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Improving Screencast Accessibility for People with Disabilities: Guidelines and Techniques

Abstract:

Screencast video tutorials are increasingly popular in libraries, but may present access problems for people with disabilities unless specific accessibility features are added during screencast creation. This article reviews existing standards for accessible web-based multimedia and gives guidelines and tips on how to create accessible screencasts based on these standards.

In the last few years interest in the use of online videos, often called screencasts, in libraries has increased rapidly. Many libraries now offer screencast tutorials or use screencasts as tools for online reference support, either on the library's web site or hosted on external sites like Youtube. Despite this interest, screencasts are fairly new and little is known about their effectiveness. One major stumbling block is their format. Flash and other online video formats are among the least accessible options on the web for people with disabilities (Brophy & Craven, 2007; Thatcher et al., 2006). The popularity of video on the web in recent has created perhaps "the most challenging area in accessibility today" (Regan & Kirkpatrick, 2008, p. 298).

Since equitable and fair service for all users is a key underpinning of library service philosophy, the accessibility of resources and services is an important consideration for libraries. People with disabilities make up one of the largest minority groups in every country.

Approximately 12.1% of Americans (Erickson), 14.3% of Canadians (HRSDC), and 15.6% of people globally (World Health Organization, Table 2.1) have a disability. Accessibility legislation has existed in most developed countries for years, with requirements for accessible web sites and services. Current laws reflect the idea that a disability is created when barriers prevent someone from doing something. To achieve accessibility we need to focus on eliminating those barriers and creating conditions that enable rather than disable people (Schmetzke, 2007, p. 454). If online services like screencasts are not accessible, libraries participate in a “ghettoization” of the web, creating a digital divide of “second-class citizens” who can’t access our content. (Regan & Kirkpatrick, 2008, p. 293).

Unfortunately, studies show that libraries have not successfully eliminated barriers to access, and that online library resources and services are not always accessible. In an evaluation of U.S. and Canadian library web sites, Comeaux and Schmetzke (2007) find an average of 3.6 barriers to accessibility per page. They conclude that “web sites still tend to disregard established accessibility guidelines”(2007, p. 475). Power and Lebeau (2009) test a number of vendor databases for accessibility. They find that none are fully accessible, making them “difficult, if not impossible” for people with disabilities to use (2009, p. 65).

These problems often arise from a lack of knowledge. Awareness of accessibility issues has increased in recent years, but studies show that people still lack basic knowledge about how to achieve accessibility. Web site creators often don’t understand why certain changes are needed for accessible web sites, or how to make those changes (Brophy & Craven, 2007; Jaeger, 2006). They also tend to think that their sites are more accessible than they actually are (Jaeger, 2006). Since screencasts are playing an increasing role in library instruction

and reference, the librarians who create screencasts need to be aware of accessibility issues and need to know how to create accessible videos.

Although many recent articles discuss screencasts in libraries, almost none discuss screencast accessibility. Most library screencast articles discuss software options for their creation, or give tips and instructions on how to create screencasts without mentioning accessibility considerations (Betty, 2008; Griffis, 2009; Price, 2010; Rethlefsen, 2009; Slebodnik & Riehle, 2009; Sparks, 2010). Others discuss the benefits and uses of screencasts, including their use and possible advantages in reference and virtual reference (Brumfield, 2008; Buczynski, 2009; Carr & Ly, 2009; Steiner, 2010), and in supporting students in online classes (Kimok & Heller-Ross, 2008; Lockerby & Stillwell, 2010). A few discuss issues such as measuring screencast use (Betty, 2009) or designing pedagogically effective screencasts for instruction (Oud, 2009; Tempelman-Kluit, 2006).

Only one article discusses screencast accessibility. Wakimoto and Soules (2011) evaluate major screencast creation software programs according to U.S. government guidelines for accessibility, and find that only two, Camtasia and Captivate, can create accessible screencasts. They point out that there are many other tools for screencast creation available. Unfortunately, most options do not create accessible screencasts.

Even screencasts created with Captivate and Camtasia, however, are not automatically accessible. Accessibility features must be added through the use of careful planning and proper use of built-in software features. This article will provide an overview of how to create accessible screencasts. It will identify potential accessibility issues, discuss

existing guidelines for screencast accessibility, give tips on how to create accessible screencasts using Captivate and Camtasia, and suggest methods for testing screencast accessibility.

Accessibility Issues & Definitions

To create accessible screencasts it is important to understand the kinds of problems that people with disabilities may have when using screencasts, and what accessibility actually means.

People with disabilities have the same kinds of problems using screencasts as they have using the web in general. Experiences and issues vary depending on the type of disability.

- **Low vision:** People with low vision have difficulty seeing small type or graphics. They often use software (like Zoomtext) that enlarges things on the screen, or the enlargement features built into most web browsers. They may have difficulty using web sites that will not allow text or graphics to be enlarged.
- **Color blindness:** Many people are color blind and have difficulty distinguishing information when it is presented in certain colors.
- **Blindness:** People who are blind usually use software (like JAWS) that reads what is on the computer screen out loud, and often have difficulty using sites that rely heavily on a visual presentation of information.
- **Hearing impairment:** People with hearing impairments need to have any audio presented in an alternate format such as closed captions or text transcripts.

- **Physical impairment:** Many people, including those who are blind or have physical impairments, use the keyboard for all computer navigation and have difficulty using site features that require use of a mouse.
- **Cognitive or learning disability:** People with cognitive or learning disabilities may have difficulty reading and interpreting written text. They may use screen reading software like Kurzweil, or require oral or visual explanations instead of written ones. People with cognitive or learning disabilities may also have difficulty finding information on sites that are cluttered and busy, or which don't have clear cues to show where they should focus their attention.

To be considered accessible, a screencast needs to eliminate as many of these potential barriers to access as possible. There are two basic components of accessibility: technical accessibility and usability. For a web page or screencast to be technically accessible, people with disabilities must be able to physically access the content with the assistive technologies they need, such as screen reading software. Technical accessibility is a critical part of accessibility; unless something is technically accessible people with some disabilities can't use it at all. For example, graphics, some Flash-dependent web sites, and some pdf files can not be read by screen reading software, which means that users with visual impairments have no access to the content. Web-based files and formats need to be physically compatible with the assistive technologies used by people with disabilities.

However, even if people with disabilities can access a web site with assistive technology, the site may not be easy for them to use. For example, studies have shown that vendor-provided databases in libraries are challenging for people with disabilities to use

independently, even when a database is physically compatible with various assistive technologies (Power & LeBeau, 2009; Stewart, Narendra, & Schmetzke, 2005). Poor usability also creates barriers to accessibility. For example, a web site may be poorly designed, use difficult terminology, or be difficult to navigate. Before something can be fully accessible, it must be technically possible to use it, but it also must be easy to use. True accessibility requires both technical accessibility and usability, and both concepts are included in the definitions of accessibility used in most laws, standards and guidelines.

Accessibility Guidelines

Laws set out specific requirements for the accessibility of web-based information in most developed countries. These vary somewhat from country to country, but are usually based on the principles of independence & dignity. This means that people with disabilities require access to the same information and services as other people, at the same time as other people (not only on request), and in a way that allows them to use the services independently. These laws often require adherence to specific guidelines, called standards, for web accessibility.

Local requirements vary, but the most commonly used and broadly accepted web accessibility standards are the Web Content Accessibility Guidelines (WCAG). WCAG 2.0, the most recent version, was produced in 2008, and is the most up to date, comprehensive set of web accessibility standards. These standards attempt to ensure both technical accessibility and usability for people with disabilities. WCAG 2.0 consists of general principles for web accessibility (World Wide Web Consortium (W3C), 2008) and a later document which sets out

specific techniques for implementing the principles and criteria for evaluating whether they have been successfully met or not (World Wide Web Consortium (W3C), 2010). Accessibility requirements set out in other local guidelines, like Section 508 in the United States, are generally covered in WCAG 2.0, and researchers who have studied international accessibility legislation recommend using WCAG guidelines (Providenti & Zai, 2007). WCAG 2.0 guidelines also tend to be standard advice in works on web accessibility (Horton, 2006; Thatcher et al., 2006; U.S. Department of Health and Human Services, 2006). Therefore, this article uses the WCAG 2.0 principles as a basis for its recommendations.

There are no separate accessibility guidelines for screencasts or other web-based multimedia; they are covered under the broader WCAG 2.0 web accessibility standards. Many of the WCAG guidelines, however, don't apply to multimedia. It is not always easy to sort through to find those that do, or figure out what is required to implement them successfully. The major WCAG 2.0 accessibility guidelines that apply to screencasts and other multimedia are summarized here, with recommendations on how to implement them.

Creating Accessible Screencasts

Technical Accessibility: Providing Alternatives

All screencast content and controls need to be technically accessible so people can actually access the video. To be technically accessible, all content needs to be made available in more than one way, so people who can't access the content one way have another option. For example, the information conveyed by graphics in the video should be described in voice

narration and/or written captions, and any actions normally done with a mouse should also work using a keyboard. Providing alternatives for people is the general principle underlying technical accessibility of screencasts, and forms the basis of the guidelines that follow.

Many required accessibility features need to be added during screencast creation using the creation software. As we have seen, only two of the major software packages, Captivate and Camtasia, have the ability to produce accessible screencasts. Although both produce screencasts that are basically accessible, Captivate has a larger set of accessibility options, and Captivate-produced screencasts performed better during testing for this article using JAWS screen reading software. Screencasts created with Captivate or Camtasia may not be automatically accessible, however. Accessibility features often need to be added using features in the software. The following guidelines include a brief discussion of the related accessibility features in the most recent versions of Captivate (version 5) and Camtasia (version 7).

Make videos keyboard accessible

Anything normally done with a mouse, like clicking on a button or link, also needs to be accessible by keyboard since not everyone can use a mouse. This applies to the video content as well as the video playback controls, which are usually displayed at the bottom of the video. People should be able to successfully stop, start, pause, rewind, use buttons or clickable regions, do quizzes, or use any of the screencast content using either a keyboard or a mouse. If using text entry boxes, quizzes, or other types of user input, you may need to include a keyboard accessible submit button so people can submit their answers without using a mouse.

Make sure there is a keyboard accessible way to read any error messages, to go back, and to correct the errors.

The standard keyboard navigation keys are tab (to move to the next element) and enter (to select or “click”). Since this is what people will expect, use tab and enter as keyboard shortcuts in screencasts.

In Camtasia, the playback controls, start button, and clickable regions are keyboard accessible by default, using tab and enter keys. There is no way to add or change keyboard accessibility. In Captivate, playback controls and buttons are keyboard accessible by default, also using tab and enter keys. Enable keyboard accessibility in the Properties window of other components, where you can choose a shortcut key.

Functions that rely on the use of a mouse, like mouseovers and rollovers, are not usually accessible in screencasts. On a web page these functions can be made accessible by specifying keyboard alternatives in the Javascript code, but not in screencast software.

Camtasia does not contain any mouse-dependent functions. Avoid using mouseovers and rollovers, hint captions and the matching quiz question type in Captivate, since all require use of a mouse and are not keyboard accessible.

Provide control over screencast timing

Providing alternatives to screencast video timing is also important. People with disabilities tend to require more time to accomplish web-related tasks (Carey, 2005). Therefore, give people enough time to read any text in your video, and avoid setting time limits or creating

time-sensitive tasks. Allow people to control the timing of the video by giving them the opportunity to pause and replay.

Give people control over when they start the video rather than having it start automatically. Including a start button will give people who use screen reading software a chance to orient themselves on the page and decide whether or not to play the video.

The default playback controls in both Captivate and Camtasia include options for pausing, rewinding, and fast forwarding. Camtasia automatically generates an accessible start button when the screencast is produced. In Captivate, create a start button on the first slide.

Include voice narration

Technical accessibility involves some kind of alternate access to the information conveyed by the graphics in a video. One option is to provide spoken narration to describe what is happening on screen. People who are only listening should get all the same information as those who are both watching and listening, so include everything that is happening in the video in your narration. Make sure your narration is meaningful for people who can't see the screen; avoid referring to things by their visual cues or location, such as "click on the red button underneath the logo."

In Camtasia, record narration while you are recording the video. In Captivate, it is easier to record the video first, then add narration to individual slides. Make sure you create a script first and use it while recording your narration. Otherwise, it is unlikely that the narration will be descriptive enough to be useful for accessibility purposes.

Include alt text

Another way to provide alternate access to the information conveyed by graphics is to provide alternate text, usually called alt text. Alt text is descriptive text that is not visible for most people but is read by screen reading software like JAWS. In screencasts, use narration to describe the content of most graphics and action. Alt text should then be added to graphics or elements that are not described verbally, such as playback controls, clickable buttons or regions. The alt text should describe the function and purpose of the component so the person encountering it knows what they should do.

In Camtasia, alt text is added automatically to components but the text is only marginally helpful. For example, buttons are read by JAWS as “button” and graphics as “unnamed graphic.” There are no options to change or add alt text. In Captivate, minimally helpful alt text is also added to components automatically, but you can change it to something more useful. Accessible names and descriptions can be changed or added to each component or slide in its Properties window. Captivate text captions are readable by screen reading software by default, and can also be imported to use as alt text.

Provide captions

To be technically accessible for people with hearing impairments, screencasts need to include alternate access to any audio. This means that captions must be provided for any narration. Captions should consist of a transcript of the narration, but should also include a description of any other sounds in the video which contribute to its meaning. Captions must be synchronized with the audio narration as it is spoken, and with the action they describe as it is

happening on screen. The captions should be readable, with a good font size and a background that lets the text stand out from the video content. Captions should not take up too much of the screen, or the person reading them won't be able to watch the video while reading them.

The use of either open or closed captions is acceptable under WCAG 2.0 guidelines. Open captions are displayed on the video permanently with no option to hide them, and closed captions are hidden unless the viewer chooses to display them (usually by clicking a CC button in the video playback controls). However, cognitive science research on multimedia has shown that there is a significant cognitive load on viewers when open captions are used with audio narration. Viewers are distracted by the open captions, remember less of what happens in the video, and don't learn as much (Mayer, 2006). Closed captions are mainly used by those who require them for accessibility, which means they do not have the same cognitive load that open captions have. Therefore, closed captions are preferred over open captions for screencast effectiveness.

Camtasia can create open or closed captions. Add captions from the Captions tab and specify them in the custom production settings when producing the screencast. After captions are created, they can be synced with the narration by clicking on a word in the caption as it is spoken in the narration. Captivate can create closed captions. First create a script for the voice narration and type it into the slide notes for each slide. After recording the narration, check the box next to each slide note to use it as a caption. Sync captions using the Audio Management option in the Audio menu. The closed caption button is not included in the video playback controls by default, but can be added using the Skin Editor in the Projects menu. The Skin Editor also allows you to customize the display of closed captions on the screen, including

caption background, font, font size, and number of lines on the screen. Use a minimum font size of 14, no more than 3-4 lines of text, and a background that allows the captions to be easily distinguished from the video background.

Allow flexible content display

Many people with visual impairments customize the way that content displays on the web to make it easier for them to distinguish. Common changes include resizing and enlarging, changing fonts, and changing colors. Unfortunately, these options are not usually available in Flash or other video formats, creating potential problems for low vision users. To compensate for this problem, it is important to follow other guidelines in this article, such as providing descriptive narration, and to make the video as distinct and easy to see as you can. Within file size and bandwidth limitations, try to make videos as large as possible, and make sure graphics and text are large, high-contrast, sharp and clear.

Create and embed screencasts accessibly

Browser-based Flash players only supported accessibility features starting with version 6, and accessibility support has improved with subsequent versions (Thatcher et al., 2006). Ensure your screencasts are produced using a relatively recent Flash player version, no more than one or two versions behind the current version 10, to ensure the accessibility features you add are properly displayed in your video. Captivate allows you to choose a Flash player version when you produce the video; Camtasia does not have this option.

In addition, screencasts should be embedded accessibly on a web page so people can view them. For the best accessibility, produce screencasts in a recent version of Flash and embed them locally on your web site. Other video formats, like those on Youtube, do not support many of the technical accessibility features discussed in this article. Youtube has recently added the ability to create open captions using its built-in captioning feature, but locally embedded Flash files support many more of the options for accessibility discussed here.

To embed Flash videos on your web page accessibly, use the standard method of embedding using an html object with an html element inside it. Although this is not valid html code, other methods of embedding are usually not accessible (Thatcher et al., 2006). In addition, WCAG 2.0 criteria require the use of a <noembed> alternative within the embed tag (World Wide Web Consortium (W3C), 2010, Technique H46):

```
<object height="480" width="640">
  <param name="movie" value="/tutorial.swf" />
  <embed height="480" width="640" type="application/x-shockwave-flash" src="/tutorial.swf"
  pluginspage="http://www.macromedia.com/go/getflashplayer">
  <noembed>
    <a href="/text_tutorial.html">Text version of tutorial</a>
  </noembed>
</embed>
</object>
```

The <noembed> tag will display an accessible alternative format, such as a text version, if people have problems accessing the embedded video.

Provide accessible alternate versions

Under the WCAG 2.0 guidelines, screencasts should be technically accessible so that everyone can view and use them. However, the guidelines also accept the possibility of making a fully accessible alternate version available if it is not possible to create an accessible

screencast. Any alternate version must have the same purpose and deliver the same content as the original, including any interactivity. It must be made available alongside the original, so people can locate it easily and use it independently without having to make a special request for it.

Text is a good alternate format because it can be easily adapted for use with various assistive technologies. Since it is difficult to take a video, convert it to text, and still provide the same information and experience as the original video, it may be easier to make the original video accessible rather than provide an acceptable alternate version.

Even if your screencast is accessible, however, it is a good idea to provide alternate formats. Screencasts produced by both Captivate and Camtasia are not ideally usable for blind users, and are not easy for screen reading software to interpret. During testing with JAWS for this article, there were sporadic problems locating the embedded video on the web page, using interactive elements such as buttons and quizzes, and navigating by keyboard. The type and version of assistive software and web browser used, as well as the skill and persistence of the person using the software, both affect the likely success in using screencasts. Attitudes and previous experiences also play a role. Although Captivate and Camtasia produce accessible Flash video, most other Flash video on the web is not accessible and blind users may avoid the format because of their previous experiences with it. For these reasons, it is strongly recommended that accessible alternate formats such as text or audio be provided along with video screencasts for users with visual impairments, who may choose to use other formats due to actual or perceived usability issues.

Alternate formats are easy to generate using Camtasia and Captivate. Camtasia can produce an mp3 version using the Custom settings in Produce and Share. Captivate can create an mp3 version using the Audio Management (export) feature in the Audio menu. With Captivate you can also publish as Print, which creates an accessible Word document containing the graphics and any text captions.

Usability: Making Screencasts Usable

Your screencast needs to be technically accessible, but it also needs to be easy for people to use. Ensuring that your screencast is easy to use and understand improves its effectiveness for everyone, but is especially helpful for people with cognitive or learning disabilities.

Most of the following guidelines for usable screencasts do not require specific software or extra time. Instead, improved usability requires awareness and planning. It is important to think about accessibility in the planning stage, before the screencast is created. Achieving usability is much easier and less time consuming when we start out with accessibility in mind. This is a basic principle of universal instructional design, an instructional design philosophy that requires the instructor to think in advance about the whole range of people who might participate in the instruction and what their needs might be (Creamer, 2007).

Many of the following guidelines also follow from basic principles of good instructional practice. For example, most instructional design models involve assessing user needs, developing learning objectives, then planning the content around those needs and

objectives. Using this basic planning structure will ensure that your screencast content is accessible and meets the needs of all viewers.

Make content easy to see

People should be able to easily see and hear what is happening in the video. Any visuals or audio you use should be easy to perceive. To achieve this, you need to have a high level of contrast. For anything visual, such as text, there should be a strong color contrast between the foreground and the background. Dark text on a light background or light text on a dark background provides good contrast; medium colors such as grey on grey do not. If you need to put text on a graphic, make sure the text stands out clearly from the background. For audio, the narration should contrast strongly from the background. It is best to avoid background noise or music, since these interfere with peoples' ability to hear the narration clearly.

Text and graphics should also be clear and readable. Text should be as large as possible. Use readable fonts with simple lines, like Arial or other sans-serif fonts, and avoid fancy fonts with italics, cursive or extra lines that make them harder to read. Keep graphics as simple as possible, and keep the screen as uncluttered as you can to make it easier for people to see what you need them to see.

Any content that you convey through shape or color will also need to be conveyed in some other way, such as text captions or audio narration. Otherwise, people who have vision impairments or are color blind will not be able to see it.

Highlight main points

Highlight your main points and actions to help people understand what you want them to focus on. To do this, give people cues to show them where they should focus their attention. These cues can be visual, such as an arrow pointing to the part of the screen you are talking about, a highlight box around your mouse as it clicks on a button, or a title screen giving a name and structure to a section of the video. Captivate and Camtasia both have multiple options for adding visual cues. Make sure your cues are large, clear, and obvious so people can recognize and focus on them immediately. You can also add cues verbally. Indicate important points by stressing them with tone and emphasis, or by explicitly saying that they are important.

You can also highlight and reinforce your main points by providing graphics to illustrate them. Visual illustrations are especially helpful when demonstrating a process, providing a sequence of steps, or explaining an abstract idea. Illustrating a process could involve providing a simple flow chart showing the steps involved in a search before you do it, so people have a frame of reference for what you show them. Visual illustrations are especially useful for people with some kinds of cognitive and learning disabilities. Graphics should always have a meaningful purpose, however. Avoid using graphics as decoration, since they tend to distract peoples' attention away from your main point.(Horton, 2006)

Organize & structure content clearly

It is important to focus on conveying your main ideas as clearly and simply as possible. One way to achieve this is to plan screencasts carefully so that they are clearly and logically organized, have a meaningful sequence, and focus on one main point or goal. The WCAG 2.0 guidelines recommend breaking information into small, manageable chunks so people are not overwhelmed. To achieve this, make your screencasts are short and focused. Remove any information that is not absolutely needed to express your main point.

Organize and give structure to your screencast with sections, titles, and headings so people are clear about what is happening. In addition, give people an outline of what will happen ahead of time. For example, if you are giving a demo of a search, give people an overview first of what the steps are, start with the first step, then indicate that you have moved to the next step as you go along. This will help viewers follow your content easily and better understand complex processes.

Make things predictable and consistent

People are used to watching online video and expect certain conventions, such as playback controls with stop and restart functionality located on the bottom of the video. Make sure your screencasts conform to expected conventions so people are not confused.

In addition, provide consistency in how things look and work in your screencasts. This helps people focus on your main points, rather than trying to figure out what is happening. The look and feel of the screencast should be consistent throughout, with the same fonts, colors, and sizes used. Terminology and wording should also be consistent in their use. Things

with a similar function, like buttons, arrows, or links, should look and work the same. Controls and navigation should be consistently labeled and be located in the same place every time.

Use simple language

WCAG 2.0 guidelines recommend a writing level that can be understood by someone in the first years of a high school education. Even though viewers may have a higher level of education, using simple words and simple sentences will help everyone understand your message more clearly. Use the active voice wherever possible, and use simple, plain language. Avoid using jargon, abbreviations, or unusual words that may be unfamiliar or confusing for people. If you need to use an unfamiliar term, provide a definition. You can do this by providing a glossary, or simply by explaining the term when you first use it.

Provide instructions

If you are using any kind of interactivity in your screencast, such as a quiz, text box, or clickable region, make sure you let people know what they need to do. This might involve having a text caption next to the clickable region indicating “click here”, or making sure buttons are clearly visible and that their labels indicate what their purpose is. It should be clear to people when they are expected to do something, what it is they need to do, and how to do it.

Testing For Accessibility

After using the guidelines and techniques set out in this article, you will need to test your screencast for accessibility to catch any errors. There are two levels of possible testing: basic testing you can do yourself and more advanced testing experts and actual users.

Basic testing can be done by anyone, is not time consuming, and does not require any specialized knowledge, training or tools. Use the following steps to conduct this kind of testing:

1. **Check keyboard accessibility:** view the screencast using only your keyboard. Can you navigate to the screencast on the page, start it, use the video player controls, and successfully complete any interactive components?
2. **Check narration:** turn your monitor off and listen to the narration without the visuals. Does it make sense? Are you missing any information?
3. **Check captions:** turn off your audio and view the screencast using the captions. Are they readable? Is any information missing?
4. **Create a checklist** of other accessibility features discussed in this article (such as color contrast, focusing attention on main points, simplifying content, using plain language, having clear and logical organization and structure, and maintaining consistency). Review the screencast yourself using the checklist, or give it to someone else who can review it for you and give suggestions.

Although basic testing will help you to identify and fix many accessibility issues, more advanced testing will help identify problems you may not be able to detect on your own.

Advanced testing consists of review by people with disabilities or experts in the use of accessible technologies. Accessibility for users with visual impairments can be challenging to achieve, so ideally you will have someone use screen reading software to test your screencasts.

Screen reading software is complex and requires training to use effectively, so ask people who know how to use the software to do testing for you. If possible, arrange to be present so you can see first-hand what issues arise.

All screencasts should go through basic testing, but advanced testing is not necessary every time. After doing advanced testing on a few, you will be able to identify any problems and decide how to address them. After this initial testing, you can set up a template which includes the basic accessibility features and settings you need, such as font size, colors, consistent design, and captions. A template will ensure that you automatically and consistently use accessible features in your screencasts as a default.

Conclusion

Accessibility is relatively easy to achieve, but requires thinking about accessibility during the planning stages. By including accessibility considerations from the beginning you will be practicing universal instructional design. This inclusive model of instructional design involves thinking about the different abilities and backgrounds of all potential learners as the instruction is created, rather than adding accommodations into already completed instruction as an afterthought (Creamer, 2007). Thinking about accessibility needs from the beginning is the most important step in removing access barriers for people with disabilities.

Although the WCAG 2.0 guidelines define accessibility as both technical accessibility and usability, technical accessibility should be an absolute minimum requirement. Otherwise, some people with disabilities will not be able to access the screencast at all. As this article has

outlined, technical accessibility usually requires adding features in the screencast creation software. Many existing screencast software tools do not allow for the addition of these basic accessibility features. As a first step, make sure that you use software that creates accessible screencasts, such as Camtasia or Captivate, and use alt text, captioning, keyboard shortcuts, and other features which will result in technically accessible screencasts. If technical accessibility is not possible, an accessible version in an alternate format needs to be provided. To be considered accessible, alternate versions need to have the same content as the original video version, and should be made available right next to the original so people who need it can find it easily.

People sometimes fear that accessibility will be difficult to implement, or that requiring accessibility will hold them back from being able to implement interesting new technologies. This article has shown that neither of these fears needs to be true. Using basic planning strategies and software techniques, it is possible to create accessible screencasts with relatively little additional effort and time. Considering accessibility from the start forces us to consider basic instructional issues that are important to producing high quality, useful tutorials in general, not just to accommodate users with disabilities. Producing accessible screencasts will ensure that all our users have equal access to our services, and will create better and more usable screencasts for everyone.

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