# 1.4

# **Information Literacy**

## **Evaluating Online Resources**

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**Learning Objectives**

- Understand differences between website top-level domains and what they mean;
- Recognize quality indicators in online resources;
- Recognize and navigate bias in online resources.

**Media Literacy** is the ability to access, evaluate, and create media in

a variety of formats, and information literacy is a subset of this that constitutes the ability to accurately interpret and understand information that is presented to you. This chapter will focus primarily on information literacy and how to evaluate online resources. With the advent of the Internet, students and teachers have gained unprecedented access to information resources in a relatively unfettered manner. However, part of the reason that access to these resources has become so fast and easy is because traditional quality assurance and control mechanisms have been removed from the process of information resource creation and sharing. This means that students and teachers are faced with information from a variety of sources online and that they must be able to evaluate these resources in a manner that previous generations may not have needed to.
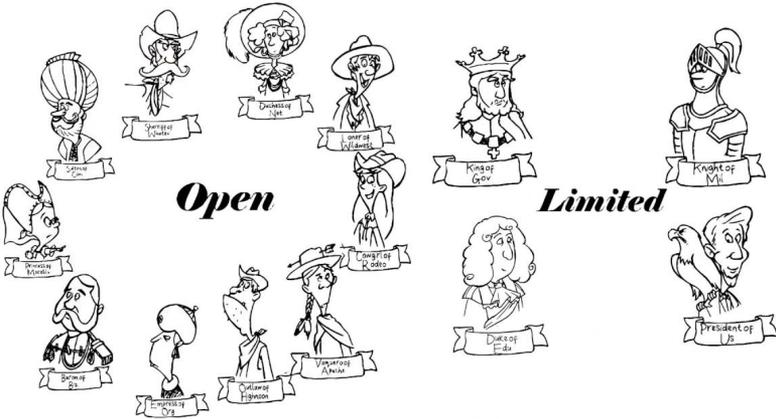


## Key Terms

media_literacy,information_literacy,domain,bias

# Website Domains

Before exploring how to evaluate individual resources, we must begin by understanding how the Internet is structured. If you have ever typed a URL or web address into a web browser, you have used something called a domain. A domain is the primary identifier of a website that is made up of a website name, such as facebook, google, or twitter, followed by a domain type (or top-level domain), such as .com, .edu, or .org. Domains are also often accompanied by subdomains which precede the domain name, the most common of which is www, standing for World Wide Web.

Together, these three identifiers make a fully qualified domain, such as www.google.com, and allow the technologies that connect devices together through the Internet to find the specific resource that a user is looking for. In this way, domains are like physical addresses. Just as you need the correct physical address to send a package to someone, you also need the correct domain in order to access an information resource.

Complete URLs are often very long and included domains followed by a "/" and then additional information. Everything after the "/" points to a specific file or location within that domain. In other words, if the domain is the address, just like a physical address that directs someone to your house, then everything after the "/" directs a user where to go inside your house, such as up the stairs or under the bed.

This is important to understand, because no matter where you go online, you can always tell what location or building you are in by simply looking at the domain and ignoring everything after the "/".

## Domain Purposes and Cautions

Just as different buildings serve different purposes in real life, certain domains are intended to serve different purposes on the web. The

most popular top-level domain, .com, is intended to be used by commercial entities, but this is not regulated.

For instance, if someone wants to start their own restaurant, they can register a domain name (such as mygreatrestaurant.com or myrestaurant.net) and then no one else can use that domain anymore, because the address is taken. The thing to remember though is that anyone can register just about any domain name they would like as long as it is not already taken.

So, if your name is John Smith, you could register johnsmith.com for yourself, or even if your name is not John Smith, you could still register that domain name, because no one is going to check and make sure that it accurately reflects who you are or what you are trying to accomplish.

This means that you could start your own encyclopedia, business, online book, church, forum, or organization and register a domain name for that entity with ease as long as the domain name is available. Since there is so little oversight in this regard, you can actually tell very little about a website from its domain name alone. All you know is that someone somewhere decided to adopt that name as their address this does not mean that the domain name accurately reflects the content of the website or suggests any indicator of quality, accuracy, or legitimacy.

One caveat to this, however, is that some top-level domains do require verification for registration. Though anyone can create a .com, .net, .us, or.org site, some top level domains are restricted and carefully maintained. These include .edu, .gov, and .mil sites. Just as in real life there are public or governmental buildings that no one should be able to own or that require restricted access, domains that end in these letters reveal that the site has some legitimacy as either an educational, governmental, or military institution. When accessing these sites, you still need to consider whether the content is accurate,

but you can at least know that you are accessing a site that is actually run by the institution that the name suggests.

This becomes important to realize if you ever stumble upon unrestricted domains that masquerade as restricted domains. One example would be federal student loan sites. Though the U.S. government provides information about federal loans on its own websites, which end in .gov, there are many websites that a user might think are legitimate government websites but which are not. Rather, they are actually websites created by businesses to generate ad revenue, to collect personal information, or to sell a product to people who are looking for federal loans. For instance, studentloan.com is a website created by a for-profit company, while studentloans.gov is a federal website that provides information on federal student loans. Though the two domains are almost identical, understanding differences in the top level domain can be essential to ensure that you are finding reliable information.

Educational institutions are similar. To register a .edu domain, a potential website owner must prove that it is a legitimate educational institution. Thus, if you do a search for a specific degree or department and the results provided to you include sites that end in .com, then you can be assured that they are not actually from educational institutions.

## Domains in Education

In real life this simple understanding can have drastic influence on students and teachers. For instance, in the early days of the Internet, the official site of the U.S. White House was hosted at whitehouse.gov. However, an adult entertainment website was hosted at whitehouse.com.

As you might imagine, many students and teachers mistakenly accessed this pornographic website when looking for legitimate

information about the U.S. presidency, and even a cease-and-desist letter from President Clinton's cabinet in 1997 was not enough to convince the WhiteHouse.com owner to give up the domain, because it was undoubtedly a huge moneymaker. Had teachers understood this issue of top-level domains and taught their students accordingly, many young children likely would not have stumbled into the site unawares.

Another disturbing example may be found in the case of websites dealing with the life and works of Martin Luther King Jr. Though there are many websites created by people with good intent to teach about this historical figure, there are also many that are created for other purposes. The most stark example of this is martinlutherking.org. Though this domain looks like a legitimate resource and might be one of the first websites that a teacher or student might look to for information about Dr. King's life, upon inspection it is clear that this site is owned and maintained by an author with extreme white supremacist ideologies and provides a very different view of Dr. King's life than is found in most reputable resources.

Just because the website has a domain that looks legitimate does not mean that the content is reliable, of high-quality, or free of bias.

**Learning Check**

Which of the following are restricted top-level domains?

    a. .com
    b. .org
    c. .edu
    d. .gov

When faced with two sites, one that is a .com and one that is a .org, what can we tell about the truthfulness of the sites based upon the top-level domain alone?

    a. they are equally true
    b. the .com is probably more true
    c. the .org is probably more true
    d. you cannot determine truthfulness from this alone

# Recognizing Quality

In terms of quality, not all websites or pages within a website are created equally. High-quality online resources include those that provide accurate, up-to-date, thorough information on a given topic. Judging the quality of an online resource can be difficult for teachers and students, especially if they are not content experts in an area.

However, even if you know very little about the content of a website, there are a few questions that you can ask to help you determine whether or not the provided information is likely to be of high quality. These questions may be found in the excerpt below, and we will proceed by discussing the central idea of each question in more detail.

## Questions to Identify Quality

1. **External Verification:** How well does the resource provide evidence to its claims by linking to external, reputable resources?
2. **Recent Updates:** Does the resource identify when it was created or last updated, and is it recent enough to trust the ongoing accuracy of the content?
3. **Considerate Acknowledgement of Multiple Perspectives:** How well does the resource represent multiple perspectives on the information?
4. **Multiple Reliable Authors:** Are the authors identifiable and reputable, and is the information authored by one person or many?

## External Verification

First, reputable resources are able to substantiate the accuracy of their claims. Even when world leading experts make claims in scholarly papers, they must provide evidence for their claims. Thus, any website that provides information should also provide references and citations to allow you to verify what is being said. Good references and citations will link to external resources that are typically written by different authors or provided by other sites.

Simple or common knowledge claims, such as "Jupiter is a planet" or the equation for the Pythagorean theorem, typically do not need a reference, because there are few that would dispute their accuracy. However, when an author makes an unexpected, new, uncommonly known, or bizarre assertion in an information resource, then that author is obligated to provide sufficient evidence for verifying the accuracy of that assertion.

As an illustration, if you are trying to find biographical information about Eli Whitney and you stumble across biographies on two

different websites, one that has references and one that does not, all else being equal you should consider the website with the references to be a more reliable source of information, because it gives you a means to verify the information that you find in the biography.

In addition, if you discover that one website tells a very different, controversial story about Eli Whitney than is found in other resources, then you should be careful to check the evidence provided with the controversial source and consider if the evidence is sufficient to substantiate the uncommon narrative.

## Recent Updates

Second, information changes quickly. If you look at a textbook in microbiology or astronomy from even 15 or 20 years ago and compared it to the textbook created today, you would find many differences (e.g., Pluto is no longer classified as a planet).

Like any information resource, websites can grow old or stagnant, and the best web resources make it clear to the reader when they were last updated. Many websites do this either by putting a "last updated" date below the title or at the bottom of the page. With this information, the reader can more accurately determine whether the website provides modern information on the topic or is in need of updating.

Though as a medium the Internet itself is fairly young, there are many, many information resources available online that date back to the mid-90s. This is far too old to represent a modern view on many topics of research interest, and for that reason, readers should take into consideration how long ago a resource was created or updated and how this might influence the accuracy of the content.

## Considerate Acknowledgement of Multiple Perspectives

Third, multiple perspectives need to be represented in information resources. In matters that deal with the values, understandings, beliefs, and actions of people and social groups, controversy and disagreement are commonplace, and the same historical occurrence can be praised by one person or group and bemoaned by another.

In these cases, it is common for information resources to make one of two mistakes: they will either ignore alternate or unpopular perspectives or they will dismissively portray those perspectives in a manner that does not give sufficient consideration or interpretive understanding to them.

For instance, a narrative of the bombing of Hiroshima and Nagasaki in World War II might highlight the perceived necessity of the action on the part of the United States public and ignore the compensatory death and destruction suffered by innocent people in Japan. Or it might do the opposite: highlighting Japanese suffering while ignoring the reasons that other nations might have perceived the action to be justified or necessary.

In either case, ignoring or not giving due consideration to competing perspectives suggests that an information resource is not telling the full story and that the information may not be as high quality as another resource that approaches topics in a manner that seeks to openly understand all aspects of the provided information.

## Multiple Reliable Authors

And fourth, in many fields, quality assurance of new knowledge is ensured by increasing the number of experts who create, critique, or provide feedback on creative works. Because we recognize that a variety of perspectives is important for portraying information in an

accurate and reliable manner, resources that rely upon multiple authors will often be of higher quality than resources that rely upon a single author.

Some online information resources do not provide any information about the author, and others are created by a single author who may not be an expert in the area. These resources should be considered dubious. Furthermore, though a single author may be an expert in an area, even experts have biases or areas of emphasis that will lead them to potentially ignore or distort other important aspects of the information.

For this reason the best information resources represent the totality of multiple experts' perspectives and rely upon many different sets of eyes looking at the information to ensure that it is accurate. For this reason, websites that do not provide detailed information about who authored the content or that rely upon a single author, even if that author is an expert, will typically be of lower quality than those resources that are created by many different respected authors.

## Learning Check

An online resource is generally better if it does which of the following?

  a. includes references to supporting evidence elsewhere
  b. was written by someone with an advanced degree
  c. has not been changed recently
  d. was written by multiple authors
  e. acknowledges multiple perspectives

# Recognizing Bias

Even in the case of reputable websites, however, bias is a real

concern that educators must seek to recognize and help students to navigate. Bias represents a person's worldview and how it may guide them in presenting information in particular ways. Bias is typically treated as a bad word. That is, we typically use it in a derogatory sense when referring to the problematic biases of others or by trying to delegitimize their perspective.

For instance, a news reporter might claim that a political official has a particular bias that leads them to act in a particular way and might do so in a manner that assumes objectivity. But, the truth of the matter is that everyone is biased, and bias is an expected part of life. Bias is a natural outcome of the fact that people have different experiences, life views, and ideologies. If someone claims to be unbiased, this typically means that they are not aware of their own bias, are unwilling to admit their bias, or perceive the worldviews of others as being illegitimate. Some professionals will seek to reduce their own bias, as in the case of news reporters or scientists, but even in these cases bias directs what professionals do, how they do it, what they say, and how they say it.

Thus, when we approach the world and what other people try to tell us about the world, we need to do so recognizing that any information provided by another person will have bias. This does not mean that it is bad or erroneous but only that we need to understand the bias associated with the source of our information and use that as a lens for understanding and interpreting information.

In the case of the internet, every information source available online is created and shared by someone with some form of bias. This does not mean that information online is illegitimate but rather that if we want to understand and accurately interpret the information we find online, we must understand the biases of those creating and sharing it. To do this, internet users should ask themselves four basic questions when accessing any information resource online. These questions may be found in the excerpt below, and we will proceed by

discussing the central idea of each question in more detail.

## Questions to Identify Bias

1. **Ownership and Trust:** Who owns, authors, and maintains the information or website, and why should you trust them?
2. **Explicit vs. Implicit Bias:** Is bias explicit or implicit?
3. **Controversy:** Might the content be controversial or subject to interpretation?
4. **Primary Goal:** What is the resource's primary goal, and how might this impact what and how content is presented?

## Ownership and Trust

To understand bias, the simplest place to start is to recognize who created the resource. Often, websites created by an organization will provide informational pages devoted to explaining the mission, history, and goals of the organization. These may not always be accurate or fully disclosed, but they are a good place to start.

Because every organization will have its own biases, the purpose for exploring this is not to determine whether or not biases exist but whether you believe the organization is trustworthy enough to believe the information that is presented. Thus, when looking up information about medical treatments, reading informational pages about the Mayo Clinic may lead you to treat it as a more legitimate resource and informational website than one created by an herbalist operating out of his backyard greenhouse.
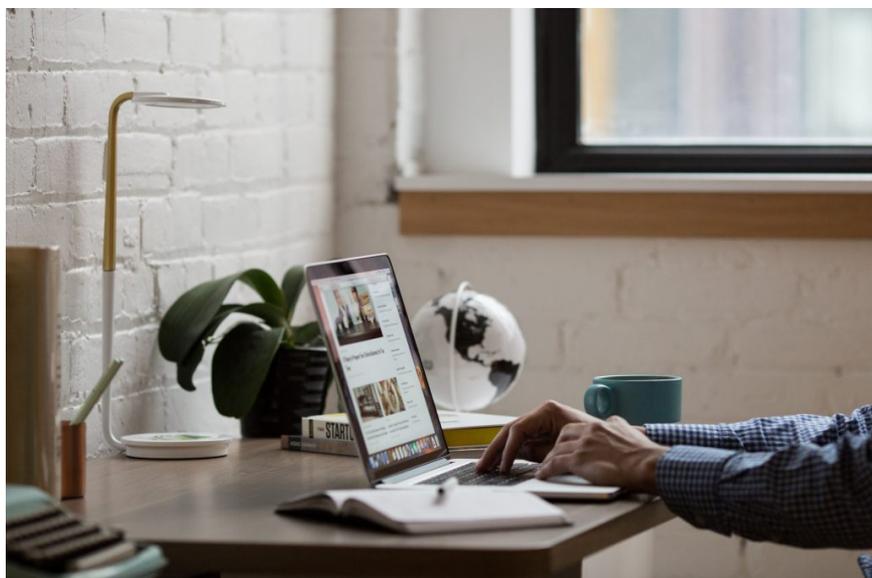
Typically, more legitimate information resources will provide you with more information about the owner so that you can make informed decisions on whether or not you trust the resource, whereas less legitimate resources will try to hide or ignore traditional indicators of legitimacy, such as institutional standing, credentials, degrees, and so forth, in order to establish their own competing form of legitimacy.

Because the internet gives everyone a potential megaphone by which they may be heard by the world, you need to realize that absolutely anyone can be using that megaphone, no matter how uninformed, malicious, or dismissive they may be. Be careful trusting resources from individuals or groups that claim legitimacy specifically because they contradict reputable institutions and groups, such as self-proclaimed scholars who claim to have the "real" truth about a topic that the academic community is not "ready to hear" or self-proclaimed physicians who lack appropriate medical licensing and credentials for the claims that they make and claim to be "ostracized" by medical institutions.

In short, if a site claims legitimacy by claiming that all other resources are illegitimate, then that site should make a compelling case for doing so that is subject to the same scrutiny and quality assurance measures as the resources it is seeking to delegitimize.

Not every information resource, however, will provide you with background on those who created it. In these cases, you should be especially careful, because if someone is not willing to own the information they provide, then it is not clear why you should trust them. Sometimes websites will try to misrepresent who owns the site such as when a politically polarizing group might create a site through a go-between organization that has a less polarizing name or connotation.

In these cases it can be difficult to determine trustworthiness of that individual resource, but typically good information can be found from a variety of resources, so rather than focusing all of your attention on trying to determine whether a controversial claim provided by a single website is actually legitimate, your time will often be better spent trying to see if that claim is repeated on other websites whose legitimacy and trustworthiness are more easily determined.

## Explicit vs. Implicit Bias

Because bias is never eliminated fully, responsible authors and websites should try to make their own bias as explicit as possible to allow their readers to recognize how those biases might influence the information that is presented.

Explicit or visible bias is preferable to implicit or hidden bias because implicit bias typically masquerades as being bias-free. That is if an author is unwilling to tell you their bias that does not mean that they are unbiased but rather that you as the reader now have to not only read what they are saying but also try to figure out what their bias is without them explicitly telling you. Some websites are very clear in

their bias. Thus, when researching topics of a political nature, it is important to be able to recognize what political parties and ideologies are behind the information that you are reading. If that bias is not explicit, then it is difficult for you as a reader to determine whether you are reading a legitimate information resource or you are the intended target of propaganda.

Even resources that have very wide exposure in our society may have very extreme biases. News organizations are an easy example. Though reporters and news agencies typically do not express their own biases explicitly, they are quick to accuse other reporters and news agencies of exhibiting bias. Thus, the MSNBC and Huffington Posts of the world will be quick to point out the bias present in Fox News and Drudge Report, and the latter will do the same in reverse, but rarely will they explicitly state their own biases and how this may shape what they report, how they report it, and what they do not report.

As teachers and students, then, we should try to recognize the explicit bias of information resources we use but also recognize that if bias is not explicitly stated, this may be a sign of even greater danger and misunderstanding, because bias is being ignored or hidden.

## Controversy

Another issue to consider is whether the information you are accessing might be controversial in nature.

Some topics will be much more controversial than others. For instance, political, ideological, and religious topics can stir up significant controversy, because they deal with issues upon which people might have deep-seated divergent perspectives upon which their worldviews are established.

This means that if you find an information resource that deals with

potentially controversial matters without giving sufficient consideration to the perspectives that others might have on the issue, then you should recognize that information source might not give you all that is needed to make an informed decision.

Even sites that have clear ideological viewpoints can provide information in a legitimate and useful way if they do so in a manner that respectfully considers dissenting perspectives. Whenever there are controversial matters, it is easy to find resources that provide a skewed view, leaning either one way or the other. This is fine and expected, because people should take stances on controversial issues, and people and organizations have the right and responsibility to make their stances known in online information resources.

The point here is that teachers and students need to be aware of controversial issues and recognize that if an information resource does not at least recognize the controversial nature of the information it is providing and also address that controversy in a respectful manner, then that information resource is likely suspect, because it does not recognize its own bias and does not provide information in a manner that reflects the complexity of real life.

## Primary Goal

And finally, once you have identified the owner of an information resource, recognized implicit or explicit biases, and determined the controversial nature of the information being presented, you should also consider the purpose or goal of the author for creating the information and sharing it to begin with.

Information is shared online for really only one of two reasons: either to make money or to support an ideology. Resource creators make money through information sharing by selling either products, access to resources, or advertising space.

If you visit a website that requires paid subscription or that presents you with advertisements, you can know with certainty that the website exists to make money. This does not delegitimize the information on that website, but it is important to recognize that the owner will undoubtedly provide information in a manner that favors revenue generation. This might mean sensationalizing content to increase traffic to the website, providing information in a simplistic manner, appealing to a particular target audience and ignoring the perspectives of others, or favoring content quantity over quality.

On the other hand, resources created for ideological purposes vary greatly in terms of the ideologies they operate on and also how this influences the type of information that is provided. A nonprofit organization like Wikimedia Foundation, for instance, might exist for the sole purpose of providing accessible information to all, whereas a political campaign might provide information resources to get a person elected.

In these two cases, the ideology of the organization will dictate what information is provided and how it is presented and maintained. Just as everyone has a bias, every site has a goal, and you need to understand the goal of the website in order to be able to meaningfully evaluate provided information.

## Learning Check

Which of these resources are unbiased?

 a. Wikipedia
 b. Fox News
 c. Huffington Post
 d. New York Times
 e. [ none of the above ]

According to the chapter, which of the following statements are true?

 a. We should be more careful about bias when interpreting information on more-controversial topics (e.g., abortion) than on less-controversial topics.
 b. Explicit bias is preferable to implicit bias.
 c. An author's background and motives should not be considered when evaluating the veracity of the information they provide.

# Conclusion

In this chapter, we have explored some of the primary considerations for evaluating online resources. Teachers and students today are constant consumers of online information, but we must strive to ensure that they are informed consumers. By understanding the significance of domain names, teachers and students can determine whether a website represents a legitimate governmental or educational institution, and by employing the guidelines provided regarding quality and bias, teachers and students can more effectively navigate the vast array of information resources available online and make informed decisions about their accuracy and value.
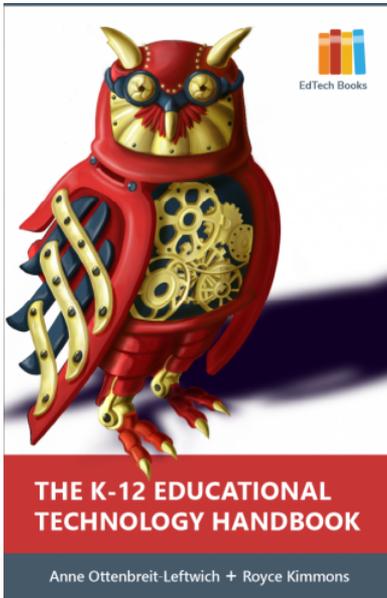
Kimmons, R. (2018). Information Literacy: Evaluating Online Resources. In A. Ottenbreit-Leftwich & R. Kimmons, *The K-12 Educational Technology Handbook*. EdTech Books. Retrieved from https://edtechbooks.org/k12handbook/online_resources