

Why more schools aren't teaching web literacy—and how they can start

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If you follow the dictate that we teach what we test, it's understandable why schools haven't spent more time preparing students to be web literate since NCLB was passed.

In 1998, a 15-year-old high school student used the personal website of a professor at Northwestern University, Arthur Butz, as justification for writing a history paper called "The Historic Myth of Concentration Camps."

That student, who we will call Zack, had been encouraged to use the internet for research, but he had not been taught to decode the meaning of the characters in a web address. When he read the web address, <http://pubweb.northwestern.edu/~abutz/di/intro.html>^[2], he assumed that the domain name "northwestern.edu" automatically meant it was a credible source. He did not understand that the "~" character, inserted after the domain name, should be read as a personal web page and not an official document of the university. As with any media, punctuation counts.

Without web literacy, Zack believed Butz's explanation. Zack read about how the Nazis were fighting typhus, a disease carried by head lice. He went on to read that the pesticide Zyklon was used to kill the head lice—not the prisoners in the gas chambers. Without basic knowledge of web punctuation or the skills necessary to validate internet content, Zack was at a disadvantage to think critically about what he was reading. He had been taught to read paper, but he had not been taught to read the web. Zack was illiterate in what undoubtedly has become the dominant media of our society. At the time, Zack's teachers also were illiterate about the web.

It turns out that validating content is not rocket science. Even a first-grade student can begin to understand the organization of information on the web. It seemed obvious at the time that understanding the grammar, punctuation, and syntax of the internet was so basic to being literate in our web-based society that schools immediately would begin to teach all children web literacy. Yet, that hasn't been the case in most schools.

It is our sense that two forces have worked in historic tandem to create the conditions where most of our schools do not teach our children basic web literacy. One is NCLB, which—even though it included funding for technology and staff development—we believe has had a chilling effect on introducing any innovation to the U.S. curriculum. The second is that web filtering became the de facto policy for keeping children "safe" online.

Instead of taking the high moral ground to teach students how to deal with odious content and the ethics and critical thinking skills that go along with social media sites such as [Facebook](#)^[4], [Twitter](#)^[5], and [YouTube](#)^[6], too many schools simply block these sites. As a point of information, the Children's Internet Protection Act (CIPA) does not require schools to block social media sites (see "[FCC opens access to social media sites for e-Rate users](#)"^[7]).

To this day, when we visit schools and give students various research problems to solve, it is the very unusual student—who is usually self-taught—who understands how to decode content on the internet. We know many librarians and individual teachers who creatively include web literacy in their curriculum. Colleagues such as Joyce Valenza will tell you this is not enough. As we did with books, we need every teacher to be web literate and to be designing assignments that require students to learn how to research and decode across grade levels and subject areas.

Retooling the research process

The web has grown exponentially during the past 15 years, and new concepts such as search engine personalization have emerged in this time. To learn how everyday search behavior can lead unwittingly to a more narrow view of the world, read Eli Pariser's book, *The Filter Bubble*, or see the story "[New web-search formulas have huge implications for students and society](#)"^[8]. While their access to these sites might be blocked in school, our students are accessing vast amounts of information every day when they leave school via unfiltered search engines and social media sites like Twitter, Facebook, and YouTube.

This reality should be a warning to all educators that we must prepare our students to make meaning from the overwhelming amount of information at their fingertips, and we must guide their ability to create and publish new information worldwide. To do this effectively, we must return to the basics of what it means to be a good researcher—but at the same time, we must look at the new tools our students have access to.

In our original 1998 article "[Teaching Zack to Think](#)"^[9], we focused on teaching students techniques that would allow them to search with more purpose. This skill, while still important, is only one of three pillars we believe are now essential to be web literate. These three pillars are...

1. **Purposeful search:** Using advanced search techniques to narrow the scope and raise the quality of information found on the web.
2. **Effective organization and collaboration:** Being able to organize all of this information into a comprehensive and growing library of personal knowledge.
3. **Sharing and making sense of information:** Sharing what we find and what we learn with the world, and using the knowledge of others to help us make more sense of it all.

If you follow the dictate that we teach what we test, it's understandable why schools haven't spent more time preparing students to be web literate since NCLB was passed. However, the Common Core State Standards that 46 states have agreed to follow does require that students be able to manage web-based information. David Coleman, contributing author of the Common Core State Standards, says that students must be able to "...[read like a detective and write like an investigative reporter](#)"^[10].

The learning progressions articulated in the Common Core State Standards are structured to support students as they develop competency in discovering meaning, analyzing content, comparing information, synthesizing, and applying and sharing their understanding. Without foundational and working knowledge of information and web literacy, students will not be able to exhibit the range of functional and critical thinking skills required to conduct even the simplest research tasks.

Effective organization and collaboration

We'll focus on the first of the three pillars of web literacy, purposeful search, in a subsequent article. As for the second pillar, assuming that Zack learns how to find high-quality information online, he'll still need to develop organizational methods that enable him to make effective use of this information as he creates new content by himself and with others around the world.

A logical starting point to teach students how to be organized and to collaborate in their search experience is to teach them how to use [Diigo](#)^[11]. Diigo, a social bookmarking tool, allows a researcher to organize sites and images from the web, as well as personal notes, using keywords called "tags." These tags are set up by individual users and can relate to subjects, content areas, individual projects, and more. In addition, all of these collected resources can be annotated and enhanced through embedded sticky notes. To learn more about the basics of Diigo, watch this [online overview](#)^[12].

The advanced researcher can take Diigo much further. For example, while Zack might have found a few valuable sites about the Holocaust on his own, he might want to connect with others who have been tagging material on the Holocaust for years. To do this, Zack can use Diigo to search for online groups that are sharing resources about the Holocaust. Currently, there are nearly 200 groups sharing

information on this topic! A little time spent searching through these groups might prove to be more productive than spending the same amount of time searching with Google.

Additionally, if Zack has classmates who are working on this paper with him, they can all agree to use a specific tag, known only to them, within each of their own accounts. From there, a simple search on Diigo for this tag would provide each student with the resources found by all.

One of the greatest benefits of using such a tool is that the students' libraries follow them from class to class and from year to year. Therefore, a student who studies biology as a part of the seventh-grade curriculum can return and add to the resources found when taking biology again in high school and then in college.

For teachers who are interested in using this organizational tool with their students, we highly suggest signing up for an [educator account](#)^[13]. Doing so will allow you to create class accounts easily for all of your students and also immediately makes them part of a class group for easy sharing.

Sharing and making sense of information

We are currently witnessing an explosion in the use of social media on the web. For many, this use is for personal purposes—keeping track of friends, interacting with various types of media resources, and sharing interests with others. But another segment of the population is making use of social media to advance their own learning. Services like Twitter, Facebook, [Pinterest](#)^[15], and [Google+](#)^[16] are allowing connected learners to develop personal learning communities of like-minded individuals who are sharing rich learning resources with one another on a variety of topics. Those who are using these personalized networks insist that some of their most important learning opportunities take place online with individuals they have never actually met.

Previously, researchers were confined to local research groups and formal classroom interactions. Beyond these organized efforts, their connections with others were confined to one-on-one phone calls or group eMail messages that bounced around among participants. However, online social networks are allowing adult and student researchers to share and make sense of knowledge they collect in a more fluid manner. Through these interactions, researchers are able to gain a broader perspective from individuals with varying backgrounds.

Looking at Twitter, for example, we can use a similar organizational method that we saw with Diigo to find focused information on topics of interest. Twitter's method is simply a short word or phrase (like the tags in Diigo) preceded by the "#" symbol. This is called a hashtag. Searching through Twitter using a hashtag allows users to get past all of the shared information not related to the topic at hand.

To do a search like this, first you would need to find an appropriate hashtag. For this example, we'll use a hashtag from our [Popular Education Hashtags](#)^[17] document. We'll select *#stem* for STEM education. Now, go to Twitter's [search tool](#)^[18]. Type *#stem* in the search box as the query. Immediately, everything on Twitter has been filtered out except for content being shared about STEM-related fields. This content would include helpful websites, articles, or answers to others' questions. Now, let's say you want information having to do with STEM careers. At the top of the search results, click the gear button and go to the advanced search page. There, you will be able to add *careers* to your query, thus doing some further streamlining.

For student researchers, understanding how to use methods like this and having the ability to connect to experts and peers who deeply understand specific areas of knowledge can add valuable perspective and broader connections to a topic of research. Even from early grades, we recommend having a class Twitter account. We also recommend having the aforementioned hashtag handout in a public place near a classroom computer.

As questions come up in class, have specific individuals send out these questions and request further information from the "Twittersphere." As they do this, encourage students to identify the best hashtag

to target their queries. Then, as students begin to develop new content that brings together what they have learned, have them share their thinking and their products with others—again, using the appropriate hashtags. In time, this will become second nature for students and will demonstrate how these tools can be used ethically and educationally.

For Zack, sharing and inquiring about the research he found on the professor's website using the hashtag *#holocaust* could have been quite eye-opening. Through making powerful connections and digging deeper into the content he was learning with others who share a passion for this topic, Zack

Conclusion: Good research hasn't changed

In the 14 years since the original writing of "Teaching Zack to Think," the web has seen dramatic changes in the quantity and variety of information to which we all have access. What hasn't changed is the need to learn how to properly navigate and make the most of these resources. We must remember that good research is still good research. The technology we access each day hasn't changed our need to bring rigor and purpose into the work that students do. Understanding the three pillars of modern-day web literacy will take students to new levels of ability. By helping students like Zack further develop skills in finding, organizing, and making sense of information, whether in books or online, we will be preparing them for greater opportunities to thrive—no matter what changes technology has in store in the future.

In our next article, we'll provide guidance for teaching students critical web research skills—the first pillar in our three-part web literacy framework. More information can be found at <http://novemberlearning.com/educational-resources-for-educators/information-literacy-resources/>^[19].

Alan November is the founder and Brian Mull is the director of innovation at November Learning. They invite your questions through their website at <http://www.novemberlearning.com>^[20].

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URLs in this post:

[1] Image: <http://www.eschoolnews.com/files/2012/05/student633-150x135.jpg>

[2]

<http://pubweb.northwestern.edu/~abutz/di/intro.html>: <http://web.archive.org/web/20060613172033/http://pubweb.northwestern.edu/%7Eabutz/di/intro.html>

[3] click here: <http://www.eschoolnews.com/blc.html>

[4] Facebook: <http://www.facebook.com>

[5] Twitter: <http://www.twitter.com>

[6] YouTube: <http://www.youtube.com>

[7] FCC opens access to social media sites for e-Rate users: <http://www.eschoolnews.com/2011/09/26/fcc-opens-access-to-social-media-sites-for-e-rate-users/>

[8] New web-search formulas have huge implications for students and society: <http://www.eschoolnews.com/2011/08/10/new-web-search-formulas-have-huge-implications-for-students-and-society/>

[9] Teaching Zack to Think: <http://www.novemberlearning.com/teachingzack>

[10] read like a detective and write like an investigative reporter: <http://vimeo.com/24930297>

[11] Diigo: <http://www.diigo.com>

- [12] online overview: [**http://vimeo.com/12687333**](http://vimeo.com/12687333)
- [13] educator account: [**http://www.diigo.com/education**](http://www.diigo.com/education)
- [14] click here: [**http://blcconference.com**](http://blcconference.com)
- [15] Pinterest: [**http://www.pinterest.com**](http://www.pinterest.com)
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