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## Web Tools: Keeping Learners on Pace

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# web tools:

## KEEPING LEARNERS ON PACE

BY MICKEY  
KOSLOSKI



*The unique context of the game introduced ethical dilemmas that integrated ethics education into a technical education classroom setting.*

### INTRODUCTION

One of the greatest challenges in teaching technology and engineering is pacing. Some students grasp new technological concepts quickly, while others need repetition and may struggle to keep pace. This poses an obstacle for the technology and engineering teacher, and is particularly true when teaching students to build a website. However, there are a plethora of online tools available that can assist learners in building a website. By using simple and free tools, one can not only make teaching easier but can also enhance student learning (Ottenbreit-Leftwich, Glazewski, Newby, & Ertmer, 2010). Providing both students and teachers with a web-authoring tool kit helps to stretch the more technologically savvy student as the others keep pace. In addition, it assists in helping the technology and engineering teacher to develop useful and effective websites used in recruitment and other forms of student communication. This meets with *Standards for Technological Literacy (STL)* Standard 17-P: There are many ways to communicate information, such as graphic and electronic means (ITEA/ITEEA, 2000/2002/2007). Ertmer, Ottenbreit-Leftwich, Sadik, Sendurur, and Sendurur (2012) noted that 96% of teachers utilize web tools to communicate with both students and parents. This article identifies some of the tools that may be used in the classroom and for classroom-oriented, teacher-hosted websites. While specific examples are provided, Web search terms are denoted at the end of each section to help determine which tools are best

suited for the classroom. Understanding the capabilities of free online tools is a key to building a tool kit for both the teacher and his or her students.

### FUNDAMENTAL TOOLS

#### *Web-Authoring Software*

Whether building a site for students/parents or the teacher, a preliminary step is identifying a web-authoring software to use. It may be an online tool (such as web.com or wix.com), an open-source download and installation (such as openElement or KompoZer), or a more comprehensive software such as Adobe's Dreamweaver (Stokes, 2013) if the budget permits.

There are advantages and disadvantages for each. The online tools may be much simpler to learn and often provide a complete WYSIWYG (what you see is what you get) working environment, but they often lack flexibility and may include built-in advertisements. Attempting to extend student knowledge beyond the most basic capabilities can be difficult. While simplicity may be an advantage, the teacher should keep in mind technologically savvy students. By inhibiting their limits via software options, you may also inhibit their abilities to move ahead as the others keep pace. This lack of flexibility can sometimes be prohibitive and not permit students to maximize learning (Krug, 2013).

Open-source software tends to be more challenging to learn, but it also generally adds more



**Teaching tip:** For some of the more simplistic tools that students will be using, consider letting your more advanced students hone up on the skills necessary, and then allow them to “teach” the basics of those tools to the remainder of the class. Preparing to teach the tools will keep them engaged and on pace.

flexibility than does the online software. However, budget is generally a critical consideration in public education. If resources are available to buy web-authoring software, students will be provided with the most opportunities for exploring what web-authoring software can do, including building mobile apps (Ullman, 2013). This is likely the most beneficial option when attempting to provide new skills to advanced students, but not the only viable option.

**Web search keywords:** *Free Web authoring software, free Web design software*

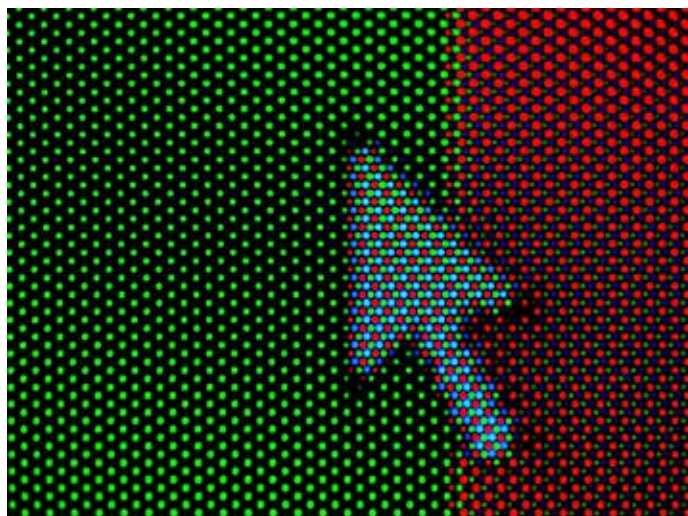
### Graphics

One clear distinction between an amateur and a professional website is graphics (Hasan & Abuelrub, 2011). Most Internet users have encountered amateurish-looking sites that use clip art and animation on every page, but with so many graphic design tools available, it is essential to utilize those tools (Kosloski & Davis, 2015). Technology and engineering teachers and students may be fortunate enough to have a graphics design software such as Adobe’s Photoshop. However, such software may not be budgeted, or the teacher may determine that he or she does not wish to spend as much time teaching graphics as teaching Web authoring. If so, a more simplistic or less expensive alternative may be preferred over such robust programs.

Some free online graphics programs, such as GIMP, provide a robust yet free opportunity for sophisticated graphics creation and editing. However, the learning curve for such software is greater than other available options. If the course objectives

relate to teaching Web authoring, other, more simplistic options may be more appropriate.

There are many online graphics generators, depending upon what is to be accomplished. They can provide professional-looking backgrounds, buttons, 3D text, and even animations that can be quickly and easily learned by the uninitiated with a very low learning curve (McNeil, 2014). For example, Stripe Generator 2.0 or Background Labs can create some very interesting page backgrounds with very little skill or effort, while CoolText and GRSites allow users to build point-and-click text and buttons by selecting predesigned templates and changing colors, shapes, dimensionality, and more. An important note, however, is to rec-



ognize that students may get carried away with these new, simplistic tools, and can create very gaudy graphics just because they have the know-how. If that is not the intent, student usage should be closely monitored. Graphics tools can help even the most novice user to create sophisticated graphics, allowing teachers to spend more time teaching web authoring and less time focusing on ancillary skills. Development of graphics helps students to meet *STL Standard 17-Q: Technological knowledge and processes are communicated using symbols, measurement, conventions, icons, graphic images, and languages that incorporate a variety of visual, auditory, and tactile stimuli (ITEA/ITEEA, 2000/2002/2007).*

**Web search keywords:** *Free graphics design software, free graphics software, background generator, button generator, 3d text generator*

## ADVANCED TOOLS

Ultimately, if students learn a web-authoring software and know where to go to build graphics based on their skill level, then they have the basics needed to author a website. It may take some students quite a while to master these fundamental tools, while others conquer them early on. For advanced learners, there are countless free tools that can be used to build and enhance a website. More often than not, advanced learners tend to be enthusiastic about their skills, and these tools can truly help an advanced learner to be engaged and to want to learn on his or her own. The best part is that there is virtually no limit to how much learning they can do. They can select the tools that interest them most and that are best suited for the website they are building. As they master one tool, they can then move on to address another, applying each one to their website and seeing the fruits of their labor. Ultimately this will keep advanced students engaged while meaningful learning is taking place.



Forum.

## SEARCH TOOLS

Having an internal search tool (that searches your site OR the web) on a larger website is generally considered essential (Kosloski & Davis, 2015; Ullman, 2013). While students may be building a limited and fundamental site to meet course objectives, exposure to a site search is important as students progress into the future. Sites such as FreeFind and SiteSearch provide online hosted internal search generators, and students only need to design and customize the search tool and then copy and paste the code into their site. They are generally completely customizable to ensure that they look and feel the way the student wants. One drawback is that most free search sites do include a small advertisement attached to the search box. An added benefit to search tools is that they generally require composers to answer questions regarding indexing of their site (Hasan & Abuelrub, 2011). They may be prompted for keywords and other metadata, helping the student to learn the fundamentals of search engine optimization. Incorporating search tools into one's website helps students to develop *STL Standard 17-N: Information and communication systems can be used to inform, persuade, entertain, control, manage, and educate (ITEA/ITEEA, 2000/2002/2007).*

**Web search keywords:** *Internal search tool, site search tool*

## SCRIPTS

JavaScripts, or snippets of code that can be pasted into the HTML of a website (Strauss & Frost, 2013), have a wide variety of uses, from fun in nature to extremely functional. Some of the more common scripts are clocks, calendars, games, menus, special effects, email, forms, and form validation, to name a few. Some web authors are proficient in writing JavaScript, but this requires a level of programming probably not acquired by your students or many teachers. However, JavaScript authors often post their scripts online for others to use. If and when acknowledgement is required by the host site, generally all that needs to be included on the user's site is to give the author byline credit. Sites such as JavaScriptKit and Dynamic Drive offer hundreds or thousands of scripts for interested web authors. Users simply navigate through the categories, select the desired script(s), and the code is provided, ready to copy and paste into a web page.

**Web search keywords:** *Free JavaScript, free DHTML*

## NAVIGATION

One thing that all web authors need to consider—whether novice or seasoned—is how to implement a navigational system that will allow their visitors to easily find what they are looking for (Krug, 2013; Hasan & Abuelrub, 2011). This is a skill that many

students and adults alike find challenging, but having the right tools at their disposal may make this task much easier. Students who are at the lower end of the technological spectrum may be relegated to simply building buttons on their site and linking them to other pages. In many cases, this may be adequate. An advanced learner may wish to build a more sophisticated system that includes Flash menus or stacked drop-down navigational bars. Flash menus can be very appealing and functional, such as those that can be built at FlashMenus.net. And stacked drop-down navigational bars allow the web author to build layer after layer of subheadings into a menu bar that only uses a small amount of “real estate” on the web page (McNeil, 2014). Buttongenerator.com, amongst other websites, provides an almost limitless number of combinations to make a custom navigational bar that will suit any site. Analyzing and developing a navigational system allows students to develop *STL Standard 17-J*: The design of a message is influenced by such factors as the intended audience, medium, purpose, and nature of the message (ITEA/ITEEA, 2000/2002/2007).

**Web search keywords:** *Flash menu, drop-down menu builder*

One important thing to note when using Flash generators is that is that Apple products may not recognize Flash, and therefore cannot be read on some Apple computers, iPhones, iPads, etc. In spite of its visual appeal, it may be safer to avoid the Flash menus in lieu of those that use other scripts.

## FORMS AND DATABASES

Forms enable a site visitor to submit information to the host. The simplest forms provide an email response to a designee, while others collect information and store it in a database for future use. Web authors can use forms to do anything from requesting feedback to taking orders and collecting large amounts of data (Ullman, 2013). Many of the free online forms, such as response-o-matic and JotForm also collect and store data for the web developer for future retrieval. While most of the free form builders are limited either in capacity (i.e., 100 submissions per month) or in the number of forms that can be built at a time (usually one or two), they are generally simple to use and provide an excellent learning tool for students. These limited capacity forms may also suffice to meet teachers' needs. Including relevant databases in one's site helps students to develop *STL Standard 17-O*: Communication systems are made up of source, encoder, transmitter, receiver, decoder, storage, retrieval, and destination (ITEA/ITEEA, 2000/2002/2007).

**Web search keywords:** *Free online (Web) forms*



## POLLS, SURVEYS, AND BLOGS

Polls, surveys, and blogs are an excellent way to generate interactivity on a website with the end user. A good poll or survey is generally simplistic in nature and is updated regularly, or even daily, to encourage visitors to revisit the site (Strauss & Frost, 2013). Blogs are ongoing communication, and they help to build an online community for visitors with similar interests, which also encourages regular visits (Macy & Thompson, 2011). Sites such as freepolls.com provide simple yet custom poll design for even the most novice user, and blog sites such as Weebly can help designers build sophisticated drop-and-drag blogs. Blogs may be imported into one's site, or in some cases are hosted by the sponsor, while a link to the blog can be created to make it appear that it is hosted by the Web author.

**Web search keywords:** *Free polls, free surveys, free blogs*

## GAMES

Including games on a website is yet another way to encourage visitors to revisit (Stokes, 2015), while teaching your students the fundamentals of web authoring. Some games can be very simplistic, such as hangman, and can be found in simple Java Scripts. More sophisticated games can be easily downloaded and inserted into a webpage. Sites like dailyfreegames.com provide hundreds of games that can be downloaded and embedded into a webpage. Much like graphics software, the danger here is ensuring that students do not go off track and focus more on playing the games than embedding them. The purpose of the game in relation to one's website needs to be strongly emphasized.

**Web search keywords:** *Free Web-authoring games* (note that searching “free online games” will not provide desirable results. You may wish to select these sites in advance.)

### TRACKING

Site tracking can provide web authors with an abundance of information and can be an excellent learning tool. Sites like [extremetracking.com](http://extremetracking.com) can provide not only the number of visitors to a website, but also how many are unique, the geographical location of the visitor, how they arrived at your site, which days of the week provide the most visitors, what web browser and resolution were being used (which can be VERY helpful in learning how to design a website), and much more (Strauss & Frost, 2013). Most trackers are extremely easy to embed into a web page and provide considerable analytics about one's site, providing an excellent learning opportunity.

**Web search keywords:** *Free website trackers*

### CRUNCHERS

One challenge for many students in building a feasible website is keeping down the file size of their pages. One simple oversized image on a site can quickly bloat a webpage and make it very slow to download (McNeil, 2014; Hasan & Abuelrub, 2011). As a result, web authors need to learn to keep image file sizes down. If students use a more sophisticated graphics software such as Photoshop or Fireworks, they can use it to “crunch” their images. However, if that luxury has not been afforded (or time to teach it), there are simple online image crunchers, such as [crunch4free.net](http://crunch4free.net) that will reduce image file sizes so that they are appropriate for a website. Students simply upload their bloated images and set the resolution. Some of these tools allow students to crunch multiple images at a time.

**Web search keywords:** *online image cruncher*

### COLLECTIONS

Some online sites, such as BraveNet, provide a collection of tools, or widgets, to help enhance a website. They may include some or most of the tools mentioned above, as well as other unique tools for students to use, such as streaming radio, custom news feeds, talking characters, calendars, and much more. This may be a good starting point for instruction: find a collection of widgets that offers what students may use, and then simply fill in the gaps with other resources. There are advantages to limiting where students must navigate in finding resources and having the ability to find a one-stop shopping source.

**Web search keywords:** *Web widget tools*

### CONCLUSION

While the above is by no means a comprehensive list of possibilities, it does represent the staples that are most commonly

utilized in web development. By taking advantage of what is available, it can enhance one's communication capabilities as a technology and engineering instructor. In addition, a Web tool kit can help students to focus on the task at hand rather than spend a considerable amount of time learning technical aspects not necessarily related to course competencies. By finding and providing fundamental tools for classroom use, students can remain engaged and learning, whether at the novice or advanced level.

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