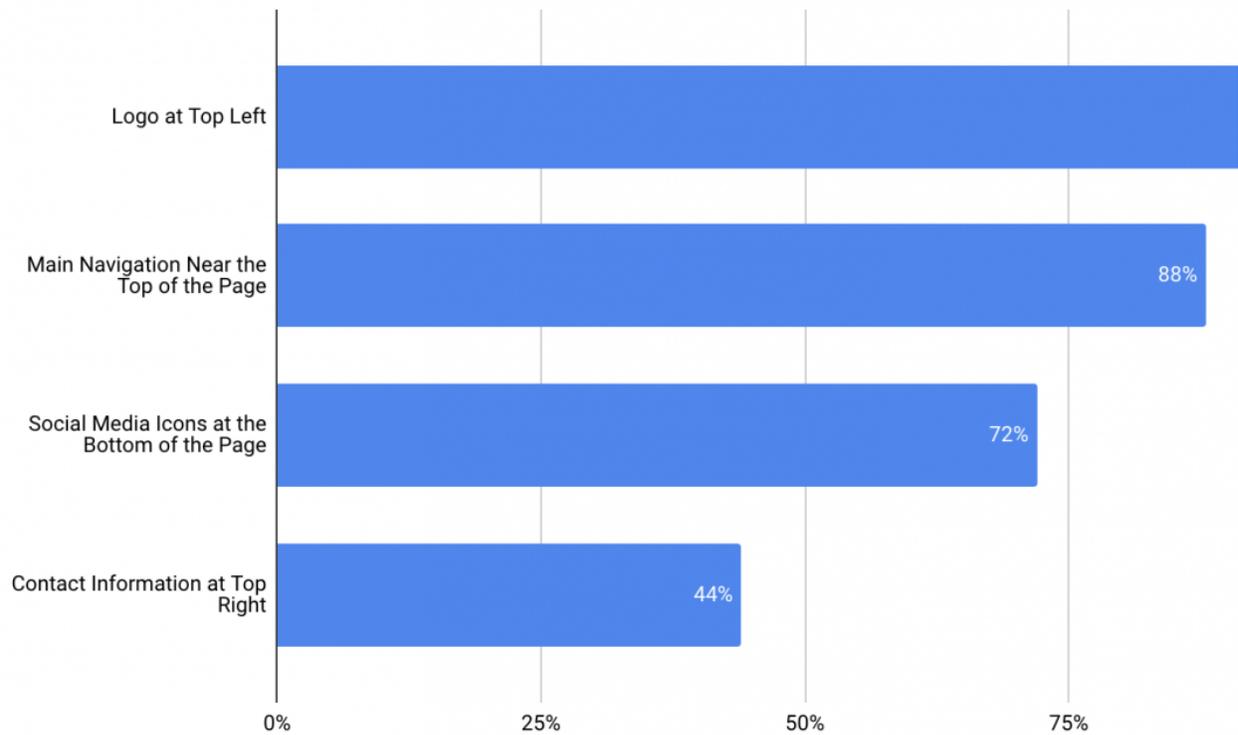
Figure 6: Chart illustrating the percentage of time the placement of key web design features are in a particular location. Figure adapted from Crestodina (n.d.) 27 Research-Backed Web Design Tips: How to Design a Website That Works.

Consistency

Your website should have a layout that is consistent from page to page (e.g., the menu, header, and search engine can be found in the same spot on every page of the website). This can make navigation easier for the user, as they will know where to look or click to move seamlessly throughout the site.
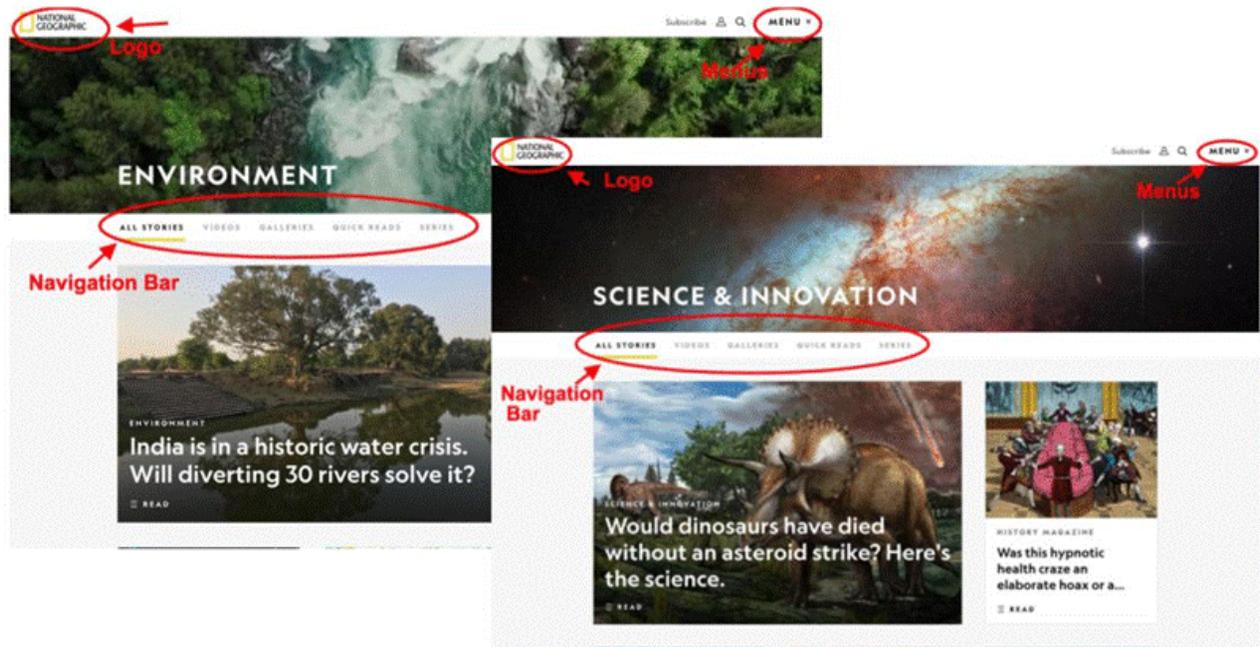
Figure 7: Pages within National Geographic's website, noting consistency in the placement of web design elements like logo, navigation bar and menus.

Above the Fold

When deciding on the layout of your site, consider what information or visuals will be "above the fold." This term originated from the design of newspapers - with only the upper half of the front page of a newspaper (the part above the fold) being visible to passersby, editors placed the **most important and captivating information** there to **attract attention and increase readership**. This concept applies to web design, but rather than a physical "fold," you have the bottom of the screen. Anything that requires scrolling is below the fold. Since people spend only a few seconds deciding whether to stay on a website, you need to capture their attention and present the most relevant and interesting information "above the fold" on every page. You could do this by placing a short video at the top of the page, an attention-grabbing heading, or intriguing visuals or text. Keep in mind that the "fold" will be different depending on what device your visitor is using (see Figure 8). You need to be aware of the fold and design your page so that your most important content lies above the fold (to learn more, explore the Above the Fold vs. Below the Fold article).

Figure 8: Your home page will look different on different devices - phone, tablet, laptop and desktop. The fold also changes with each device type. Vector Designed By cornecoba from PNGTree.

Navigation

When designing the navigation for your site, keep in mind your website's purpose and make sure that you are using the simplest and clearest method of navigation to accomplish that goal. You will begin the design of your website with your home page - your main page - the page your users will see first. This page may not be able to accomplish everything. Your visitors may need to navigate somewhere else to find what they need. If a visitor is unable to find what they need in an easy way, they will become frustrated and may not use your website (or curse it everytime they do). When someone wants to find something in a book, they look to the table of contents. On a website, **navigation is basically your table of contents**. How can you help your visitors find what they are looking for? The main technique used in all navigation schemes is menus. It is important that they are well-organized, easy to use, and easy to find (remember, the table of contents is always in the front of the book!). Also, keep in mind the concept of "serial position effect." That is, most visitors will look at the first and last items in a list. So make sure the most important items needed to achieve your purpose are at the top of any menu list.
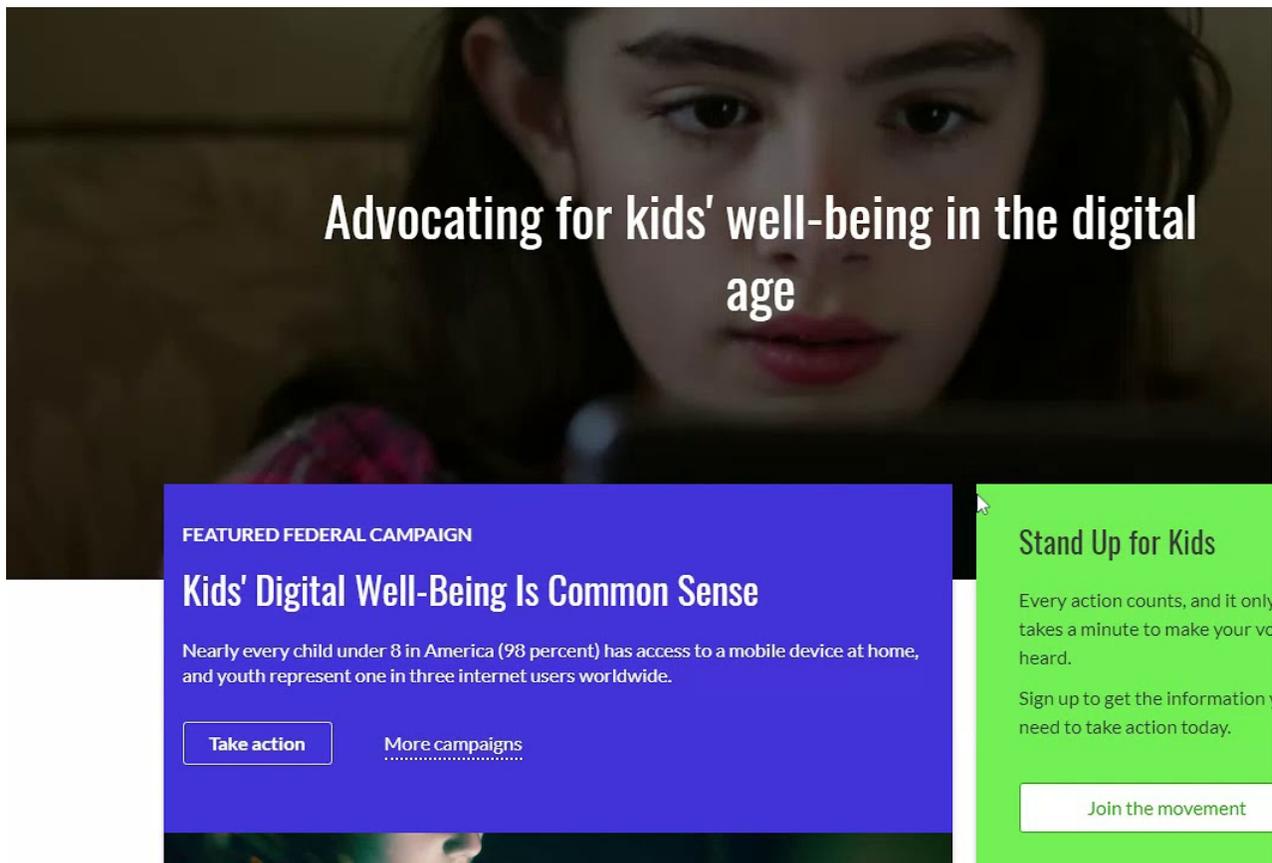
Figure 9: Video from using the Common Sense Media website to demonstrate scrolling, tabs and drop-down menu navigation

Search engines are also a popular navigation tool. Most web design tools, like Wordpress, allow you to embed a search engine within your site. If you opt to do this, make sure the search engine shows up on every page (consistency of layout) and that your pages consist of text (and images with alternative text descriptions) featuring key terms users would search for. For example, if a student visited your site and used the search engine to find "homework," but your homework page is titled "after-school work" then the search engine would not be a helpful navigation tool.

Another type of navigation is **within-page linking**. If you have a long page of text or images, it can be beneficial to break up the content by headings and place a table of contents at the top of the page that users can click on to go to specific sections (rather than having to scroll through the entire page). If you setup your website like this, make sure there's a "back to top" link at the bottom of each section so users can always get back to the table of contents and menu.

One other navigation method worth noting is the use of **accordions**. This method allows the user to view many heading at once and open as many sections as they want.

Figure 10: Video using the Royal Society of Chemistry website to demonstrate accordion navigationCaption

Navigation Tip: If you have your users navigate to an external site, make sure to have it **open in a new window or tab** so that they can always get back to your website.

Visual Design

Visual design covers a lot of territory. Often people hire graphic designers or professional website developers to create visually appealing website designs. Don't worry! Just like all the other pieces of your website, you can do this too. Remember to keep it simple. You can always go back and add complexity. The main purpose of your website shouldn't be lost among cool visual effects. Your visual design should not confuse your visitors while they try to navigate your website. In fact, the **visual elements should help lead the user to the key items on your website**. This is often referred to as **visual hierarchy**. Web design sites like Google Sites, Wix, Weebly and Wordpress take care of some of the visual design decisions by offering simple templates.

Some basic visual design elements are highlighted on this popular website:
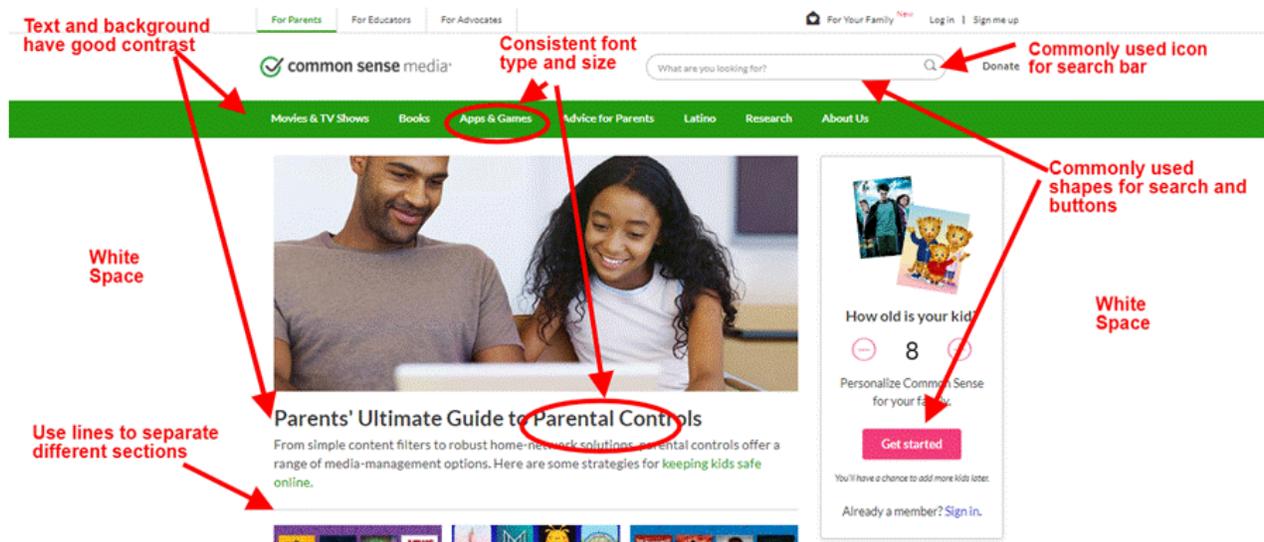
Figure 11: Screenshot of Common Sense Media homepage highlighting different visual design elements.

Guidelines for typical visual design elements:

Text

With text, make sure that it is easy to read. Most browsers default to a **16-point font size** to ensure readability and accessibility. You should use that as a guideline and make sure you don't go any smaller. Use larger text size for titles, headings, and subheadings, so that they stand out from the body of content. Even though it is tempting to use interesting fonts, remember that your website needs to be readable! It is good practice to **limit yourself to no more than 3 fonts** and maintain consistency in font style from page to page.

Color & Contrast

It may be tempting to use lots of color on your website, however **too many colors can be overwhelming and distracting**. Use colors to guide your visitor's eyes to the most important parts of your page. Whatever color palette you choose, whether it is black and white or cool blue tones, use the same colors throughout your website. A helpful color palette generator for websites can be found at Palletton. In terms of accessibility and readability, make sure that color isn't the only thing used to signal important information (e.g., use bold, bigger font size, or italics) and ensure that the colors you select provide enough contrast so that the text is easy to read. Use the **WebAIM Color Contrast Checker** to test the contrast of the colors of your fonts and background.

White Space

It is not necessary (or recommended) to fill every square inch on a page. Use white space on your page to **reduce visual clutter**, make the visual path clear to your user and allow them to find what they are looking for efficiently.

Icons

Use standard icons and shapes on your website. For example, "help" is understood to be represented by a question mark and "home" is often depicted by an image of a house. The Creative Commons website features a list of free (with attribution) icons you can use on your site.

Accessibility

Educational websites are for everyone! Some of your users may have disabilities and your website needs to allow them to access the information you have presented. A recent study of more than 6,000 school and district websites found

that the vast majority failed to be fully accessible ([Accessibility in Mind? A Nationwide Study of K-12 Web Sites in the United States](#)). Use the **[Accessibility Statement Generator tool](#)** to ensure your website is accessible and to put a statement on your site showcasing that you value accessibility. Also, for more information see **[Chapter 5: Digital Accessibility](#)**.

Figure 12: Image of disability symbols - websites must serve and accommodate all people.

Adaptability

Your visitors may be accessing your site using a desktop, laptop, tablet or mobile device. It is crucial that your site work on all of the above. The purpose of your website cannot be lost or inhibited because of different screen sizes. Some of the free website building programs (Wix, Wordpress, Google Sites) incorporate a design or template that is responsive to any device. When thinking about a mobile device, make sure that the text remains legible, your most important information lies above the fold, and that buttons are not too small to be pressed by an average fingertip. Also, make sure to **test your website across multiple devices and browsers**. The big 5 browsers are: Chrome, Edge, Firefox, Opera and Safari ("How to Design a Website", 2017). You must test every path, link, and button for correct function.

Figure 13: Be sure to test that your website responds predictably on all types of devices.

User Interface & Visual Design Checklist

- Declare target audience of website
- Narrow down main purpose of website
- Research other websites
- Sketch out website design
- Build website layout
- Establish clear and easy navigation
- Main purpose remains clear
- Utilize simple visual design
- Make sure to address accessibility
- Test website on different devices
- Test website on 5 different browsers
- Test all links, buttons and navigation path
- Fix any issues

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Jennifer Haugsjaahabink is a graduate student in education at Mount Holyoke College. Prior to MHC, she earned a degree in chemical engineering, conducted research in a biophysical chemistry laboratory, and worked as a subject matter expert in chemistry for Cengage Learning on their online homework program, OWLv2. She has taught college-level chemistry, as well as built a vibrant homeschooling cooperative in her neighborhood. Her goal is to become adept at utilizing educational technology tools to enhance science teaching to all of her middle school students. She is most proud to be a mother of 3 incredible, tech-savvy kids!

Writing For The Web

Introduction

The use of websites as educational tools provides a unique way for students to access material in a variety of different formats. However, while educational websites may increase access to information, they also present their own challenges. Research suggests that **only 16% of people read webpages word-for-word**. Most people scan ([Nielson, 1997](#)). Additionally, people often spend only a few seconds exploring a site before determining whether to stay or leave. And, with the distracting world of the Internet, where a funny cat video is only a click away, it is even more challenging to maintain readers' attention on a website.

When you are writing for the web, you must create content that is captivating, engaging, and informative while also being easy to scan. This means writing for the web looks very different than writing for print. Check out our chapter overview video to see an example of how to transform a traditional print paragraph into text that is easy to read on a website.
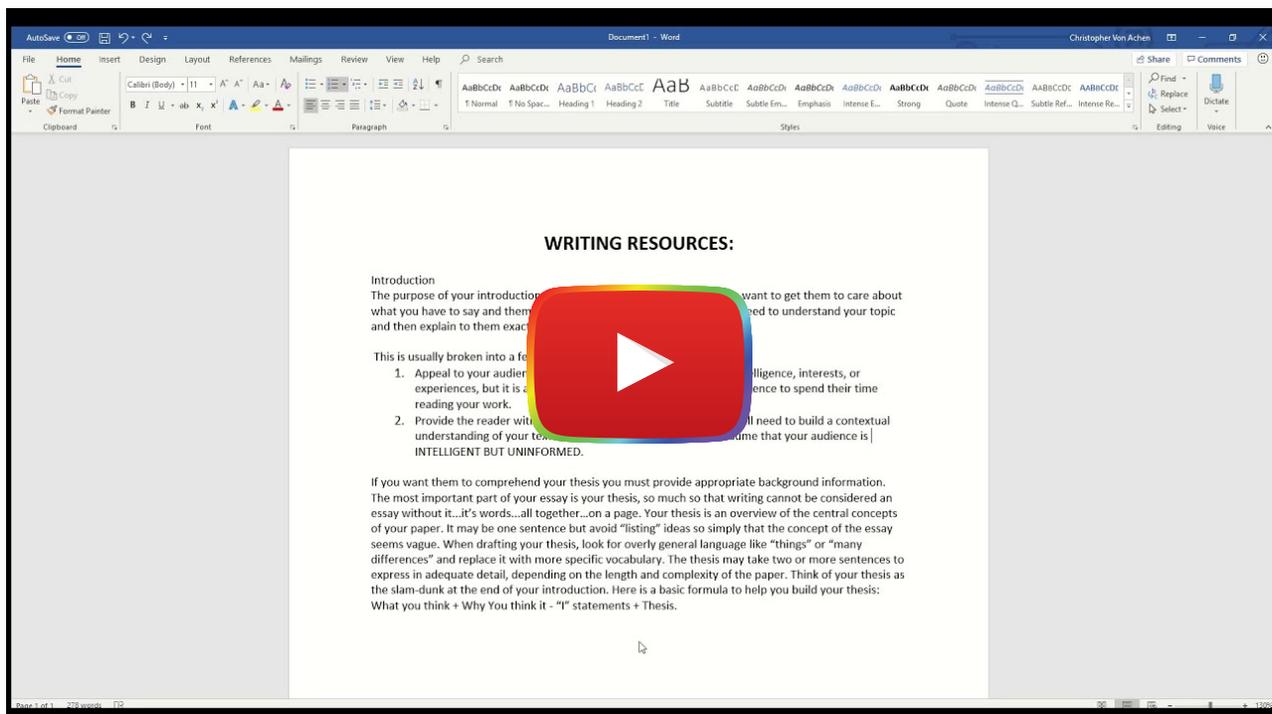
[Watch on YouTube](#)

This chapter will showcase the tricks you need to write web content to capture and maintain the attention of your readers. We will begin by discussing how to use formatting techniques (e.g., whitespace, bold, italics, bullet points, headings, and font size) to facilitate quick reading and to draw the attention of the reader to key information. Then, we

will cover how to use language in a way that appeals to your audience. Finally, we will showcase tips for writing subject specific content to engage learners.

Formatting

The way you organize and format a website is the first thing visitors will notice. It's essential to design your website to be easy on the eyes. Websites that have a lot going on (often referred to as "busy") are difficult to gather information from and can turn people away from your page. If viewers are overwhelmed and can't figure out what to focus on, how to find information, or where to go on the site, they will make an immediate exit. The following section offers tips and ideas to improve how your website is read by visitors.

White Space

One way to avoid making your website look busy is by utilizing white space. White space is the unfilled space on your website. Keeping some space free of images or text helps to break up your page to make it less cluttered.

In the example below, the Lings Cars site fails to utilize white space as a means of breaking up the content for two reasons. First off, there is very little background space - most of the website has words, pictures, or menus on it. The remaining background has a complex pattern that is jarring to the eyes. This combination creates a website that is difficult to look at for more than a few seconds, which is not ideal when you want visitors to stay on your webpage.
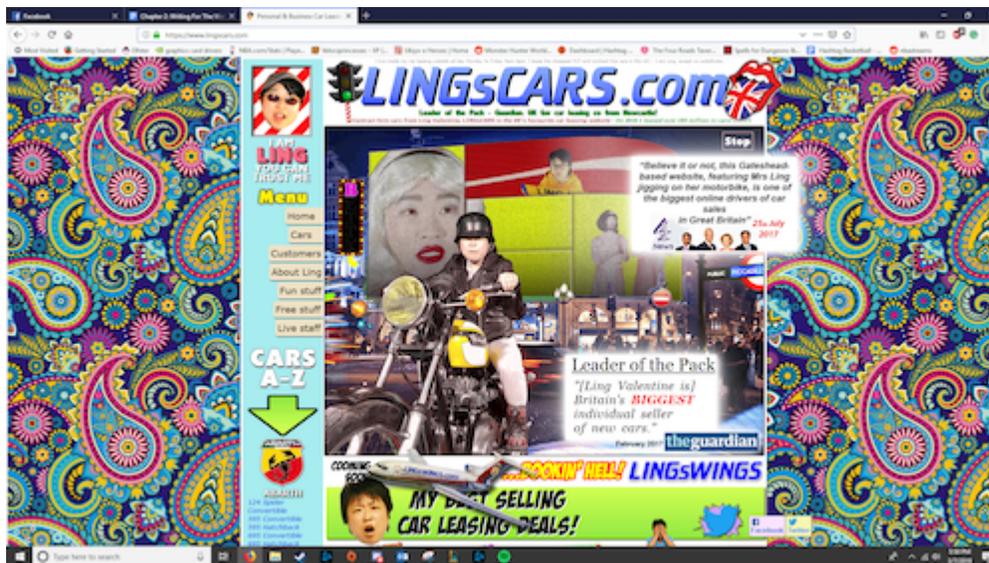
In contrast, the Pisaccochronicle site featured below uses a lot of white space, which makes it easy to quickly scan. By minimizing content and maximizing white space, readers have only a few options (read, move to the previous or next page, or explore the menu). Rather than feeling overwhelmed, viewers are encouraged to read, scroll, and explore.

Food On Shelves: Itineraires D'Un
Cuisine Contemporaine

The
Pisacco
Chronicle

The bilingual magazine Itinéraires d'une cuisine contemporaine portrays 10 chefs, mostly from different countries. This third issue, called "Fulgurances" features Philip Rachinger (Austria), Koji Kamiyo (Japan), René Redzepi (Denmark), Lee Tiernan (England), Nicolas Darnauguilhem (Switzerland), Yoji Tokuyoshi (Italy), Clément Petitjean, Jen Agg (Canada), Yves-Marie Le Bourdonnec (France).

Breaking Up Text

Not every website has to be as simple and limited in text as The Pisacco Chronicle. Your website can include paragraphs of text. However, if you are planning to write a lot of text on a webpage, one way to make it easy to read is to break up the text into smaller paragraphs. Take a look at popular news sites, like the New York Times or Dallas News, which are known for producing long articles of text, and you'll see that most often paragraphs are 2-3 sentences with white space or visuals in between. Another popular technique is bullet points. Using bullet points with short sentences:

- Breaks up paragraphs of text.
- Makes it easy to scan.
- Creates white space.

Take a step back and look at this paragraph again...what captures your attention? The bullet points stand out because they create a break in the text and are easy to quickly scan.

Accessibility tip: If you use bullet points, make sure to put a period at the end of each point. This allows screen readers to know that the sentence has ended.

Typographical Emphasis

Remember: "People rarely read Web pages word by word; instead, they scan the page, picking out individual words and sentences" (Nielson, 1997, para. 1). Since readers tend to scan webpages or skim right over large chunks of text, you can use typographical emphasis, such as **bold**, *italics*, font color, style, and size, to direct their attention to the most important information. Take a step back and look at this paragraph - what is the first word to capture your attention? Likely one of the bolded words since those stand out in contrast to the rest of the words. Italics can be used to capture attention, but not in the dominant way of bolding. **Use bold to draw attention to the most important words and phrases** and *italics to make any additional information standout*.

Changing the font color will also draw attention, but be wary of using color only to highlight key information as that may leave out individuals who are colorblind or visually impaired. While shifting the font style and size are other ways to emphasize text, limit your use of this technique. The more you change style and size, the more overwhelming the text becomes to read.

Inverted Pyramid

Using the "inverted pyramid" concept is another technique to captivate and capture the attention of website visitors.
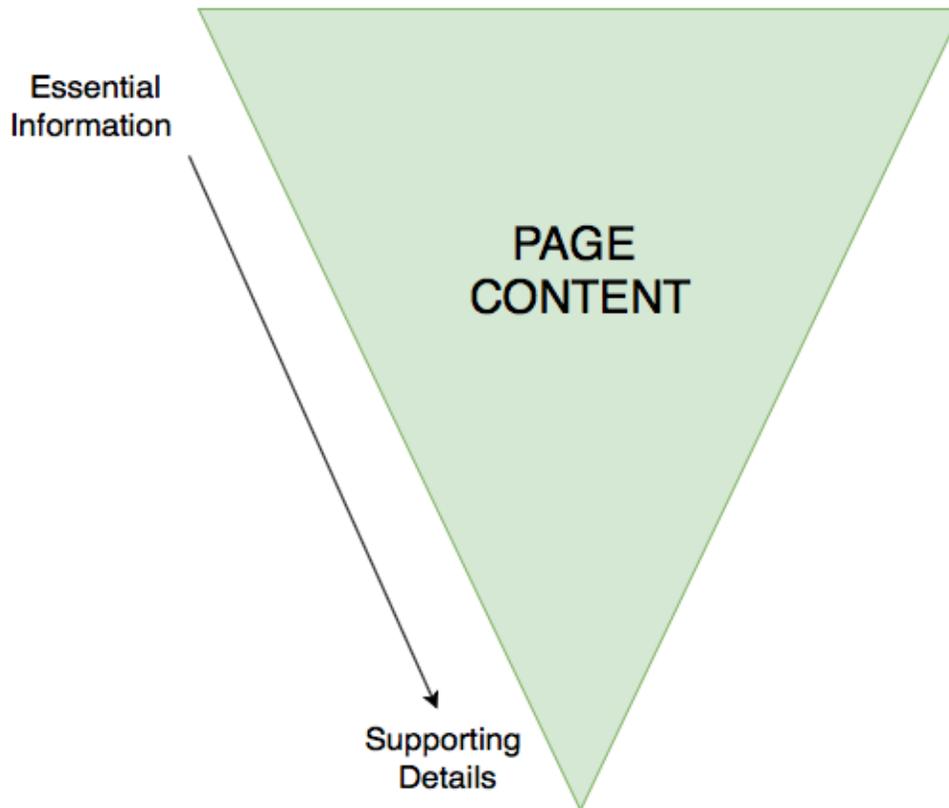
The idea behind the inverted pyramid is to have the most important information "on top" (within your first paragraph), with the details coming in the subsequent paragraphs. Readers often scan pages for information, so by putting the big takeaways early on, you will increase the chances the readers learn the information they need.

Subheadings

Subheadings give the reader a roadmap of your website and are critical for accessibility and screen readers. Using **subheadings helps chunk, or compartmentalize, ideas and concepts, while also reinforcing the hierarchy of information**. For example, if you have a website heading for "atoms," and subheadings for "protons," "neutrons," and "electrons," the subheadings reinforce that they are the parts of an atom. It's important to consider the size of font when making headings, below is the best way to determine it:

- **Heading One (H1)**: The main heading at the top of the page, should be the largest font
- **Heading Two (H2)**: The heading used to separate the content within your main heading, should be larger than your text font, but smaller than H1
- **Heading Three (H3)**: The heading used to make small points/asides, may be the same size as your text font, but bolded or italicized to differentiate from the text

It is worth noting that certain web design platforms (such as Wix, Weebly and Google Sites) automatically set the page title to Heading 1, but you will want to check the settings to confirm this. These platforms often also set the size and style of the headings, so all you need to do is use them!

Language Usage

The most important thing to remember is that writing for the web is different than academic or print writing. You should be using "half the word count (or less) than conventional writing" (Nielson, 1997, para. 3) on a webpage. With less words to communicate the information you want to present on your website, you need to **ensure that every word that you use, the tone that you take, and the style of writing you employ increase the readability of your page**. Ultimately, the language you choose to use can influence whether a reader explores the content on your site or makes an immediate exit.

Know Your Audience

According to the University of Maryland Baltimore Website Manual (n.d.), "Most users visit a web page for 10-15 seconds. In that brief time, 80 percent will skim the page for keywords they already have in mind. Therefore, before you create content, it's important to understand your audience and anticipate what content and keywords they're trying to find" (para. 27).

Are you creating a website for your students? Parents? Colleagues? Administrators? Which words or phrases appeals to each of these groups? What type of tone and language do you use when communicating with each of these groups? You will want to keep this in mind when selecting the word choice and writing style for your website.

Use language that appeals to your audience. For example, if you are designing a website for your students, consider what language you use to capture their attention or give directions, and use this same style of language when creating your website content. Also, use a readability checker to ensure your content is written at a level that is accessible by your audience. By paying close attention to your language usage when designing your website and ensuring it will captivate your audience, you will keep them engaged in your content for longer.

Readability

The majority of Americans read between a sixth and ninth grade level (although your students might be even lower than this). Writing content that is too advanced or takes too long to understand will discourage visitors from exploring your website. **Using plain language that is simple, concise, and concrete "removes barriers between you and your readers"** (Loranger, 2017, para. 4).

While you may be thinking that using plain language will dumb down the content or lower student achievement, this doesn't have to be the case. You can still present the information on your site in a professional manner, while also ensuring it's easy to read or scan. Indeed, using plain language is "welcome by readers; in fact, studies show that it makes the writer look smarter. (If people understand more of what you're saying, they will likely feel that you make sense.)" (Loranger, 2017, para. 4).

While academic literature is made of long complex sentences and highly specialized vocabulary, **studies show that professionals today value content that is "clear and concise**" (Loranger, 2017). Modeling this type of language on your website will make it easier for students to access and understand the content.

- *Word Choice*: Keep your vocabulary simple and make your points as plainly as possible. Prioritize nouns and verbs - use adjectives and adverbs only when necessary. Get rid of unnecessary words (once you have written your content, read it again and see how many words you can delete, then repeat this process).

- *Sentences*: Your sentences should be short and to the point. Avoid complex sentences. If you need to break up a sentence, a dash is the most effective way to do it. But, it is best to split the sentence in two.

- *Paragraphs*: Paragraphs should be no longer than five sentences long and should only address the specific heading they are connected to. Any information that strays from the topic will confuse the readers trying to move quickly through your page.

HOW TO WRITE A LITERARY ANALYSIS ESSAY

The purpose of a literary analysis essay is to carefully examine and sometimes evaluate a work of literature or an aspect of a work of literature. As with any analysis, this requires you to break the subject down into its component parts. Examining the different elements of a piece of literature is not an end in itself but rather a process to help you better appreciate and understand the work of literature as a whole. For instance, an analysis of a poem might deal with the different types of images in a poem or with the relationship between the form and content of the work. If you were to analyze (discuss and explain) a play, you might analyze the relationship between a subplot and the main plot, or you might analyze the character flaw of the tragic hero by tracing how it is revealed through the acts of the play. Analyzing a short story might include identifying a particular theme (like the difficulty of making the transition from adolescence to adulthood) and showing how the writer suggests that theme through the point of view from which the story is told; or you might also explain how the main character's attitude toward women is revealed through his dialogue and/or actions.

REMEMBER: Writing is the sharpened, focused expression of thought and study. As you develop your writing skills, you will also improve your perceptions and increase your critical abilities. Writing ultimately boils down to the development of an idea. Your objective in writing a literary analysis essay is to convince the person reading your essay that you have supported the idea you are developing. *Unlike ordinary conversation and classroom discussion, writing must stick with great determination to the specific point of development.* This kind of writing demands tight organization and control. Therefore, your essay must have a *central idea (thesis)*, it must have *several paragraphs* that grow systematically out of the central idea, and *everything in it must be directly related to the central idea and must contribute to the reader's understanding of that central idea.* These three principles are listed again below:

What Makes a Good Literature Paper?

An argument

When you write an extended literary essay, often one requiring research, you are essentially making an argument. You are arguing that your perspective-an interpretation, an evaluative judgment, or a critical evaluation-is a valid one.

A debatable thesis statement

Like any argument paper you have ever written for a first-year composition course, you must have a specific, detailed thesis statement that reveals your perspective, and, like any good argument, your perspective must be one which is debatable.

Examples

You would *not* want to make an argument of this sort:

Shakespeare's *Hamlet* is a play about a young man who seeks revenge.

That doesn't say anything-it's basically just a summary and is hardly debatable.

Tone

Establishing a rapport with your learners can lead to good learning outcomes. The same is true online. The tone that you take in your writing for the web will determine how your students "hear" you. Keep this in mind and follow these guidelines to establish an appropriate tone:

- Choose a tone that mirrors how you interact with learners in real life.
- Establish a tone that is consistent and appropriate for both age and context.
- Don't be too rigid. This can be off-putting and offensive (University of Maryland Baltimore, n.d.).
- When it comes to tone, value brevity over voice and stay consistent.
- Write in an active voice and maintain a uniform verb tense throughout your work.

The woman drove the car down the hill.
(ACTIVE VOICE)

DO THIS!

The car was driven down the hill by the woman.
(PASSIVE VOICE)

NOT THIS!

Credibility

As your students scroll through your educational website, they will be evaluating the trustworthiness of your information. The last thing you want is your students questioning whether the content you provide is accurate. The best way to avoid this is simple: Make sure your writing is comprehensive, correct, and current. Use a **spell checker**! When readers find spelling or grammatical errors on a website, they're less likely to trust the content. **Connect your content to the rest of the internet** using links, multimedia, and other resources.

Cite all of your sources - this is not only essential for legal reasons, it's also an important technique to role model for students. You can decide what type of citation style to use (e.g., MLA, APA, Chicago), just make sure to keep it consistent throughout your entire site. **Use quotation marks** to indicate any information directly pulled from another source, such as a website, blog, book, or video. Simply providing a link to an article without identifying the author (e.g., source) is not enough to cite borrowed information.

How to Write in Plain Language for Teaching

In this article, Bendici (2021) shares that it can be helpful to:

- Avoid acronyms.
- Avoid passive voice.
- Aim for a 8th-9th grade reading level.
- Be clear and concise (re-read your text and remove as many words as you can).
- Include relative pronouns (whom, who, which).
- Not use different words for the same subject.

Writing for a Subject-Specific Website

If you are designing a website to present your students with information and resources related to one or more subject areas, here are a few additional tips to engage your learners with the text on your site.

Keep it Simple and Organized: Limit the amount of information on your website so that your students don't feel overwhelmed when they visit. Chunk information and resources for sub-topics into separate sub-pages rather trying to feature everything the student needs to learn about a topic on a single page.

Keep Your Content Up To Date: Have you ever scrolled to the bottom of a website to see its copyright date (e.g., Copyright 2013) and then question the credibility of the information on the site since it hasn't been updated in many years? Your students will do the same thing! Make sure you spend time at least once every few months modifying your

site by revising information, adding or removing resources, and featuring related news. By presenting new content for your subject area, you can hook students in and have them stay on your site longer. For example, if you're designing a social studies website, instead of presenting the same facts about American historical figures, you can add content that usually gets skipped over or left out of history textbooks such as LGBTQ history and notable African-American history. By incorporating interesting new content that appeals to your students, you will be increasing student motivation and engagement.

Create Content that is "Made To Stick": Heath and Heath (2007) developed a set of guiding principles, called the Made to Stick principles, that can be used to create content that is "sticky," (i.e., hard to forget). The acronym **SUCCESS** can help you remember the principles:

- **Simple:** As mentioned previously, don't overwhelm the reader. Focus on one key point per paragraph. Omit extra words. Write in a concise and clear manner.
- **Unexpected:** Present information that surprises the reader.
- **Concrete:** Make it easy for the reader to see how the content is relevant to their life.
- **Credible:** Ensure the information you present is current, accurate, and reliable.
- **Emotion:** Present content in a way that make the readers feel something (e.g., joy, frustration, anger, excitement).
- **Story:** Tell a story. Storytelling is one of the most powerful techniques for communicating information since people who are reading or listening to a story mentally put themselves in the story, thus making it more memorable.

Chapter Conclusion

If you follow the tips from this chapter, you will be able to fill your website with content that your readers will find engaging, interactive, and memorable. Here is a checklist to help you remember the key points from this chapter:

- Keep your website simple - use white space and plain language.
- Break up large chunks of text.
- Use typographical emphasis (e.g., bold, italics, font size/color) to draw readers' attention to specific words or phrases.
- Put the most important information at the top of the page (inverted pyramid).
- Use subheadings and sub-pages to chunk and organize information.
- Use language that appeals to your audience.
- Ensure your content is current, credible, and accurate.
- Keep your content up-to-date.
- Employ the Made to Stick principles to engage your website readers.

References

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Selecting Digital Media

Understanding Copyright, Fair Use, and Creative Commons

E. D. & K. L.

Today, we have access to a plethora of digital educational resources (i.e., images, audio files, videos, presentation slides) at our fingertips, but how do we use original digital content ethically and legally on a website? In this chapter, we'll provide a brief overview of Copyright law and considerations for using digital media in educational settings, including on educational websites. We will also discuss Copyright law exceptions, such as Fair Use, as well as a type of Copyright license, called Creative Commons, that allows for use of media materials as long as the licensing terms are followed. Finally, we'll showcase how to find quality images to enrich your website.

Copyright - What Do You Know?

First, let's begin with a short quiz to test your knowledge of the legal and ethical use of digital media.

1) If you create original content, you automatically own the copyright, without any additional costs required.

☐	True
☐	False

Content creators can control how users are allowed to use or interact with their work through Creative Commons licensing.

☐	True
☐	False

It is fine to use any image found online, as long as you cite where you found it.

☐	True
☐	False

Through fair use, it can be legal in some cases to use a copyrighted work without permission

☐	True
☐	False

International copyright regulations protect your original works across the globe.

☐	True
☐	False

What is Copyright?

In the United States, copyright "protects original works of authorship fixed in any tangible medium of expression, now known or later developed, from which they can be perceived, reproduced, or otherwise communicated, either directly or with the aid of a machine or device" (17 U.S.C. § 102(a) 2012). Fundamentally, copyright is intended to allow creators to benefit financially, control content use, and assert 'morals rights' (in many areas around the world), such as **attribution**-- to give credit-- to their work (Renner, 2016). **Copyright infringement** is the act of "violating the exclusive rights of the owner" (Purdue, 2018, par. 1).

Copyright protection begins immediately after new content is created. Specifically, immediately after a picture is taken, an illustration is drawn, or a tangible item is created (17 USC 102(b)).The duration of copyright protection established in the 1976 revision of the U.S. Copyright Act states "no works published after January 1, 1978, will pass into the public domain until at least 2047" (Stanford University, 2019, par. 9). This means **almost all media online is potentially copyrighted and you *cannot* assume it is free to use**.

An important practice is to [determine the copyright status](#) (e.g., public domain, creative commons licensing, [uncopyrighted](#), etc...) to ascertain your responsibilities regarding digital media found on the web. For example, if you determine a picture of a blue jay holds a [public domain](#) status, in most cases you are free to use the image (with proper attribution). However, if content holds a copyrighted status, you should consider:

- Assessing any copyright exceptions (e.g., Fair Use, etc.)--more information below!
- Reviewing licensing terms (if available).
- Or, contacting the creator to receive direct permission to reuse their content.

United States (U.S.) copyright law includes a number of exceptions and limitations especially for educators building digital content. Exceptions include [fair use,](#) *[teacher exceptions,](#)* (e.g., [virtual instruction](#), etc...), and initiatives such as [Creative Commons Licensing](#) offer further opportunities for educators. Further explanations around exceptions to the copyright law in the U.S. will be discussed later in this chapter. However, it is important to become familiar with the exceptions to U.S. copyright law, especially in the educational context. Therefore, a good rule of thumb is to: Assess *use* (or purpose) to determine whether you are protected by fair use or another exception (e.g., Virtual Instruction). If permission is required, contact the creator directly, review any Creative Commons licensing, or evaluate any terms of use (if available).

Want to use an image you found online on your website?

Remember! Before you use multimedia found online on your website, please make sure to:

- Determine the copyright status of digital media.
- IF copyrighted:
  - Assess if your use falls under an exception, such as Fair Use.
  - Observe licensings terms or "terms of use" if available (e.g., Creative Commons Licensing, etc...).
  - Contact the copyright owner directly and request permission to use their work (if necessary).

Copyright Provides Regulatory Protection

In the **U.S.**, copyright is broadly protected by [Article I Section 8 of the U.S. Constitution,](#) [Title 17 of the United States Code,](#) and further protections are provided under case law. According to the U.S. Copyright Office (2019) there are **"no international copyright regulations protecting original content globally"** (par.1). Regulations and legal exceptions differ from country to country, therefore the rights of content creators and users may differ. The U.S. holds various [International Copyright Relationships](#) and many countries signed onto one or more international treaties that provide protections for different types of content (Schlackman, 2013). Some of the prominent treaties include:

- [Berne Convention for the Protection of Literary and Artistic Works](#)
- [WIPO Internet Treaties](#)
- [WIPO Copyright Treaty](#)
- [WIPO Performances and Phonograms Treaty](#)
- [Geneva Phonograms Convention](#)
- [Brussels Satellite Convention](#)

Public Domain

Public Domain is tangible content that does *not* have copyright protection. Items in the public domain are **free of copyright restrictions on use,** which means they are *free to use* (Stanford University, 2019). Attribution is still needed

for academic purposes, other issues could occur with content -- such as [privacy](#) and [defamation](#)-- but there are no copyright restrictions (Stim, n.d.). In the U.S., some examples of public domain content include works that never had or no longer have copyright protection and works published in the U.S. prior to 1924. (Stanford University, 2019, par. 8).

The [Berne Convention](#) allows individual countries to establish their own rules about what works are in the public domain -- and those rules can vary from country to country. Although U.S. Copyright (2019) laws can be enforced in almost all countries, public domain varies. Therefore, '*do not assume that media content in U.S. public domain is also in the public domain in another country'* (Starr, 2010)*. For countries outside of the U.S., please consider reviewing public domain guidelines in your region.

In short, copyright can be *complicated* and regulations can *differ around the world*. It is important to learn about the copyright protections and restrictions in your region. **This chapter focuses on copyright regulations in the United States and will not provide specific rules for every country.** To find information about specific protections in your area of the world, please consider:

1. Researching the copyright treaties (provided above) between the United States and other nations; and
2. Reviewing your governing body's websites to find copyright regulatory information.

In the next section we will discuss ***fair use***, a <u>legal exception</u> for educators to use copyrighted materials for the purposes of teaching and learning.

Fair Use

According to Harvard University (2019), **Fair use** is "the right to use a copyrighted work under certain conditions without permission of the copyright owner" (par. 43). Copyright policies can be intimidating, but on the bright side, educational uses of copyrighted material can fall under fair use in certain circumstances. Nuances exist under the fair use doctrine and this section is a **brief overview of fair use law.** For a more detailed review of fair use, please review your institutional guidelines, [Copyright.gov](#), and supplementary information found in the chapter references.

Determining Fair Use: Main Factors

Whether something is fair use is often case-by-case, and not always easily determinable. However, the U.S. Copyright Office (2018) discusses four main factors that courts look at when determining whether the use of copyrighted material is considered fair use:

1. "Purpose and Character"

According to Harvard University (2019), if the usage is for a "socially beneficial activity," such as teaching, scholarship, research, comment, criticism, or reporting, especially in non-commercial contexts, it is more likely to be considered fair use. Non-profit teaching is more likely to allow fair use than for-profit instances (Harvard University, 2019). Moreover, uses that **transform** the original work into something of a different purpose or character are more likely to be accepted as fair use (U.S. Copyright Office, 2018).Transformative use is a relatively new addition due to a 1994 Supreme Court case, *[Campbell v. Acuff-Rose Music](#)* (Cornell University, n.d.). For instance, a *Parody* is an example of transformative use because it critiques the original source material (University of Minnesota, 2019).

2. "The Nature of the Copyrighted Work"

Using a published work is more likely fair use than using an unpublished work. Also, the more factual and less creative a work is, the more likely that using it is fair use (U.S. Copyright Office, 2018). This has been the least important factor in fair use rulings (Harvard University, 2019).

3. "The amount and substantiality of the portion used in relation to the copyrighted work as a whole"

The greater the quantitative usage (e.g. percentage) or qualitative usage (e.g. using something that could be considered the core of someone's original work), the less likely it will be considered fair use (U.S. Copyright Office, 2018).

4. "The effect of the use upon the potential market for or value of the copyrighted work."

If the use negatively affects the current market or potential profit of the copyright owner, using the work is less likely to be considered fair use (U.S. Copyright Office, 2018).

Applications to Education

Non-profit educational usage may often fall under fair use, but as stated, whether something is *truly* fair use is dependent on multiple factors that are not cut-and-dry. However, educators should keep in mind fair use when utilizing different media types.

Class Readings

Teachers commonly provide students with copies of book chapters or articles on websites or course management mediums, such as Moodle. However, whether this falls under fair use is a grey area. Please check with your specific school or institution about their guidelines in regards to fair use. For example, the Davidson College Library (2018) suggests that unless educators feel confident that the usage falls under fair use, they should only post content that they have permission from the copyright owner to use (for instance, Creative Commons or open access versions, a licensed version from their library, or personal permission for that specific use from the rightsholder or a licensing agency), or content that are public domain (Georgia State University, 2018).

If an educator is hoping to apply fair use to this situation, what might be some things to consider? First, the **purpose** of the use should be educational and non-commercial (Davidson College Library, 2018). Also, **transformative use** means to "use original content in completely new or unexpected ways" (University of Minnesota, 2019, par. 10). Moreover, since the **quantity** of the usage of a copyright work matters, the more you use of a work, the less likely it is considered fair use. While there are no clear word limits that determine fair use, it would not be recommended for an educator to provide entire books for their class, especially as this would likely affect the **market** of the book (Stim, 2011). Check with your school or district to see if they have guidelines for how much reading material you can distribute (Harvell, 2018). Moreover, ensure that your website is only accessible to students taking your course, not all students or the general public (Davidson College Library, 2018).

Use of Third Party Content

Similar to posting readings, educators should consider fair use when using or posting third party content (e.g., such as movies, posters, memes, infographics, or podcasts) or look for Creative Commons media. On the bright side, YouTube offers a plethora of free educational content that can enhance your website or online education medium. YouTube videos are licensed for public performance and generally acceptable to embed on a website, assuming the video itself does not include copyright infringing material. It would be best to link the video in your website (UTA Libraries, 2019), and if not, to embed it (Waters & Burt, 2017), as providing a download of the YouTube video would violate the YouTube terms of service. However, note that it may be copyright infringement if you use parts of a YouTube clip without permission for a video that you make, assuming the reproduced work is not justified under fair use (Waters & Burt, 2017). Moreover, with YouTube and other streaming sites (e.g., Hulu, Netflix, etc...), please take care to follow their individual terms of service agreements for users.

Creative Commons

Worried about infringing on someone's copyright or trying to figure out the murky fair use guidelines? Consider using Creative Commons media instead. **Creative Commons** provides several licenses that allow content creators to share their work and control how users interface with their work (Stieben, 2014). The best part? You don't need to contact each content creator for their permission! Creative Commons licenses serve as the author permission and provides instruction around using, redistributing, and/or modifying their content (Blechner, 2019). Sound interesting? If you routinely create your own content and you wish to share them with other educators, please consider a Creative Commons license for your original content, including your website!

Types of Creative Commons (CC) Licenses

Both content creators and users can explore CreativeCommons.org to learn about the license options and search for digital content that can be used legally (Stieben, 2014). There are a variety of CC licences available for use. Also Creative Commons provides licensing options and a public domain license option. Some license types available are:

PUBLIC DOMAIN	**CC0**, is a public domain license. Public Domain licenses allows the content user to display and rep
CC BY	**CC Attribution (CC BY)**, allows users to transform and reproduce work if content is **credited** to the
CC BY SA	**CC ShareAlike (CC BY-SA)** allows users to change and reproduce original content if • the creator is credited, and • all modifications are shared with the **same (or similar) creative commons licensing**.
CC BY ND	**CC No Derivative Works (CC BY-ND)**, which allows others to reuse and share original work but on providing attribution to the creator.
CC BY NC	**CC Non-Commercial (CC BY-NC)** content users may reproduce, modify the work, and distributed t • the content creator is credited, • the work is used for **non-commercial purposes** (i.e., you aren't going to make any money off
CC BY NC SA	**CC Noncommercial-ShareAlike (CC BY-NC-SA)**, users can share and modify content if you: • give credit to the original author, • the work is used for non-commercial purposes, and • agree to share all modified work with the same (or compatible) license.
CC BY NC ND	**CC Noncommercial-NoDerivatives** (**CC BY-NC-ND**) allows users to *share the unmodified, original* • credit to the original author and; • the work is used for non-commercial purposes.

Finding Multimedia for Your Website

Please review the [Multimedia Resources tool](#), the [Online Tools document](#), [A Guide to Finding Media for Classroom Projects](#), or [The Educator's Guide to Copyright, Fair Use, and Creative Commons](#) to find content you can legally use on your website. You will find digital resources for images, audio, and video. This is not a complete list of resources and there are many sites available for educators to use. Start with the tools listed above then explore on your own.

Avoiding Images that Do Not Complement Your Text

You have now familiarized yourself with the many online resources available to help you find media that you can legally use. However, pause before you pick the first image that comes up. **Just because you *can* use an image doesn't mean you *should*.** In her blog post, Bokhan (n.d.) lists the [7 types of stock images you must stop using today](#), including abstract 3D figures, low-resolution photos, boards (whiteboards, green boards, glass boards), and people with laptops in weird settings.

While determining what exactly is the 'best' image to complement your text will always be subjective, below are some tips that can help you narrow down your options.

Avoid Cheesy and Generic Images

The cheesy stock image is far too ubiquitous, so much so that they have [gained infamy](#) on the Internet. Exaggerated expressions and poses, direct eye contact with the camera, bright studio lighting, and unnatural backgrounds are just some aspects of the quintessential cheesy stock photograph. The problem with these images is they lack the authentic feel and look of the real world and therefore viewers may not connect with or even consider them.

Focus On the Topic

When you use a Creative Commons search, there may be many images out there related to your text, but there are fewer that will ultimately complement your text. Ensure that the images you select for your website are **relevant and not distracting**. A distracting image will actually draw attention away from your website text rather than complement it. Watch the following brief video about [Richard Mayer's Multimedia Learning Principle: Coherence](#) to discover why it is important that your website images perfectly complement your text:

[Watch on YouTube](#)

Quality Over Quantity

One last tip is to prioritize quality over quantity. Taken literally, photos should have quality in terms of resolution. When finding images, look for ones that have large resolutions (size) and download them in their highest resolution if possible. You can also reduce the image size and resolution, but you can't go the other way and increase it (this will lead to pixelation). It's a good sign when an image is at least 1000 pixels (px) in length and height, though smaller images may be fine depending on the size that you plan on displaying the image. Of course, it's important to note that larger images take longer to load on a site, so you'll have to find a good balance between resolution and loading speed.

In the table below, we showcase examples of images that **would not fit well** for this chapter:
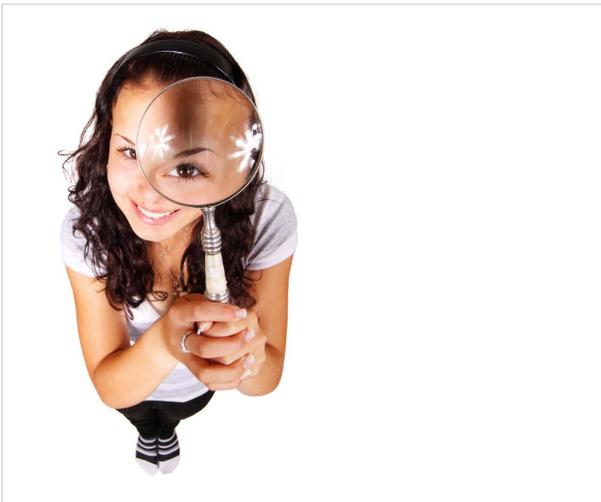
This is an example of a cheesy stock image that is far too c
lack of a setting (i.e., background), the uneven and unnatura
to the camera, are all reasons to pause before using an ima

While clipart or cartoon images, may be readily available fo
out. For example, Bokhan (n.d) notes the prevalence of abs
do not attract viewers to the content. Generic images like t
they are simple and lack context. Moreover, be wary of cart
unsuitable for the tone of your work (unless you're designir
case, have at it!).
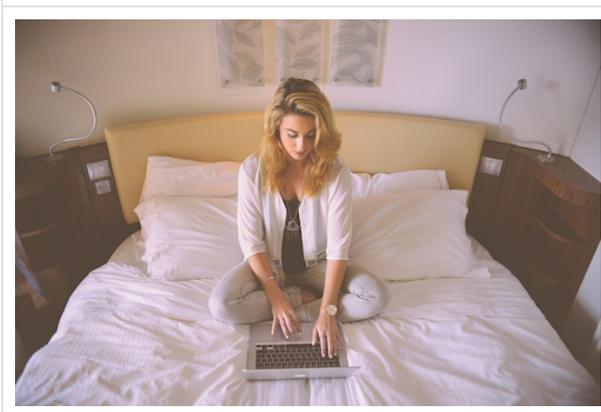
The photo to the left shows a woman on her computer. Wh
the woman with the magnifying glass in the previous sectic
is this woman doing on her computer?" "Why is she using h
designed that way?" If you were to use this image on a pag
images, you can see how viewers might get distracted. **Be**
images selected, and ensure they do not detract from the r

This is another example of a distracting and irrelevant imag[e]
Creative Commons content, the device does not appear to
confusing. The reader may wonder about the context of thi[s]

This image combines some of the mishaps we have menti[oned]
and unprofessional. The model has a serious expression an[d]
which is unsettling. Moreover, the cartoonish aspects on th[e]
random, which may also serve as distractions. Overall, the i[mage]

If you need to scale an image, ensure that the image is sca[led]
lengthwise or heightwise). This image shows someone writ[ing]
it may be suitable for this chapter. However, the image is di[storted]
increase the size of a low-resolution image).

Touching on the idea of quantity, a single page does not necessarily need a ton of images. You don't want to overwhelm[]
or overstimulate your website viewer with visuals. Thus, you should take the effort to look for a **few quality images that**
are the most suitable to enrich and complement your text. This may take multiple searches and the use of more than
one image database to locate the ideal images. It can be helpful to try out multiple search terms, as they will often lead
to different results each time. For the image examples provided throughout this section, some of the search terms used
to locate them included "magnifying glass," "search," and "laptop."

Finding Images that Complement Your Text

Below are two examples of images that might be suitable to support a webpage about Creative Commons. Why do you
think these images might fit well based on the criteria we just covered?
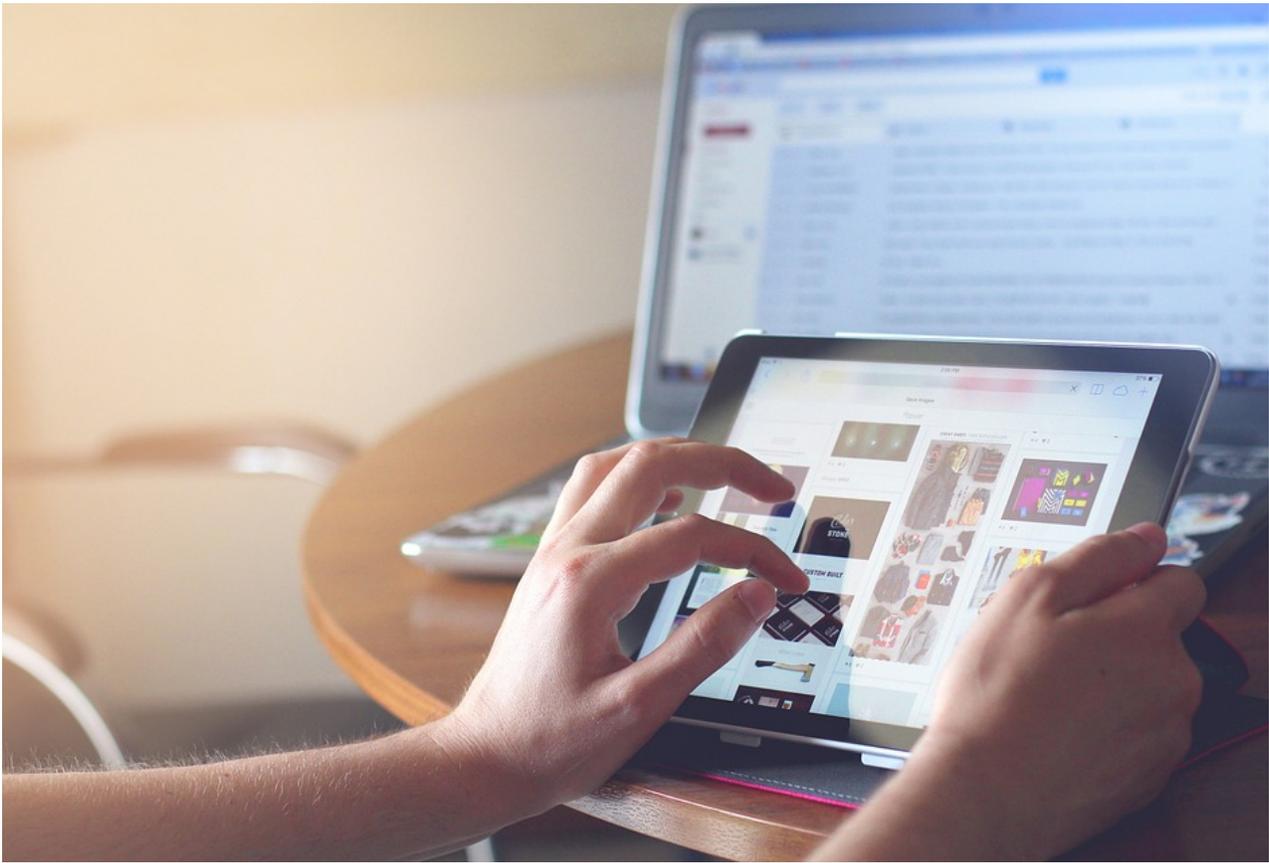
So far, we spoke in this chapter about what *not* to do when selecting images. However, what makes these above images ideal? One acronym you can use is "CRaN" - Clear, Relevant, and Natural. Below is a summary of three things you may wish to look out for when selecting images for your online content.

1. **Clear** - Ensure that the image is high-quality, crisp, and easy for the viewer to discern.
2. **Relevant** - Ensure that the content of the image is applicable and focused on what you are discussing on your page. Consider all aspects of the image, including the background.
3. *and* **Natural** - Ensure the image is not too jarring to the eyes. When unsure, lean towards images that are clean, simple, and don't appear forced.

Attribution: Giving Credit

Now that you know how to find the ideal images, how do you properly attribute them? The images provided in the previous section from Pixabay do not require attribution (although it is recommended for reuse purposes), however the case is different for Creative Commons images.

Say you want to use this image from flickr, called "Violet Sabrewing Hummingbird" by Becky Matsubara, for your website. It has a CC BY 2.0 license. What is the correct way to provide proper in-text attribution? Look at the following four examples (Note: No copyright was infringed in the making of these examples. The bird doodle used as a placeholder for the actual photograph is an original drawing by the authors of this chapter, so technically no attribution is needed. That's the beauty of producing your own content!).

Which do you think are correct?
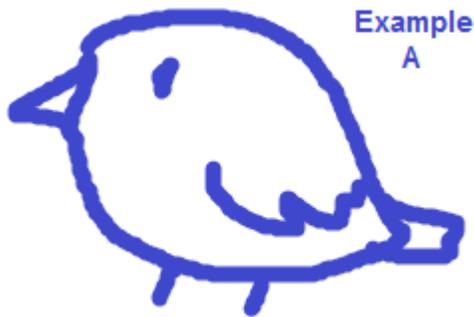
Example A
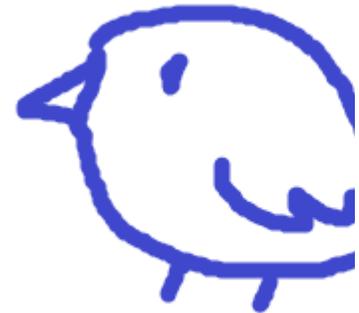
(Matsubara, 2018)

Matsubara, B. (2018, December 25) from https://edtechbooks.org/-QIb

Example C

Violet Sabrewing Hummingbird by

Violet Sabrewing Hummingbird
(https://www.flickr.com/photos/beckymatsubara/45736542184/) by Becky
Matsubara is licensed under CC BY 2.0
(https://creativecommons.org/licenses/by/2.0/)

Answer: Both Examples C and D are correct.

Taking a look at the specific Creative Commons license for the image gave us a big hint. The license states under its terms that attribution is needed to use the image. It states clearly, "You must give appropriate credit, provide a link to the license, and indicate if changes were made. You may do so in any reasonable manner, but not in any way that suggests the licensor endorses you or your use" ("Attribution 2.0 generic," n.d.). Please note that the image above was licensed under Creative Commons 2.0, but the current version is CC BY 4.0. The current version of the license is available at CreativeCommons.org ("Attribution 2.0 generic," n.d.).

In examples C and D, we credit the image to the creator, Becky Matsubara, and we provide a link to the license. While Example A, "(Matsubara, 2018)," appears to be a proper APA in-text citation for referring to an article, image attributions must include more than just the author name! It should be noted that the placement for each example is correct - attributions should ideally be next to the image used, such as on the line directly under it (Australian Research Council, n.d.).

What's the difference between examples C and D? Example D is preferred where hyperlinks are possible, but Example C would be suitable for other mediums where readers cannot click on links, such as on print (Australian Research Council, n.d.).

Creative Commons Attribution Guidelines

Creative Commons recommends using the acronym "TASL" to help users remember proper attribution. The letters stand for Title, Author, Source, and License. ("How to give attribution," n.d.). Going back to the example photograph, we can use TASL to guide us.

- **Title:** Violet Sabrewing Hummingbird
- **Author:** Becky Matsubara (Flickr page linked)
- **Source:** Link to the Flickr posting
- **License:** CC BY 2.0 (linked)

Putting that all together, we get examples C (for print-based materials) and D (for digital materials and websites):

Violet Sabrewing Hummingbird (https://www.flickr.com/photos/beckymatsubara/45736542184/) by Becky Matsubara is licensed under CC BY 2.0 (https://creativecommons.org/licenses/by/2.0/)

Selecting Digital Media for Your Website Checklist

1. Determine the copyright status of all content found online.
2. Review copyright restrictions in your area of the world and any guidelines provided by your organization.
3. Try making your own multimedia for your website.
4. Utilize online resources to find Creative Commons content.
5. Ensure all Creative Commons content is used according to the terms of the license.
6. Ensure images complement your website text by being clear, relevant, and natural.
7. Provide proper attribution and follow any other CC restrictions when using Creative Commons content on your website.

Copyright Quiz - What Do You Know Now?

You automatically own the copyright for your original works of art

☐ True

☐ False

It is fine to use any image found online, as long as you cite where you found it.

	True
	False

Content creators can control how users are allowed to use or interact with their work through Creative Commons licensing.

	True
	False

Through fair use, it may be legal in some cases to use a copyrighted work without permission.

	True
	False

Whether something is fair use can easily be determined by the average educator.

	True
	False

Rules about what falls under the public domain vary across the world in each country.

	True
	False

Creative Commons recommends the acronym "TASL" to help users remember proper attribution. The letters stand for Time, Author, Style, and License.

	True
	False

Additional Resources for Educators

If you enjoyed this chapter and would like to begin to educate others about copyright issues related to digital media, here are three resources:

- [Copyright Quiz 1](#) via [Socrative](#) - Watch your class's progress live as they compete teams in a "Space Race." This quiz addresses some common misconceptions about copyright and can help educators gauge the base level understanding of their group. Click the hyperlink to import the quiz to your Socrative account.
- [Copyright Quiz 2](#) via [Kahoot](#) - This quiz includes similar questions as the Socrative quiz, but in a faster pace. Students compete as individuals to answer questions both quickly and correctly in order to win the most points. If the Socrative quiz is used as a pre-quiz before students learn more about copyright, the Kahoot quiz can be a helpful post-quiz for them to test how much they learned.
- Crew, K. (2012). *Copyright Law for Librarians and Educators: Creative Strategies & Practical Solutions Third Edition.* Chicago, IL: American Library Association. Kenneth Crews provides additional information regarding copyright law, educational exceptions, and so much more.

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Multimedia Design

Sai Satish Gattupalli, M.F., J.M., & Torrey Trust

Teens today spend, on average, **8.5 hours every day consuming media** (Common Sense Media, 2021). Similarly, "American adults spend over 11 hours per day listening to, watching, reading or generally interacting with media" (The Nielsen Company, 2018, para. 2).

In a world where **media consumption is deeply embedded into nearly everyone's life**, it is essential that your website offer the same type of multimodal learning experience. Multimedia can increase the appeal of the website, while also offering visitors different ways to connect with and explore the site content.

Consider the Universal Design for Learning (UDL) framework, which was designed to "improve and optimize teaching and learning for all people based on scientific insights into how humans learn" (CAST, Inc., 2019, para. 1). One of the three UDL principles is Multiple Means of Representation - providing learners with more than one way to access and learn content. When you provide videos, podcasts, or images that present the text-based information in a multimodal format, you are giving the viewer a choice in deciding how to explore the information.

In [Chapter 3](#) you will find tips, resources, and tools for using media designed by others on your website without infringing on copyright. This chapter focuses on how you can create your own multimedia to enrich the way you present and communicate the information on your site.

The chapter will start with a brief overview of design techniques and then will be followed by a showcase of digital tools for creating audio, video, and images for your site.

Multimedia Design

It's easy to design digital media with the tools available today, however, designing digital media that positively impacts learning (aka whether visitors acquire information from your site) is quite challenging. This section will provide some tips and strategies for creating effective multimedia.

First and foremost, **design with your audience in mind** (see: [Getting a scientific message across means taking human nature into account](#)).

- Who is the audience of your website?
- What do they know already about your website topic?
- What type of words or phrases do you use when speaking with typical audience members about this topic (use this same language in your audio/video products)?

Consider any **myths or misconceptions** your audience might have about your topic and make sure to debunk those first! Researchers have found that students are less likely to watch a science video when they think they already know the information from the video, even if their knowledge is incorrect ([Helll-ooo! Watching Videos Does Not Necessarily Lead to Learning](#)).

Here are some more tips to creating more impactful media products:

- **Make sure the multimedia is accessible** - Add accurate closed captions to videos, include a transcript for audio recordings/podcasts, and use ALT text to describe an image.
- **Hook your audience** - Use humor, surprise, inquiry, a short vignette (Need more ideas? Read [12 Presentation Hooks Used By the Best TED Presenters](#)).
- **Be creative and social** - Break away from the traditional mold of educational multimedia (aka lecture videos, documentaries, infographics full of far too much information).
- **Use visuals** - quite simply, visuals are more memorable than words. The less on-screen text, the better. After watching this short TED Talk, what do you remember most? The visuals or the words? (Research article: [Pictures Move People More than Words Emotional images can change people's behavior, while similarly charged words do not](#)).
- Read **[What Makes Good Design? Basic Elements and Principles](#)** to learn basic visual design techniques.
- **Use media in an ethical and legal manner** - If you upload a video to YouTube with a popular song as the background music, it will be flagged and taken down. Use your own original art or Creative Commons works with attribution (explore [Chapter 3](#) for more information about finding and using Creative Commons media).

[Heath & Heath's Made to Stick Principles](#)

The following principles provide a valuable guide to designing captivating media:

- **Simple** - Don't overwhelm with facts, ideas, or information. Use [the rule of 3](#) (what 3 things do you want the audience to take away from your media?).
- **Unexpected** - Information and ideas that are shocking are more memorable. How can you surprise the audience with your media?
- **Concrete** - Don't use abstract terms or complex jargon. Present information in a way that is relevant to the audience.
- **Credible** - Why should the audience believe you? Credibility can come in many forms (education degree, profession, personal experience).
- **Emotion** - Simply increasing an individual's heart rate results in a higher likelihood of sharing a video. "Virality is partially driven by physiological arousal. Content that evokes high-arousal positive (awe) or negative (anger or anxiety) emotions is more viral. Content that evokes low-arousal, or deactivating, emotions (e.g., sadness) is less viral" ([Berger & Milkman, 2011](#), p. 1).
- **Story** - When you tell a story, people not only listen/watch, parts of their brain activate as if they are experiencing the story themselves (read: [The Science of Storytelling: What Listening to a Story Does to Our Brains](#)). Thus, storytelling is an incredibly powerful and impactful teaching tool (learn more: [Stories are better than lectures at teaching us about health](#)).

Multimedia Learning Principles

Through extensive research based on how multimedia impacted college students' learning, Richard Mayer (2009) developed 12 guiding principles for the design of multimedia. The following bullet point list is a synthesis of the key points from these principles:

- **Don't Distract** - Get rid of extraneous information, stories, images, sounds, or content (while it might be fun to tell the story of the time you were white water rafting and saw a beautiful Scarlet Macaw, if this story is not relevant to your video about dividing fractions, then leave it out!).
- **Direct Attention** - Use text, arrows, bolding, sound effects, or other tools to signal key information (notice how the bolded text stands out and draws your attention!).
- **Use Visuals with Narration** - The combination of spoken words *and* pictures or videos is stronger than words by themselves.
- **Keep it Together** - In an image, keep your graphics and their labels as close as reasonably possible to one another. In a video, make sure the visuals match the narration.
- **Chunk it** - Break up podcasts, audio files, and videos into shorter media files.
- **Keep in Conversational -** Speak in a conversational tone. Don't use technical or academic jargon. Use plain, easy-to-understand language (review the Writing for the Web chapter for tips on how you can improve your audio or video scripts). If you do plan on using acronyms or uncommon words in your audio or video, make sure to define them early on.

For an in-depth overview of the 12 principles, visit Davis and Norman's (2016) [Principles of Multimedia Learning article](#). Also, take a look at the [Principles of Accessible Multimedia Learning](#) (Hinderliter, 2022). Keeping these principles in mind can help you create media that enriches, rather than detracts from, the content on your site.

Designing Audio for Your Website

Audio is one of the most common ways to keep your audience engaged. In classrooms, learners listen to their peers and the instructor. However, websites tend to overemphasize text and underemphasize the power of audio. One of the major advantages to using audio over text is the use of high pitches, low pitches, tones and inflection to match the context of the subject matter being taught. People tend to process auditory information quicker and easier than similar information in a text-based medium (to learn more, explore [The Use of Audio in eLearning site](#)). Your audio could be an instructional clip, an interview, a narrated story, or a podcast. In this section, we'll cover the basics of how to record audio using the free online tools and software programs: [Vocaroo](#), [Online-Voice-Recorder](#), and [Audacity](#).

Design Tip

Before you proceed to record your audio file, make sure you are in a quiet location without any background noise. Use an external microphone, such as a lavelier or shotgun mic, rather than your computer or smartphone mic to capture higher quality sound. Pay attention to any external noises such as a person walking by, a door shutting, a car starting - as these can ruin an audio file.

Tool #1: Vocaroo

Vocaroo is a popular and intuitive flash-based tool for recording audio clips. Simply visit [Vocaroo.com](#) and select "Click to Record" to start creating an audio file.
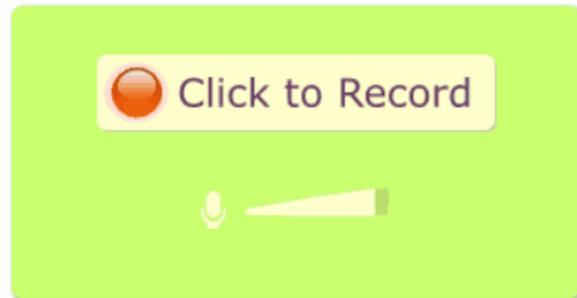
That's it! You can now download your recording as an mp3 or WAV file or share it via a link. If you'd like to re-record, you may do so.

Tool #2: Online-Voice-Recorder

Similar to Vocaroo, this is an online voice recording tool that is convenient and simple to use. You can also use this site to trim your recording and save a particular section. Head to Online-Voice-Recorder, click the red microphone icon, and start your recording.
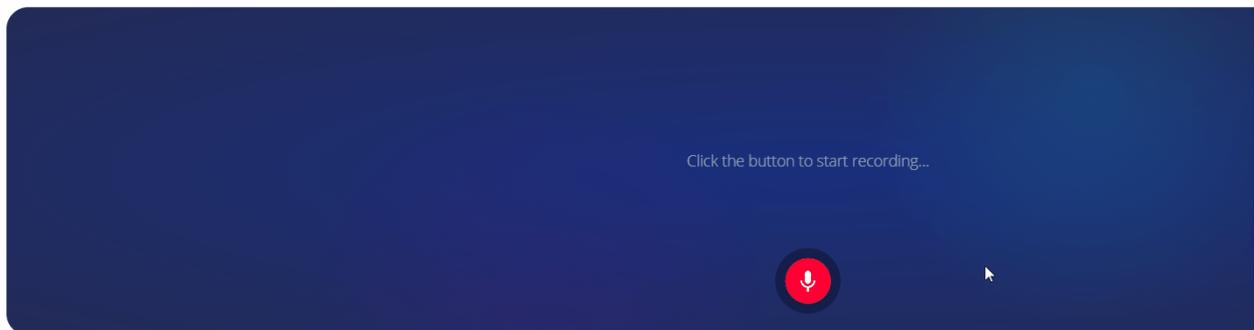

You can now **Save** the file in an mp3 format.

Tool #3: Audacity

Audacity is a more complex multi-track audio recorder and editor. It is also a free and open-source software. Unlike other online tools, Audacity is a program that needs to be downloaded to your computer before you can record your audio files. Visit the [Audacity Download page](#) and to get the software for your computer. While the basic recording function is virtually identical to that of the prior two resources, it's highly suggested that you take some time to familiarize yourself with the more advanced features (such as noise cancellation) if you choose to use Audacity.

Using Audacity, you can export your recording in various formats, including mp3, WAV, and OGG. Here is how you **Export** your file.

- Do a test run by recording a short bit of audio and playing it back to hear how it sounds.
- Anticipate the sounds you might hear during the recording (e.g., a person walking by your recording area or a plane flying overhead) and make adjustments to avoid noise.
- Stay close to the microphone, but not too close (hold the mic about 6 inches or a fist-width away from your mouth).
- Avoid typing on the keyboard while recording to avoid distracting keystroke noises.
- Don't breathe heavily into the mic.

Designing Video for your Website

A properly made video will mesmerize your website visitors. Videos have become the most popular instructional tool and being able to provide your learners with videos like Khan Academy or Ted-Ed will make your website more engaging and appealing. Designing a video can be time consuming, and sometimes frustrating, but with the right tools and design skills, anyone can make captivating videos. The following section features two web-based design tools for creating videos: Adobe Spark and Screencastify. You can also use software, such as iMovie, Adobe Premiere, Shotcut (free), Windows Video Editor, or Final Cut Pro, to edit together professional quality videos.

Tool #1: Adobe Spark (now Adobe Express)

Adobe Spark is a free online tool that lets you create beautiful videos, images, and web pages. This video-making software allows you to create compelling video stories quickly by piecing together slides of visuals with audio. Here is how you use it:

1. Visit Adobe Spark and create a free account.
2. After you sign in, click the blue "+" icon at the very top of the screen and select "Video".
3. You will now be prompted to pick a story template or you may start from scratch.
4. Pick any template and you will be brought into the video editing mode.

This editing mode is comprised of three elements - the **timeline area** (at the bottom), the **styling area** (on the right), and the **main video content area** (in the center).
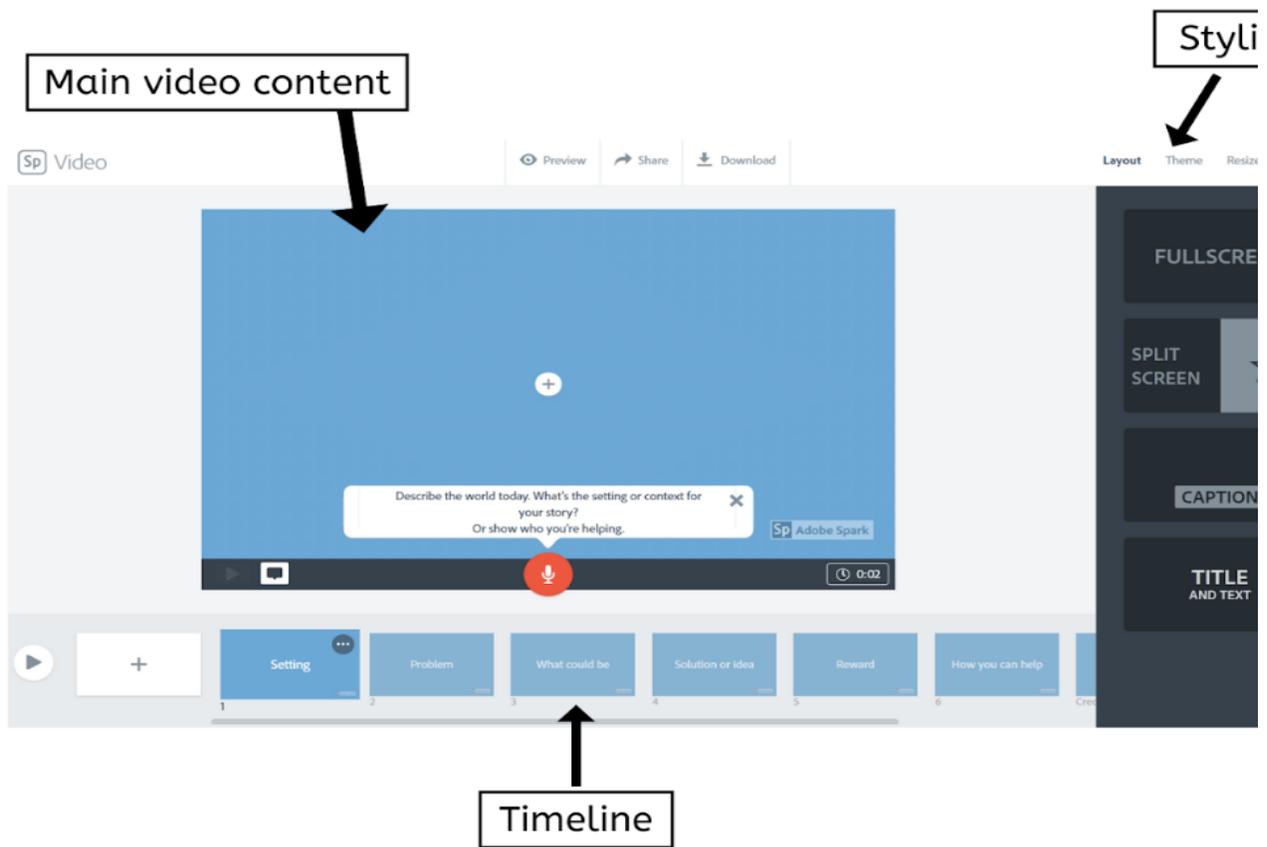
Add new slides to the video by clicking the "+" icon in the timeline area.

Change the layout of each slide from the styling panel and control how long each slide plays from the timeline panel.

Add Creative Commons music, images, and videos to your movie from the styling area.

You can also upload your own images (jpeg and png), videos (mp4 and mov), and background audio (mp3). When your video is complete, you can download the video in mp4 format or share it via a URL. Any time you'd like to make modifications to your video, you can login to Adobe Spark on a computer or smart device and make changes and download the new video instantly.

Tool #2: Screencastify

Screencastify is a screen recording extension for Google Chrome. It is a light-weight, powerful, and easy-to-use screen recorder. However, it has a **time limit of 10 minutes** per recording with the free account. To get started, you must download and install the Screencastify extension on your Chrome Browser. Click on the Screencastify icon in the top right corner of your web browser and sign in with your Google account.
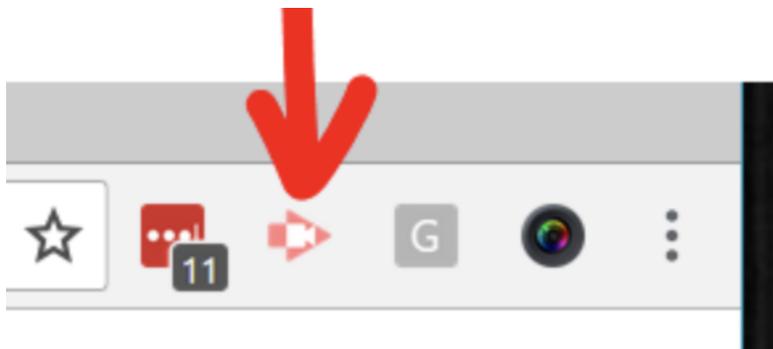
This will let you save all of your screen capture footage to your Google Drive. Now, click the icon again and you can start recording the action.
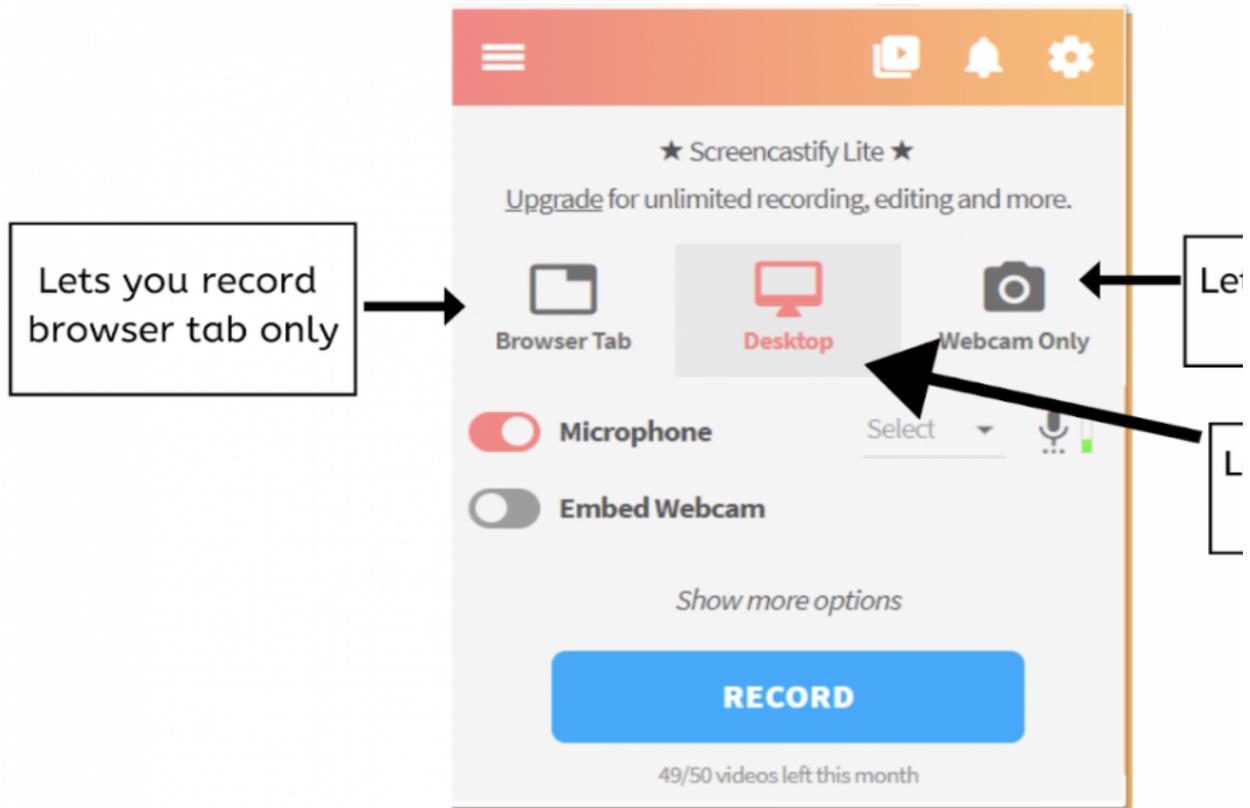
All your recording sessions will automatically be saved on your Google Drive account.

Video Design Tips and Tricks

- Keep your videos short (e.g., 3-5 minutes).
- Use the design principles discussed earlier in this chapter to capture and maintain the attention of your learners as they watch your videos.
- Don't use any copyrighted images or visuals in your video. Search for Creative Commons resources from Pixabay, Videezy, Unsplash, and more (e.g., Guide to Finding Media for Classroom Projects). Make sure to give proper attribution when using any Creative Commons licensed materials (review Chapter 3).
- Use the YouTube Audio Library or Unminus to find Creative Commons background music. Give attribution as needed.
- If you include background music, make sure it's not too loud, otherwise, it'll distract the viewer.

Designing Images For Your Website

Research has shown that **images are more powerful and memorable than text** (see: Pictures Move People More than Words Emotional images can change people's behavior, while similarly charged words do not).

Every page on your website should have at least one image to complement and enrich the text (if you need help figuring out how to select or design an image that complements the text, visit Chapter 3).

Before exploring this section, read **What Makes Good Design? Basic Elements and Principles** to learn basic visual design techniques. In the following section, you will learn about 3 digital tools for creating images: Pablo, Canva, and Adobe Spark.

Tool #1: Pablo

Pablo is a commonly used tool for creating quick web banners with custom text.

To get started:

1. Visit the Pablo website.
2. Select an image.
3. Double click on the image to add text.
4. When you are done, click on **Share & Download** button at the bottom of the screen to download the picture in a jpeg format.
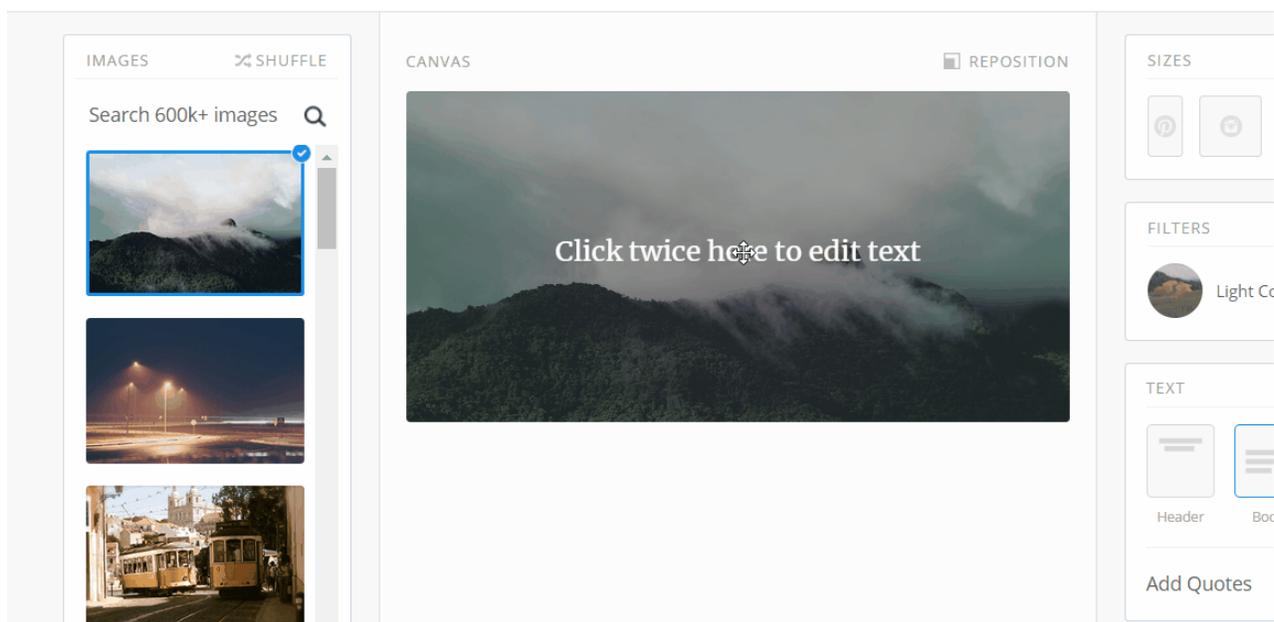
Tool #2: Canva

Canva is a free website for designing professional quality images and graphics. Canva offers pre-made templates that you can customize, such as posters, social media graphics, infographics, and flyers. When you get to the website it will ask you to sign up with your email. Once you sign in, it will ask you invite friends to see your work but you can skip over that part and get started with the process of creating custom images and graphics. Click on any template, then double-click on any text/image to **edit.** When you are done creating your masterpiece, you can download it as a jpg, png, or pdf.
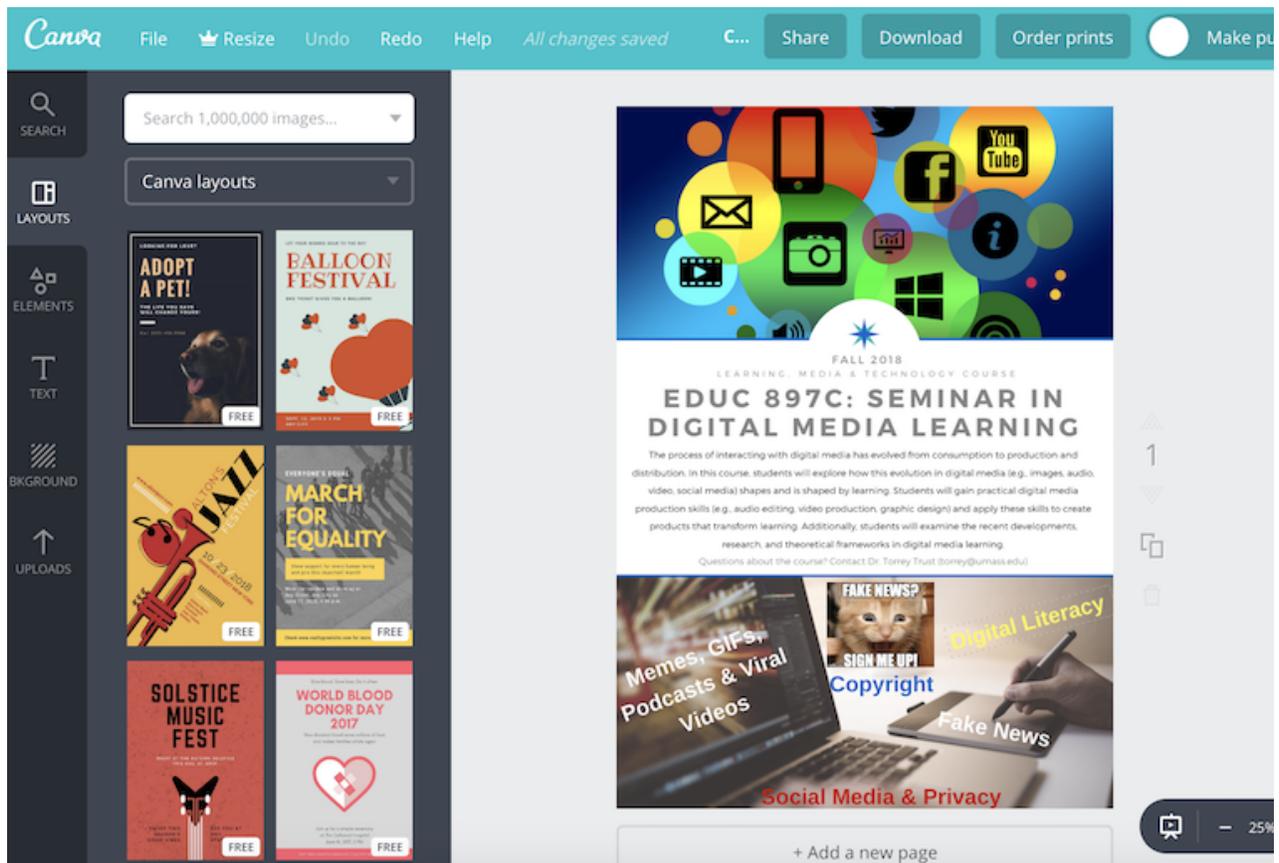
Tool #3: Adobe Spark

Spark (covered in the video section) is similar to Canva in regards to the creation of images. It offers pre-made templates that you can adjust and customize yourself. You can easily integrate Creative Commons and Public Domain images into your graphic. To get started, click the "+" sign and select Graphic. Select a template to use or start from scratch. When you are done, you can download the image to your desktop or share it via a URL.

<div style="background:#aef2f2;">
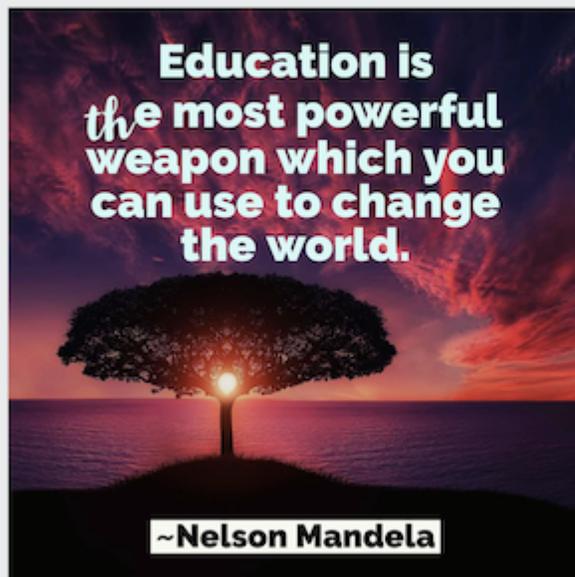
Image Design Tips and Tricks

</div>

- Use copyright-free pictures or Creative Commons images with attribution (review the Guide to Finding Media for Classroom Projects).
- Don't include visuals on your website just for the sake of mixing things up. Select visuals that complement and enrich your text (see Chapter 3: Finding Images that Complement Your Text).
- Limit how many words you put on an image. The power of images comes from the visual appeal.

Chapter Overview Video

Additional Design Tools and Resources

- **Creative Commons & Royalty Free Media**
  - How to Give Attribution - Creative Commons
  - The Educator's Guide to Copyright, Fair Use, and Creative Commons
  - Guide to Finding Media for Classroom Projects
  - Spreadsheet of OERs
  - Alternatives to Google Image Search - Chart
  - Sources of Free Sound Effects and Music for Multimedia Projects
  - Audio: YouTube Audio Library & Unminus & Dig CCMixer
  - Video: Videezy & Pixabay Videos & Pexels & Vimeo Creative Commons & Videvo

- **Audio**
  - Beautiful Audio Editor
  - Anchor & Synth - podcasting
  - Simple audio & video editing tools
  - Sound Trap - music making
  - Twisted Wave - audio editor
  - Clyp.it (audio recording & sharing)
  - Record MP3 Online
  - How to Podcast for Free

- **Video**
    - [Powtoon animation tool](#)
    - [Wevideo](#)
    - [Clips](#) (for Apple) & [Quik](#) (for Android)
    - [Headliner](#)
    - [Shotcut](#) - free open source video editor
    - [11 Mobile Video Creation Apps](#)
    - [Video Creation & Editing Apps](#)
    - [Tips for Shooting and Editing Videos](#)
    - [The Best Free Video Editors for Windows](#)
    - [iPad/iPhone Video Editors & Tools](#)
    - [Screenrecording Tools](#)
    - [Stop Motion Studio](#) - capture a series of photos and turn them into an animated video
    - [Snapchat](#) - capture photos and videos and embed Bitmojis, text, and other icons

- **Images**
    - [KQED Design Courses](#) (designing infographics, memes, etc...)
    - [Visualize Learning with Photo Challenges](#)
    - [Pixlr](#) & [Sumo Paint](#) (similar to Photoshop)
    - [Inkscape](#) (professional vector editor)
    - [Tuxpi](#)
    - [Comic Strip Creators](#)
    - [Make a Meme](#)
    - [Imgflip](#) - GIFs and Memes
    - [Visme](#) - graphic design
    - [9 Web Tools for Creating Infographics](#)
    - [Cycloramic](#) & [Google Street View app](#) - capture 360 degree photos
    - [Thinglink](#) & [Google Drawings](#) - interactive images

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Torrey Trust, Ph.D. is an Associate Professor of Learning Technology in the Department of Teacher Education and Curriculum Studies in the College of Education at the University of Massachusetts Amherst. Her work centers on the critical examination of the interconnected relationship between teaching, learning, and technology; and how technology can support teachers in designing contexts that enhance student learning. Specifically, Dr. Trust studies how educators engage with digitally enhanced professional learning networks (PLNs), how emerging pedagogical tools (e.g., HyperDocs), practices (e.g., Making) and technologies (e.g., 3D printers, augmented reality) facilitate new learning experiences, how to find, critically evaluate, and teach with digital tools and apps, and how to design and use open educational resources (OERs). Dr. Trust served as a professional learning network leader for the International Society for Technology in Education (ISTE) for five years, including a two-year term as the President of the Teacher Education Network from 2016 to 2018.

Dr. Trust's research, teaching, and service in the field of educational technology has received noticeable recognition, including the 2016 ISTE Online Learning Network Award, 2017 Outstanding Research Paper Award for the *Journal of Digital Learning in Teacher Education*, 2017 American Educational Research Association (AERA) Instructional Technology SIG Best Paper Award, 2017 ISTE Emerging Leader Award, 2017 Association for Educational Communication & Technology (AECT) Division of Distance Learning Crystal Award (2nd Place), 2019 AERA Technology as an Agent of Change for Teaching & Learning SIG Early Career Scholar Award, and 2020 AECT Annual Achievement Award. In 2018, Dr. Trust was selected as one of the recipients for the ISTE Making IT Happen Award, which "honors outstanding educators and leaders who demonstrate extraordinary commitment, leadership, courage and persistence in improving digital learning opportunities for students."
www.torreytrust.com

Digital Accessibility

Adam Lopes, Yaxin He, & J. D. Swerzenski

You've done it. You've taken the dive into the digital age. No more analog lectures or text-heavy handouts; now you've got a custom-made website, featuring class materials, assignments, and links to online resources to expand access to learning. The design is stylish, with elegant fonts and a wide array of color choices. Beyond the text, there are photos, audio clips, and embedded videos to keep students' interest. You've even selected a template that is mobile friendly since you know many of your students access the Internet from their phones at home. But as exciting as this leap into the 21st Century might be, there's still one major consideration you need to keep in mind before launching your website: **digital accessibility**.

Chapter Overview: What is Digital Accessibility?

What is Digital Accessibility?

Digital Accessibility is about ensuring that every single person can interact with every single resource on a computer, including software programs, websites, online tutorials and games, videos, podcasts, images, and infographics. "**Digital Accessibility guarantees that the products of a computer, offline and online, will be available for all users**" (Spiegel, 2016, para. 2).

Whether you're designing a website, creating a podcast series, or putting together a presentation to share online, you must keep digital accessibility in mind, otherwise you'll leave out a significant percent of the population. In fact, according to the Center for Disease Control and Prevention, "**One in 4 U.S. adults – 61 million Americans – have a disability** that impacts major life activities" (CDC, 2018, para. 1). There are six types of disabilities to keep in mind when designing for the web: **auditory, cognitive, neurological, physical, speech, and visual** (Henry, 2019). Additionally, some people may experience temporary disabilities (e.g., broken arm) or situational disabilities (e.g., being in an environment where they can't listen to audio). When you design websites with accessibility in mind, you are opening up access to content for everyone, regardless of their ability or situation. Watch "[Accessible tech makes better tech for everyone](#)" by Nina Baliga to learn more about what it is essential to design with accessibility in mind.

[Watch on YouTube](#)

This chapter covers the basics of digital accessibility. First, we'll begin with a discussion about accessibility - from analog to digital, then we'll introduce you to the Web Content Accessibility Guidelines and Universal Design for Learning principles for creating accessible educational websites. We'll wrap up the chapter with a checklist to help you design every educational website with accessibility in mind.

A Brief History of Accessibility: From Analog to Digital

Accessibility issues stretch back much further than the digital era. In the past, many students with disabilities were not allowed into classrooms with their peers. No matter how their disability or disabilities presented, students not considered "able-bodied" were either put into separate classes or excluded from schools altogether. Disability rights activists, such as Edward Roberts pushed against these restrictions. As a student at the University of California Berkeley in the early 1960s, Roberts advocated for on-campus medical resources, note taking aids, and wheelchair accessible ramps to allow disabled persons to access both college facilities and other public spaces (Stein, 1994).

Edward V. Roberts
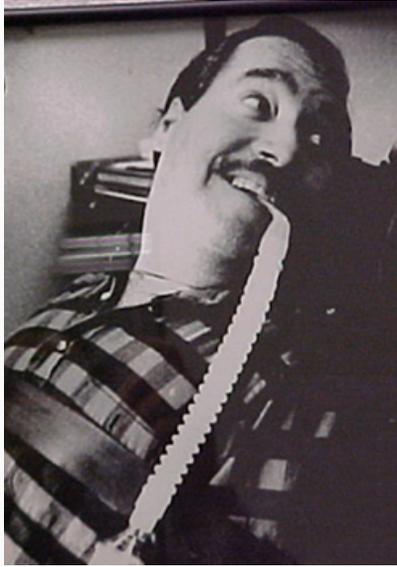
Disability activist Edward Roberts was UC Berkeley's first student with severe disabilities, helping pave the way for other students to enroll (the "rolling quads" as they dubbed themselves). His advocacy helped alter public spaces to make them more accessible for disabled persons. Edward was known as the "father of independent living."

The first major federal recognition for disability rights came with the Rehabilitation Act of 1973, which prohibited disability discrimination among federal employees and employers receiving federal funding (Cullipher, 2018). A much larger step came later in 1990 with the passing of the Americans with Disabilities Act (ADA). This legislation extended beyond federal employees to encompass public facilities and services, mandating all places of public accommodation (stores, restaurants, hotels) to provide wheelchair accessibility, television broadcasters to include closed captioning, telephone companies to provide voice-to-text readers, and many more actions meant to accommodate persons with disabilities (Cullipher, 2018).

Though the ADA has been revised in the three decades since its passage (most recently in 2008), many of its features haven't translated well to the new demands of the Internet age. New protocols such as the **Web Content Accessibility Guidelines (WCAG)** seek to set an international standard for web content accessibility, which we will discuss later in this chapter.

Unfortunately, since accessibility has not been at the forefront of the design process, far too many digital resources are still inaccessible to a large audience. Large institutions like Ohio State estimate they have somewhere between five and eight million individual web pages and most of these need to be revised to meet the Web Accessibility Standards (McKenzie, 2018). Harvard and Yale have recently faced lawsuits over not providing captioning for their videos. In the face of similar legal action, the University of California Berkeley had to take down 20,000 free educational videos because they did not have closed captioning (Ernst, 2017).

This **view of digital accessibility as an afterthought is an issue of social justice**. As educators, our job is to provide learning opportunities that help all of our learners excel. We need to be at the forefront of this issue in role modeling, designing for, and advocating for accessible digital resources. Additionally, when we design with digital accessibility in mind, we can improve learning opportunities for everyone. For example, described and captioned media was originally

known as Captioned Film for the Deaf; however, captions are beneficial to many other individuals, including English Language Learners, people watching videos in a public space (e.g., at a gym) or watching videos on mute to not disturb others, and individuals with cognitive disabilities who can benefit from being able to read along with the narration.

EQUALITY VERSUS EQUITY

In the first image, it is assumed that everyone will benefit from the same supports. They are being treated equally.

In the second image, individuals are given different supports to make it possible for them to have equal access to the game. They are being treated equitably.

In the third image, all three can see the game without any supports or accommodations because the cause of the inequity was addressed. The systemic barrier has been removed.

When you design with digital accessibility in mind, you are removing barriers for all learners.
Image Credit: Advancing Equity and Inclusion A Guide for Municipalities June 2015 © City for All Women Initiative (CAWI), Ottawa

Web Accessibility

Far too often, websites are designed with the "average" able-bodied user in mind - that is, people can see and hear the multimedia, easily move a mouse around to click on links, read text of any shapes, sizes, or colors, and quickly comprehend all of the information a site provides. However, as Todd Rose noted in his TED Talk, **if we design for the average, we design for no one**. So, how can you create a website that is accessible for all users?

First, it's important to understand that people with disabilities may need to use **Assistive Technology** to access a website. Assistive technology (AT) is "any item, piece of equipment, software program, or product system that is used to increase, maintain, or improve the functional capabilities of persons with disabilities" (ATiA, 2019, para. 3). This includes screen readers, screen magnification tools, speech input software, special keyboards, or alternative input devices (e.g., eye tracking software).

Screen Readers

Screen Readers are essential to people who are blind or visually impaired. There are over seven million legally blind people over the age of 16 in the U.S. (Gibson, 2016). Watch the [Screen Reader Demo for Digital Accessibility YouTube video](#) to see a screen reader in action.
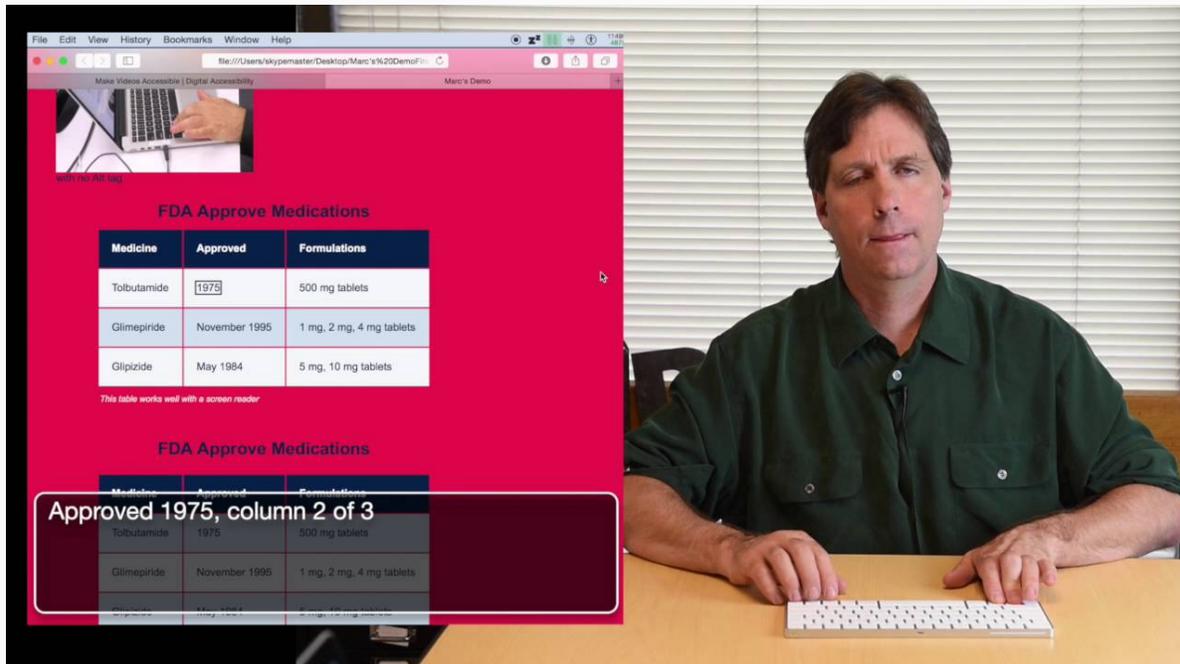
While people with disabilities can use AT to access and navigate the Internet, simply **using AT does not make a website more accessible**: "Even in the best case scenario, assistive technologies can only render information to the user that is available from the system. In other words, if a page has a form on it, the ability of the assistive technology to provide information to the user about the controls in the form is dependent upon the form containing proper markup to convey that information" (Groves, 2012, para. 3).

It is up to YOU as the website designer to create webpages that support the use of AT for accessing information. Now, you might be concerned that, as an educator, you don't have programming capabilities to code websites for AT. Don't despair! Most website design platforms, such as Google Sites, Wix, Weebly, and Wordpress, **offer features that allow you to improve the accessibility of your site without knowing HTML programming**. There are also design choices (e.g., site navigation, color and font selection, content organization and chunking) that you can make to improve your website accessibility.

In the following section, we'll discuss the design choices you can make and platform features you can use to improve the accessibility of your website. But before you move to the next section, take a look at Hector Osborne's "[Dissecting websites through the lens of accessibility](#)" presentation and the [BBC's Accessibility for Products Summary of Recommendations](#) for an overview of key things to keep in mind when designing accessible websites.

Web Content Accessibility Guidelines (WCAG)

To get started with Web Accessibility, watch the following [Introduction to Web Accessibility and W3C Standards video](#) or read the [transcript](#). This video covers the W3C Standards Web Accessibility Initiative and provides a brief overview of

the Web Content Accessibility Guidelines (WCAG): **Perceivable, Operable, Understandable, and Robust.**

Introduction to Web Accessibility and W3C Standards

The WCAG 2.0 Accessibility Guidelines offer an extensive overview of how to make a website accessible, however, many of the guidelines feature suggestions for the backend coding and design of the user interface. If you are working with a web design platform (e.g., Google Sites) and embedding multimedia from third-party sites (e.g., YouTube), you have limited options for what features you can change. So, instead, we have put together a summary of the things you can do to improve the accessibility of your educational website:

Making Text Accessible

- Use Headings to organize and chunk the content and make sure to use Headings in order (Heading 1: Title; Heading 2: Section: Heading 3: Sub-Section).
- Use a large text size (at least 14 pt) for the body of the text.
- Select fonts that are sans serif, which do not have strokes that extend out from the top or bottom of a letter (e.g., Verdana, Georgia, Lucida Grande, more font recommendations).
- Create headings that contain meaningful titles that are relevant to the content.
- Ensure your text is simple, clear, concise, and easy to read (explore Chapter 2: Writing for the Web).
- Omit needless or unusual words.
- Make sure all abbreviations are spelled out at least once.
- When embedding hyperlinks, use descriptive text for screen readers (for example, write: WCAG 2.0 Accessibility Guidelines rather than click here or https://edtechbooks.org/-Xcq).
- Don't use color to differentiate text (it's okay to change text color, but if you want a word or phrase to stand out, it's better to use formatting like bold or italics).
- Organize your pages and text content in a linear fashion. Put the most important content at the top of a page.

Making Multimedia Accessible

- Add alternative text to describe all images (learn more: Accessible Images, Icons and Emojis or view this ALT Text Decision Tree).
- Make sure to only embed videos that have accurate, comprehensive closed captions.
- Provide options for user control of multimedia (don't set an audio file, presentation slides, or video to automatically play; ensure the user can play/pause/playback).
- If you create your own videos, add closed captions in YouTube (watch the video below). It can also be helpful to include a link to the transcript of the video on your site.
- Use a microphone to record high quality, easy to hear narration for an audio file.
- Ensure that background music is not overwhelming in digital videos.
- Provide a transcript of any audio files/podcasts.
- Don't use any flashing animations or GIFs.
- Review Flyers & Infographics Accessibility (A11y) by California State University Northridge Universal Design Center.


Watch on YouTube

Creating an Accessible User Interface

- Ensure the entire website can be navigated with only the keyboard (try the No Mouse challenge).
- If a user needs to input information (e.g., on a form) or click a button, increase the size of these features (for those who struggle with motor control).
- Make use of white space, so the viewer will not be overwhelmed with content.
- Use consistent navigation features (explore the User Interface & Visual Design chapter).
- Organize your content into logical categories. For more information, read Organizing Website Content.
- Make sure there is enough contrast between the background color of the website and the text. The appropriate color contrast is a 4.5:1 ratio between foreground (text and image) and background. Use a color contrast checker to determine whether your background color and font have high enough contrast to make it easy to read.
- Design with color blindness in mind: don't rely on color alone to convey a message, use symbols or formatting (e.g., bold) to make something standout, use a simple color palette, and use patterns and textures to show contrast (learn more: How to Design for Color Blindness).

Designing Accessible Digital Materials

Follow these same guidelines for any digital materials that you create for your students and plan to upload to your site, such as handouts, presentation slides, HyperDocs, spreadsheets, assignments, and more. Also, explore DO*IT's A Tutorial for Making Online Learning Accessible to Students with Disabilities.
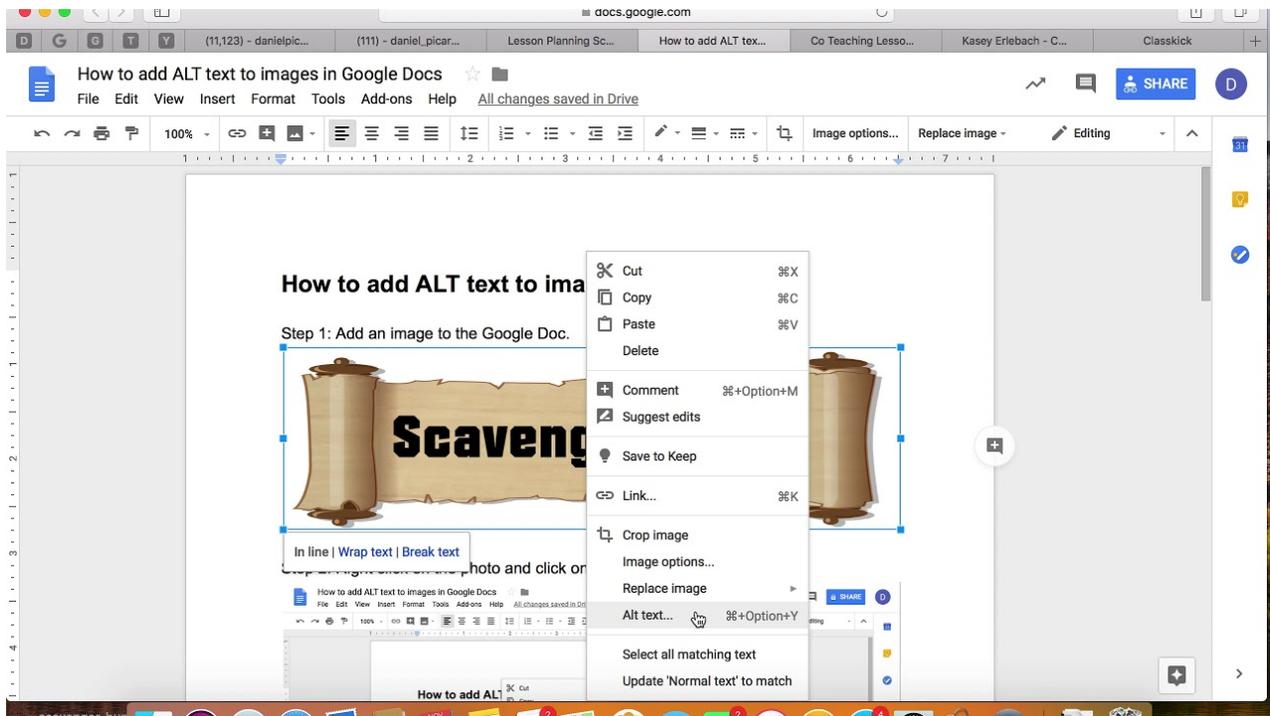
How to Add ALT Text in Google Docs

Check out the [U.K. Home Office's collection of posters](#) with helpful tips and strategies for designing for accessibility.
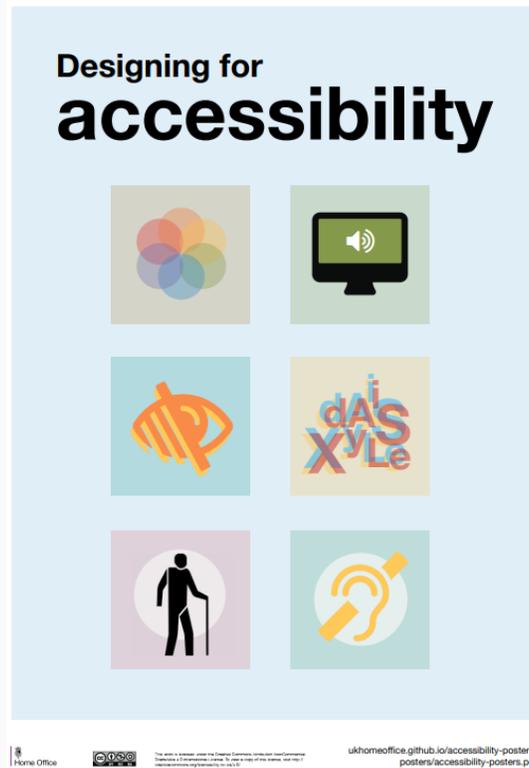
"Designing for Accessibility" by U.K. Home Office is licensed under [CC BY NC SA 4.0](#)

Designing Digitally Accessible Educational Websites

If you are planning to design an educational website that will serve as a teaching tool (not just a repository of classroom resources), such as an online tutorial or course, webquest, online game, or blog, it can be helpful to keep the **[Universal Design for Learning (UDL) principles](#)** (Cast, Inc., 2012) in mind to ensure that your site supports all learners. The UDL principles stem from the concept of [Universal Design](#).

Universal Design

Universal Design is "a broader concept for the **design of products and environments so that they can be used by all people, to the greatest extent possible, without the need for adaptation or specialization**. Sidewalks with curb cuts, ramps to buildings, and doors that automatically open when a person moves near them are examples of universally designed products in the physical environment. They benefit a variety of people — people with disabilities as well as people with bikes, suitcases and strollers, delivery workers, production and building crews and so on. In a learning environment, universal design means providing participants with multiple means of representation, engagement and means of expression throughout the learning process" (Ruukel, 2015, para. 4).

Following Universal Design principles requires thinking about disability outside historic preconceptions of the term. Disability can come in many forms, many of which may not be visible or immediately apparent.

Universal Design for Learning

Universal Design for Learning (UDL) extends the idea of Universal Design into educational experiences. It is about creating accessible learning experiences and environments to support all learners in academic success. When using the UDL principles as a guide for developing your educational website, here are some things to keep in mind:

Multiple Means of Representation refers to providing the learner with diverse ways of accessing content (Hint: a text-heavy website is not the way to go!). Aim to incorporate multimedia, digital manipulatives, and/or online tools (e.g., interactive multimodal timelines) that allow the learner to explore the content in different ways. Give the learner choice in how they want to explore the information.

Multiple Means of Engagement requires finding ways to inspire interest in the topic. This can be done by giving learners the opportunity to choose what and how they learn. Open-ended assignments (e.g., Create a visual representation or podcast about why photosynthesis is important to your life) can motivate interest in learners who otherwise might not connect with the content.

Multiple Means of Action and Expression is about allowing learners to show their understanding of the content in diverse ways. Give them a digital choice board and let them choose how they want to show their knowledge. Don't limit them to tests, quizzes, papers, or discussion forum posts.

Socioeconomic Barriers

While socioeconomic barriers are not considered a type of disability, **these barriers can impact how and whether students access a website**. Coming from a low-income household and lacking access to technology can have wide-ranging effects on a student's ability to engage with or understand digital materials, such as online homework assignments or digital tutorials. "The digital divide, once seen as a factor of wealth, is now seen as a factor of education: Those who have the opportunity to learn technology skills are in a better position to obtain and make use of technology than those who do not" (Bernard, 2011, para. 8).

Students who do not have access to the Internet at home, or are limited by the devices they use to access the Internet, are at a distinct disadvantage over their peers. The cost of laptops and computers is a major issue preventing students from having full access to the Internet. "**Only 44 percent of United States Department of Housing and Urban Development-assisted renters own a desktop, laptop, netbook, or notebook computer**. This rate is much lower than the national average of more than 78 percent and lower than even the 54 percent of households earning less than $25,000 per year that own a desktop, laptop, netbook, or notebook computer" (HUDUser, 2016, para. 23). In order to alleviate this problem educators, and web designers need to create websites that can be easily accessed by smartphones and do not require a high bandwidth (e.g., students shouldn't have to spend their limited cell data having to download videos or view websites with large, high-resolution images that take longer to load).

Socio-Economic Digital Accessibility Checklist

1. Start by **formatting and designing your website for smartphones and tablets**. Check out how your website looks on multiple devices, including: Apple, Android, and Samsung products.
2. Format for use across all computers regardless of brand or operating system. Test this by using your website on different operating systems like Mac, Windows, or Linux.
3. Make sure that your website is formatted for all web browsers. Check this by using different browsers like Google Chrome, Firefox, Microsoft Edge, Opera, and Safari.
4. **Get rid of large files or multimedia** that might slow the loading speed of the page.
5. Finally, ensure that your website is free for all users.
6. Consider offering printed versions of your webpages for students who do not have easy access to the Internet at home.

Conclusion

To sum up, your ultimate aim is to take all groups of people into consideration when designing online courses and educational websites. After all, when we talk about barriers, we are not only referring to people with permanent disabilities but also people with temporary or situational disabilities. What if they read your websites in broad daylight? Or, if they have age-related vision issues? What if they are color blind? Make sure all of your users can easily access the content on your website.

Digital Accessibility Checklist

So now that you've got the basics of Digital Accessibility down, let's go through some of the key things needed to make your digital materials fully accessible to all students:

1. Learn the accessibility guidelines: We'd recommend the [WCAG's video series](#), which lays out the core ideas of digital accessibility in a more, well, accessible way. [The National Center on Accessible Educational Materials](#)also offers the helpful acronym POUR (Perceivable, Operable, Understandable, Robust) to illustrate design concepts in a practical manner.

2. Use an accessibility checker throughout your web design process, such as the [WebAIM Web Accessibility Checker](#). When designing digital resources, such as homework documents or presentation slides, [make your document or presentation more accessible](#) and use accessibility checkers such as the built-in one for [Microsoft Word](#) or [Grackle extension](#) for the Google Suite of tools.

3. Create an Accessibility Statement for your website. This is a powerful way of showing your commitment to digital accessibility. [Accessibility Statement Generator](#) makes this an especially straight-forward process.

Additional Resources

Burgstahler, S. (n.d.). [A Tutorial for Making Online Learning Accessible to Students with Disabilities](#).

Snelling, J. (2022). [Tips for making documents accessible for all students](#). *ISTE.org.*

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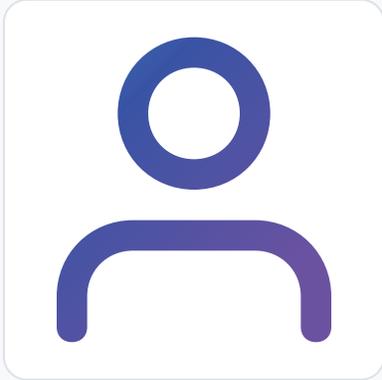
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