Evaluating accessibility features of tutorial creation software

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Abstract

Purpose - This paper seeks to compare the accessibility features and ease of use of three tutorial creation products - Camtasia® 6 (by TechSmith®), Captivate® 4 (by Adobe®), and VoiceThread® - to determine which product creates the most accessible tutorials.

Design/methodology/approach - The paper tested the accessibility of the tutorials created using Camtasia, Captivate, and VoiceThread against the Voluntary Product Accessibility Template® (VPAT®) criteria. The tests were completed using JAWS®, a screen-reading software application. Results were compared to determine which product(s) created the most accessible tutorials. The products' ease of use and user manuals were also evaluated.

Findings - Camtasia and Captivate exceed VoiceThread in terms of accessibility compliance. In testing the products, the paper concluded that the VPATs were accurate, with minor exceptions. All products provide user manuals and help guides; Camtasia and Captivate have steeper learning curves than VoiceThread.

Research limitations/implications - This study compares only three of the available tutorial creation products. Accessibility features may change with new versions.

Practical implications - The results of the evaluation will enable other librarians to make more informed decisions when purchasing and using tutorial creation products.

Social implications - Ensuring accessibility of online resources is everyone's responsibility. This paper will help readers to meet that goal.

Originality/value - While there are comparison studies of the features of Camtasia, Captivate, and VoiceThread, accessibility features are largely uncovered. This study adds this dimension to the literature, enabling librarians to make more informed decisions when selecting and using these products to create accessible tutorials.

Keywords Tutorials, Librarians, Libraries

Paper type Research paper

1. Introduction

As library resources, services, and supporting tutorials are increasingly presented online, there is a growing emphasis on the accessibility of online/web offerings. The World Wide Web Consortium (W3C) (resources for more information about accessibility can be found in the Appendix), an organization which sets web standards on online/web accessibility through their Web Accessibility Initiative (WAI), stated that web accessibility, “means that people with disabilities can perceive, understand, navigate, and interact with the Web, and that they can contribute to the Web” (W3C, 2010). For any person, regardless of disability, to be able to use online resources...
resources such as websites, databases, and online tutorials, the creators of US content must design and/or implement accessible content. Examples of accessible design include making alt-tags (text descriptions) of visual images on US pages so that those with visual disabilities can use screen readers to hear a description of the image, close captioning videos so that those with auditory disabilities can still access information in a film, or using the accessibility features of tutorial creation products, such as those tested in this study, to make overall content more accessible.

Accessibility is a key component in every library product and service offered by the California State University System (CSU) to its students, faculty, staff, and external users. At California State University, East Bay (CSUEB), with its strong emphasis on online teaching, accessibility is promoted and encouraged. To ensure that the library meets this need, the authors evaluated Camtasia® (by TechSmith®), Captivate® (by Adobe®), and VoiceThread® for accessibility compliance so that tutorials would meet legal and university requirements and could be offered for use in formal and informal classes, in individual consultation, and through the library’s website. These three products were chosen because, of all the products available for tutorial creation, they are commonly used software products in the higher education community (Pacansky-Brock, 2009a; Rethlefsen, 2009b).

2. Legal and institutional background and interpretation of accessibility
According to law, resources created by federal agencies, those contracting with federal agencies, and those receiving federal funds (e.g., grants) must be accessible. The Rehabilitation Act of 1973 was amended to include Sections 508 in 1998. Section 504 in the original Rehabilitation Act addresses general services, ensuring that they are accessible to all individuals; Section 508 deals specifically with accessibility in the information technology realm, making it the more relevant of the two for this study. The goal of Section 508 is to eliminate barriers in information technology, to make available new opportunities for people with disabilities, and to encourage development of technologies to help achieve these goals. According to the summary of Section 508 standards, these laws require that persons with disabilities be provided with alternatives that are of “equal or greater access” than the original (US General Services Administration, 2008). Guidelines for Section 508 address various types of disabilities, such as visual, auditory, motor, and cognitive in descending order of intensity, but focus heavily on assistive technologies that address visual impairments.

As a result, this emphasis carries over to the government’s Voluntary Product Accessibility Template® (VPAT®), which is based on Section 508 standards and designed to help federal contracting officials and other buyers in making preliminary assessments about the availability of commercial products and services with features that support accessibility. Because the VPAT is standardized, it is possible to compare products on the basis of this template. In many of the VPAT categories, the key determinant of accessibility is for features not to disrupt or disable assistive technologies, such as screen reader or voice recognition software. Table I provides summary explanations of VPAT criteria adapted from the Section 508 Reference Guide: 1194.21 Software Applications and Operating Systems on the website of the United States Patent and Trademark Office.

In addition to Section 508 compliance, mandated by the federal government, a number of states have adopted accessibility mandates and more are following. In order
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Criteria | Explanation
---|---
**a. Keyboard access** | User can perform all features of a product using only a keyboard
**b. Accessibility features** | Products do not disrupt or disable accessibility features on other products and operating systems
**c. On-screen focus and tracking** | User can easily track movements between objects (e.g., cursor is visible and can identify user's position when using TAB or ARROW keys to move between objects)
**d. Information about user interface elements** | All visual information is also available to AT (e.g., all images and objects have alt-tags, text labels, etc.)
**e. Consistent meaning of images** | Images mean the same thing throughout the product (e.g., an image of a printer means print whenever the image is used in the product)
**f. Availability of textual information** | Text information is available to AT (e.g., the product interfaces with operating system, so font attributes can be changed within the product)
**g. Contrast and color settings** | Product conforms with operating system's display settings
**h. Animation** | User can select a non-animated mode to display information supplied by the animation (e.g., alternative text is provided)
**i. Color coding** | Color is not the only means of providing information
**j. Variety of color selections** | If product allows user to change contrast and/or color settings, it provides a range of color and contrast selections
**k. Flash or blink frequency** | On-screen blinking should be non-existent or very fast (≤55 blinks/second) or very slow (1 blink/second)
**l. Interaction with electronic forms** | Electronic forms are accessible to AT (e.g., user can complete entire form using AT)

Table I. Summary explanations of VPAT criteria

On September 21, 2009, the CSU issued Coded Memorandum AA-2009-19, modifying the deadline from Fall 2008 to June 1, 2010 for the compliance of new educational materials (CSU, 2009). This was in response to the realization of the
implementation challenges involved. Later, at the Council of Library Directors meeting of April 29, 2010, library directors were informed that the CSU will now engage in a continuous improvement process with established baselines and target goals which will be re-examined periodically. While cost and lack of full compliance for existing technologies are among the challenges, the primary challenge cited in complying with the accessibility mandates was applying the requirements to new, emerging technologies. These emerging technologies include Web 2.0 technologies such as blogs, social networking sites (e.g., Facebook®), and video sites (e.g., YouTube® and Vimeo®), and also online tutorial products, such as VoiceThread, one of the three tutorial products included in this study. Regardless of the shift in timelines and approach, intent of the policies remain the same.

3. Literature

Many researchers have written about online teaching pedagogy and the creation of online tutorials to support online teaching and learning, and there is a growing literature on the creation of accessible web resources (Bruce et al., 2006; Kinash et al., 2004; Mestre, 2006; Tilley et al., 2007). However, while there is a greater awareness of the need for such resources for instruction, the research literature on creating accessible online learning objects, such as tutorials, is still in a nascent stage.

As more colleges and universities began offering web-enhanced, hybrid, and online courses, effective online teaching became an important topic in discussing pedagogy in education and, more specifically, in librarianship and information science. There is an extensive research literature on best practices and pedagogy for teaching online. Mestre (2006), for example, reviewed different learning styles and gave suggestions for creating effective online learning experiences for diverse populations. Bruce et al. (2006) also discussed an example of appropriately creating and using web-based instructional tools to enable information literacy learning in the Relational Frame of their “Six Frames for Information Literacy Education”. Phipps and Kelly (2006, p. 69) offered a holistic framework to integrate accessibility issues with “learner needs, learning outcomes, local factors, infrastructure, usability, and quality assurance”, providing examples and case studies to anchor the framework in practical applications.

Also in the field of library and information science, other creators have commented on using emerging technologies, especially blogs and wikis (Coulter and Draper, 2006; Ramos and Piper, 2006) for information literacy instruction. These emerging technologies have been embraced by educators who have created collaborative and interactive online learning environments (Hutchinson, 2007; Natarajan, 2006; Pacansky-Brock, 2009b). Guidelines specific to using online tutorials in information literacy instruction are also represented in the literature (Oud, 2009; Zhang, 2006). All these technologies, when used appropriately, can provide online learning experiences that incorporate multiple modes of learning and learning styles (Brown and Liedholm, 2004; Lu et al., 2007; Moallem, 2007).

While the research literature focuses on online teaching pedagogy, the professional literature provides practical reviews and advice for creating online tutorials. Library Journal published a two part series by Rethlefsen (2009a, b) that reviewed screencasting products (i.e. online tutorial creation products) in terms of usability, flexibility, audio and video features, and maximum length of video. Rethlefsen
reviewed both free and fee products in these useful overviews of popular screen-casting products. Long and Culshaw (2005) also provided a helpful overview and comparison of tutorial creation products, including earlier versions of two of the products in this current study (Camtasia and Captivate). Unfortunately neither of these reviews discussed accessibility features and accessibility compliance capacities for any products.

Much of the professional literature also provides quasi-case studies and examples of how to use various products to create online tutorials. Kroski (2009) and Bianco (2005) both explained the goals and steps involved in creating and publishing online tutorials. These two articles also touch briefly on captioning, one part of creating accessible online tutorials. These are among the few articles to touch both on the creation of online tutorials and accessibility concerns.

There is a growing body of literature focusing on accessibility in the online environment generally. Library Hi Tech (2002) published two special issues focusing on online accessibility. These articles focused on accessibility of content management systems (CMS) and websites along with discussion of assistive technologies. These articles, however, did not focus on online tutorials which are the primary focus of this current study.

In neither the literature about accessible online products and educational tools nor the literature about creating online tutorials is there in-depth evaluation of products from the perspective of the accessibility of the end result. There is a need for studies of these products in terms of creating accessible content, especially for those educators in states that have already mandated the creation of accessible materials, such as California. This current study expands the literature on accessibility to include yet another tool for online instruction – online tutorials.

4. Methodology
This study took place at California State University, East Bay (CSUEB), which serves a diverse population of approximately 13,000 students. The University consists of the Hayward Hills campus, the Concord campus, a facility in Oakland, and an online campus. The University Libraries consists of a main physical library in Hayward, a second physical facility in Concord, and its online presence.

In spring 2007, the library licensed software products for the creation of online tutorials: Camtasia 4 (upgraded to version 6) and Captivate 3 (upgraded to version 4). Later, a license was purchased for VoiceThread. It should be noted that users may now purchase version 7 of Camtasia and version 5 of Captivate. VoiceThread does not reference updates as specific versions. Camtasia and Captivate were chosen because other researchers had reported using these products in tutorial creation (Long and Culshaw, 2005) and VoiceThread offered a web 2.0 option that has received attention in the online teaching community (EDUCAUSE, 2009; MERLOT, 2009; Pacansky-Brock, 2009a, 2010). Prior to this study, online tutorials, consisting of visual, audio, and textual elements were created by several CSUEB librarians using all three products. Examples of these tutorials can be seen on the library’s website (http://library.csueastbay.edu/online-resources/online-tutorials/). Two tutorials created with each product (Camtasia, Captivate, and VoiceThread) were tested in this study. The tutorials were created using the most current versions of the products available at the time of testing and with all accessibility features enabled.
This comparative study began by testing the three products using the government's Voluntary Product Accessibility Template® (VPAT®) and the products' VPAT statements. Darnina Standfield, the Assistive Technology Consultant at Cal State East Bay, installed JAWS® 10.0 on the computers that were used to test the tutorials. JAWS is a screen reader, an assistive technology for people with visual impairments, that allows users to access computer-based content and enables the evaluation of the accessibility of US content (instructions are provided at WebAIM, 2010). Ms Standfield also trained the authors in its use and responded to questions and issues as the testing proceeded. The authors tested two tutorials for each product using JAWS and using the testing guidelines provided by the United States Patent and Trademark Office (2007).

The authors also compared the product user manuals provided by the three companies. Available user manuals were downloaded and checked for any mention of accessibility. Accessibility features were then compared based on the description in the manual (e.g., control-over accessibility features, user-defined options for accessibility features, such as caption, font size, color, number of lines of text shown on a screen, etc). The products' ease of use for the creator was also considered; however, the main concern was with creating accessible online tutorials for end users.

5. Results

Table II provides the VPAT criteria for Section 1194.21 of Section 508 (Software Applications and Operating Systems) and compares the product's VPAT statements with the authors' test observations, using Camtasia Player 6, Captivate 4, and VoiceThread.

For many of the criteria, these products fully support or fulfill the necessary requirements to be considered compliant with the accessibility guidelines and for some criteria the companies make it clear that there is no support; however, there are some criteria for which one or more do not fully support the accessibility guidelines. In these cases, the differences are discussed based on information from the VPATs and the authors' tests. The letters correspond to the criteria in the table:

(a) **Keyboard access.** Both Camtasia and Captivate have limitations on the accessibility of their players for those who use a keyboard instead of a mouse. On both, the play head is not fully accessible via keyboard and for Camtasia the toolbar on the main interface is also not accessible via keyboard. While VoiceThread also claims to “support with exceptions” (VoiceThread, 2009), the authors determined that they do not support this feature because JAWS cannot access VoiceThread tutorials.

(c) **On-screen focus and tracking.** While Captivate fully supports this accessibility feature, the VPAT for Camtasia notes that it is not an applicable guideline as the focus is not changeable and as the “main focus is on the player window” (TechSmith Corporation, 2008).

(d) **Information about user interface elements.** This guideline is fully supported by Captivate and partially supported by Camtasia. When using JAWS, there is no feedback when using some of the player functions such as fast forward, rewind, or pause in Camtasia.
<table>
<thead>
<tr>
<th>Criteria</th>
<th>VPAT</th>
<th>Camtasia</th>
<th>VPAT</th>
<th>Captivate</th>
<th>VPAT</th>
<th>VoiceThread</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Keyboard access</td>
<td>Supports with exceptions</td>
<td>Confirmed</td>
<td>Supports with exceptions</td>
<td>Confirmed</td>
<td>Supports with exceptions</td>
<td>Not supported</td>
</tr>
<tr>
<td>b. Accessibility features</td>
<td>Supports</td>
<td>Confirmed</td>
<td>Supports</td>
<td>Confirmed</td>
<td>Supports</td>
<td>Confirmed</td>
</tr>
<tr>
<td>c. On-screen focus and tracking</td>
<td>Not supported</td>
<td>Confirmed</td>
<td>Supports</td>
<td>Confirmed</td>
<td>Not supported</td>
<td>Confirmed</td>
</tr>
<tr>
<td>d. Information about user interface elements</td>
<td>Partially supports</td>
<td>Confirmed</td>
<td>Supports</td>
<td>Confirmed</td>
<td>Not supported</td>
<td>Confirmed</td>
</tr>
<tr>
<td>e. Consistent meaning of images</td>
<td>Supports</td>
<td>Confirmed</td>
<td>Supports</td>
<td>Confirmed</td>
<td>Supports</td>
<td>Confirmed</td>
</tr>
<tr>
<td>f. Availability of textual information</td>
<td>Supports with exceptions</td>
<td>Confirmed</td>
<td>Supports with exceptions</td>
<td>Confirmed</td>
<td>Supports with exceptions</td>
<td>Not supported</td>
</tr>
<tr>
<td>g. Contrast and color settings</td>
<td>Supported with exceptions</td>
<td>Supports</td>
<td>Not supported</td>
<td>Confirmed</td>
<td>Limited support with exceptions</td>
<td>Not supported</td>
</tr>
<tr>
<td>h. Animation</td>
<td>Supports</td>
<td>Confirmed</td>
<td>Supports</td>
<td>Confirmed</td>
<td>Supports</td>
<td>Confirmed</td>
</tr>
<tr>
<td>i. Color coding</td>
<td>Supports</td>
<td>Confirmed</td>
<td>Supports</td>
<td>Confirmed</td>
<td>Supports</td>
<td>Confirmed</td>
</tr>
<tr>
<td>j. Variety of color selections</td>
<td>Supports</td>
<td>Confirmed</td>
<td>Not applicable</td>
<td>Not supported</td>
<td>Not applicable</td>
<td>Not supported</td>
</tr>
<tr>
<td>k. Flash or blink frequency</td>
<td>Supports</td>
<td>Confirmed</td>
<td>Supports</td>
<td>Confirmed</td>
<td>Supports</td>
<td>Confirmed</td>
</tr>
<tr>
<td>l. Interaction with electronic forms</td>
<td>Supports</td>
<td>Confirmed</td>
<td>Supports</td>
<td>Confirmed</td>
<td>Supports</td>
<td>Unable to confirm</td>
</tr>
</tbody>
</table>
(f) **Availability of textual information.** Based on the VPAT product descriptions, both Camtasia and Captivate support this guideline, with exceptions. For Camtasia, the status bar cannot be read by JAWS. In Captivate, any “text caption boxes added to presentations are not exposed to assistive technology” (Adobe Systems Incorporated, 2009). While VoiceThread claims to “support with exceptions”, the text information is not available to JAWS and users cannot change any of the attributes of the textual information.

(g) **Contrast and color settings.** Camtasia supports this guideline with exceptions while Captivate does not support this guideline. Captivate “does not fully support High Contrast mode” (Adobe Systems Incorporated, 2009). Camtasia’s VPAT states that the “foreground of the volume button on the toolbar does not change color” (TechSmith Corporation, 2008), causing it not to be seen, but in the authors’ tests the volume button was visible. VoiceThread claims to provide “limited support with exceptions”, but the authors determined that this feature is not supported because the user cannot change the contrast and color settings.

(j) **Variety of color selections.** Camtasia fully supports this guideline and allows full customization by the user. Captivate does not allow the user to customize the color settings, neither does VoiceThread.

(l) **Interaction with electronic forms.** Camtasia fully supports this guideline as it does not contain forms that the user completes. Captivate does use forms. All forms, except sequence type questions, are compliant and accessible through JAWS. The authors were unable to confirm that VoiceThread supports this guideline “with exceptions” because JAWS did not identify any object as a form.

**Comparison of closed captioning capabilities**

All three products — Camtasia, Captivate, and VoiceThread — have some capability of including text when creating online tutorials. Captioning is one of the requirements for creating accessible online tutorials because it provides access to those with auditory impairments.

Camtasia has two options for captioning: captions can be added manually or via synchronization. Both of these options produce the same results and the workflow is almost identical. When adding captions manually, one caption is added at a time to the online tutorial. When synchronizing the captions, the entire script is pasted into the captioning box and the creator of the tutorial plays back the tutorial and clicks on the words in the script to set the caption points. The customization options for Camtasia include the ability to display 30 to 100 characters per caption, with a default of 32 characters, and either to overlay the captions on top of the video portion of the tutorial or to display the captions underneath the video on a black background. There are no options for changing the font, font size, or colors of the captions or captioning background.

Captivate has two options for captioning. Captions can be added from the slide notes or added manually to an audio file. The slide notes feature enables the creator to include the script for the slide. These slide notes are similar to the slide notes in
Microsoft PowerPoint®. In addition to using the slide notes for closed captioning, they can be used for Captivate's text-to-speech function. The creator can also add closed captions to a recorded audio file. These closed captions are added manually by synchronizing the captions to the audio waveform. Captivate has no option that is similar to Camtasia’s synchronization method whereby the entire script of the tutorial is added at once and then synchronized to the audio. Captivate allows the display of the closed captions to be customized, however. Font, font size, color of font, number of lines shown at a time, color of background and transparency of background are all customizable. Captivate has a 508 Compliance option that enables many Captivate elements to be accessible to assistive technology when selected.

VoiceThread allows the creator to include text bubbles in the tutorial. These text bubbles can contain the script of the online tutorial and can appear before or after the audio narration; however, these text bubbles are not the same as closed captioning because they are not synchronized with the audio narration.

Comparison of help manuals and videos for each product
All three products have some form of user/help manual and additional resources online. Camtasia offers user manuals, video tutorials, frequently asked questions, and forums. Camtasia’s support information is divided into the Support Center (featuring the forums) and the Learning Center (featuring the manuals, frequently asked questions, and video tutorials). Captivate offers user manuals, video tutorials, frequently asked questions, forums, and blogs via the Adobe website. Like Camtasia, the help materials available for Captivate also cover accessibility issues such as captioning. There is also a blog about accessibility and Adobe products in general. It provides updates on accessibility issues (http://blogs.adobe.com/accessibility) and a webpage that specifically covers Captivate accessibility (http://www.adobe.com/go/learn_cp_accessibility_en). VoiceThread offers short help guides through its website, including a guide for educators. There are also forums, video tutorials, and a frequently asked question section about VoiceThread (http://voicethread.com/support/faq/).

6. Discussion
The authors found that both Camtasia and Captivate are almost equivalent in terms of accessibility compliance when tested with JAWS and using the VPATs as a guide; VoiceThread lacks many key accessibility features which hinders its compliance. However, in terms of ease of use, VoiceThread has the lowest learning curve of the three products, by far.

Interpreting VPAT and testing criteria
One of the challenges in comparing the accessibility of the products is deciphering the criteria in the VPATs. The authors found that the US Patent Office’s explanation of the VPAT language and advice on how to test the products invaluable. For some of the criteria, the companies’ interpretations of the VPATs did not align with what the criteria were intended to test. For example, criteria g and j (contrast and color settings, and variety of color settings) of Section 1194.21 are interconnected. According to criterion j, if a product does not “feature adjustable color or contrast settings”, then the standard does not apply; however, the product must conform to 1194.21(g) regarding
system display settings. For Captivate and VoiceThread, the VPATs do not reflect this interconnectedness as both list criterion j as “Not Applicable” in their respective VPATs and they do not fully support criterion g. Since neither Captivate nor VoiceThread comply completely with either of these standards, they are not in compliance with this part of the guidelines.

The other criterion whose wording in Section 1194.21 of Section 508 did not seem to match exactly what was tested and reported by the companies was criterion f (availability of textual information). According to what was tested in Camtasia and Captivate, the VPATs are correct in that both products “support with exceptions” this criterion. However, using the guidelines by the US Patent and Trademark Office for testing, this criterion additionally means that the font attributes of the online tutorials should change when the user changes the font settings in the operating system. However, neither the tutorials created with Camtasia nor those created with Captivate change their fonts according to changes in the operating system. For the vast majority of the criteria checked via the VPATs, however, Camtasia and Captivate are compliant and their test results match the descriptions of the criteria. The authors highlighted these two examples both because of the differences in criteria definitions and what was tested, and also to demonstrate how difficult it can be to decipher the language of Section 1194.21 of the VPATs.

VPATs and test findings
Test findings did not align with the VPATs in three cases. For criterion g, contrast and color settings, Camtasia stated that the “foreground of the volume button on the toolbar does not change color” in high contrast mode. In viewing the test tutorials, however, the authors noted that the volume button was visible, meaning that Camtasia completely supports the accessibility criterion for high contrast mode, making Camtasia a good choice for users with visual impairments.

VoiceThread, however, did not fare as well. In the case of criterion a (keyboard access), the product “claims to support [it] with exceptions”; however, as JAWS cannot access VoiceThread tutorials and VoiceThread does not provide additional details about the support for this criterion in their VPAT, it is impossible to determine what is supported by keyboard access.

Similarly, VoiceThread claims to support criterion l (interaction with electronic forms with exceptions); however, JAWS did not identify any objects as forms. Again, because VoiceThread’s VPAT does not provide more explicit detail, it is impossible to make a determination about this criterion. If there is a form and a user is visually impaired, the user will be unable to identify the form. These are major issues for tutorial accessibility, further supporting the authors’ conclusion that VoiceThread not be used because it lacks sufficient accessibility.

Caption features
While both Camtasia and Captivate may be equally compliant with Section 508, the authors did not find them equal in terms of captioning options. The captioning options in Captivate are much more extensive than those offered by Camtasia. The creator has more flexibility for choosing the best fonts, font sizes, backgrounds, and colors for the intended audience and for the tutorial. The authors found these features especially helpful for creating captions that would be in high contrast with the images,
screenshots, and animation played in the tutorials. However, some may prefer the workflow for synchronizing captions in Camtasia, which allows the creator to synchronize the entire script with the audio narration in one screen, instead of having to move among storyboard frames, as is the case with Captivate. VoiceThread offers the option of text bubbles; however, without synchronization, they cannot be described as closed captioning.

From an accessibility standpoint, therefore, the authors recommend either Camtasia or Captivate because VoiceThread does not offer the same level of compliance. Camtasia and Captivate both allow the user to create accessible tutorials with closed captioning and interact well with JAWS.

Ease of use
While any discussion of ease of use is necessarily subjective, the authors believe it is important to discuss the differences in the products. The authors prefer Captivate for its interface, extensive quizzing options, and flexibility in creating closed captions. The workspace of Captivate will feel familiar to those who already work with other Adobe products; however, those familiar with Windows Movie Maker® may prefer the Camtasia interface, which allows the creator to work in either the timeline or the storyboard view. The authors found audio editing in Camtasia more difficult as the video track must be locked in order to edit only the audio track and the audio editing features are less robust than in Captivate. That said, the finished tutorial created in Camtasia has a smoother, more movie-like feel than the one created in Captivate, but the individual creator must decide which product is best for his/her particular needs and for the intended audience of the online tutorials.

Regardless, both Camtasia and Captivate have a steep learning curve which must be considered in selecting these products. In addition to the length of time to learn the product, potential buyers should also assess the length of time it takes to create tutorials using either product. VoiceThread, on the other hand, while less robust in terms of features, is the easiest of the three products to learn to use and the fastest in terms of creating tutorials, despite the fact that its accessibility features are not equivalent either to Camtasia’s or to Captivate’s. Further, some creators may find VoiceThread more desirable because it is web-based and no software needs to be downloaded, but these benefits are outweighed by the lack of accessibility in the opinions of the authors.

In addition to the manuals, which are clearly written, Camtasia, Captivate, and VoiceThread all offer extensive user guides and tutorials which are useful for learning these products; however, in terms of support for creating accessible online tutorials, Captivate provides the user with the significantly more information. Adobe, via its numerous resources on creating accessible materials, appears to be the company most committed to accessibility in terms of its products. The authors appreciated this additional information and believe it to be valuable to those who want to learn more about creating accessible online tutorials. Creating accessible online materials can seem overwhelming and confusing as there are multiple standards and issues to take into consideration, but with these resources, the task is less daunting.

Camtasia and Captivate are available in free trial versions for a set period of time. VoiceThread permits the creation of up to three tutorials with a free basic account. This allows creators to test all three products to determine which one best fulfills their
individual needs. As mentioned, the authors do not recommend VoiceThread at this time, and highly recommend that individuals test Camtasia and Captivate by using the trial versions before deciding which product to purchase.

7. Conclusion
Accessibility is an important challenge for educators at this time. In this study, the authors focused on the accessibility of the end products, the tutorials, and the ease of use of the tutorial creation software for the creators. Testing of the tutorials, however, showed that enabling accessibility features is best combined with testing the final product with a screen reader, such as JAWS, in order to be sure that the accessibility features work correctly and in the manner assumed during creation.

All products are in various stages of development when it comes to compliance. The authors favor Captivate for its extensive help, for the flexibility offered to creators, and for the way in which the captioning is implemented; however, Camtasia offers equivalent features in terms of accessibility and other creators may prefer its workflow. VoiceThread, however, does not meet the capabilities either of Camtasia or Captivate when it comes to accessibility. While the differences between Camtasia and Captivate in terms of accessibility compliance may not be considered too significant, it is useful to consider periodic re-evaluations as the products develop and, and may lead to more significant differences in accessibility compliance.

There need to be more studies on the accessibility of online tools and technologies for libraries - library guides, different alternatives, online catalogs, the list is extensive. These would enable librarians to make more informed choices rather than having to rely on hard-to-interpret VPATs or personal intuition when studies are not available.

Regardless of the product chosen, facilitating accessibility will continue to be a challenge for a long time, but the rewards are worth the effort. It is not simply a matter of meeting legal requirements. Librarians have an opportunity to lead the way, to provide in their classes and on their websites online tutorials that are accessible to as many people as possible, to further studies of various products and accessibility capabilities, and to help tutorial creators recognize the importance of investing the additional time and effort needed to take advantage of the existing accessibility capabilities. In addition, by developing this knowledge, librarians can assist faculty who are trying to meet these requirements, not only by providing compliant materials for faculty to use in their classes, but also by providing expertise in the creation of accessible tutorials so that faculty can create their own accessible content. Librarians can be the leaders in this arena.

References


Library Hi Tech (2002), Library Hi Tech, Vol. 20 No. 2 and No. 4 (special issues focusing on online accessibility).


WebAIM (2010), Using JAWS to Evaluate Web Accessibility, available at www.webaim.org/articles/jaws/#tables


Appendix. Resources for more information about accessibility

- Accessible Technology Initiative at CSU Northridge, available at: www.csun.edu/accessibility. A good example of web pages that explain the CSU initiative and provide support, templates, and instruction in accessibility.
- California State University Library, East Bay. Tutorials, available at: http://library.csueastbay.edu/online-resources/online-tutorials/. Sample tutorials made by CSUEB librarians with Camtasia, Captivate, and VoiceThread.


United States. National Aeronautics and Space Administration, Section 508, an excellent sample of guidelines for implementation, available at: www.nasa.gov/accessibility/section508/sec508_overview.html. A good example of the implementation of Section 508.


Voluntary Product Accessibility Template (VPATs) directory, available at: www.evengrounds.com/resources/vpat-directory. A directory of companies which provide a Voluntary Product Accessibility Template of their products.


World Wide Web Consortium (W3C), available at: www.w3.org/Consortium/. The site of an international consortium of member organizations, a full-time staff, and the public, who work together to develop web standards.

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