1

Why Do We Need Accessibility?

- It makes your content available to a wider audience.
- It's the right thing to do.
- It's the law.

Accessibility makes your content available to a wider audience.
The term universal design was coined by architect Ronald Mace in the early 1970s. The goal was to design products that could be aesthetic and usable to the greatest extent possible by everyone, regardless of their age, ability, or status in life. (https://en.wikipedia.org/wiki/Universal_design)

In the 1990's this concept was applied to education with the inception of Universal Design for Learning (UDL). The idea being to create curriculum that would from the outset provide:
- *Multiple means of representation* to give learners various ways of acquiring information and knowledge,
- *Multiple means of expression* to provide learners alternatives for demonstrating what they know, and
- *Multiple means of engagement* to tap into learners' interests, challenge them appropriately, and motivate them to learn.

https://en.wikipedia.org/wiki/Universal_Design_for_Learning)

It's the right thing to do.
Not creating accessible materials automatically means excluding people from your audience. Have you ever visited a foreign country? In larger cities you go into a restaurant and when they learn you are an English speaker they hand you a menu in English. Suddenly you go from being the outsider who is struggling to understand

what choices are available to having full access. Think of the difference in how you would feel if you had to order from a menu in a language you didn't know.

It's the law.

If the carrot fails there is always the stick. For many of us providing accessibility is not contingent on our goodwill, it is mandated by the ADA and other laws. But we should not grudgingly make our materials accessible we should embrace the opportunity to make materials that are beneficial to everyone.

Too often what happens is that people think they are making something accessible but really aren't because they are following the letter of the law instead of the spirit of the law. For example in the picture on this slide we see an entrance door that both stairs and a ramp. On the surface that might seem accessible. However, when the door is open it blocks the ramp. So there is no way a person in a wheelchair or a person with a baby stroller could enter this building. Sometimes people make silly decisions, like this, because they don't understand the purpose of an accommodation or how it will be used.

In this presentation we are going to look at how captions make video accessible and why simply having words on the screen isn't good enough.

Why Do We Need Captions?

- Access for Individuals who are Deaf and Hard of Hearing
- Literacy
- Poor Sound Quality
- Sound Not Available
- Transcript
- Multiple Language Translation

From: http://www.dcmp.org/caai/nadh32.pdf

Probably the main reason you are attending this webinar is because you are concerned about providing legally mandated access to individuals who are D/HH. However it is important to realize that captions aren't just for those with a hearing loss. They benefit everyone. Let's look at a few of these additional benefits.

- Makes your video (and advertising) accessible to over 28 million Americans who are deaf or hard of hearing. Helps to meet regulatory compliance measures for governmental and educational institutions (e.g., "Section 508").
- Promotes literacy for children and adults by strengthening reading speed, comprehension, spelling, and grammar skills.
- Improves clarity and comprehension of the sounds and dialogue, particularly when poor audio, heavy accents, background noises, and other such media elements are present.
- Allows individuals to follow along with the video dialogue even when they do not have access to sound on their PC or mobile device (e.g., in a noisy area with no headphones or when using devices with faulty or missing sound cards or drivers).
- Creates a complete text transcript of the video, which can be indexed by search engines to provide far more accurate search results than keyword tagging alone.
- Enables translation into multiple languages.

What Are Captions?

- Captioning is the process of converting the audio content of a video into text and displaying that text in sync with the audio.

- Captions are not only a textual equivalent of what is said but should also speaker identification, sound effects, and music description.

From: http://www.dcmp.org/caai/nadh32.pdf

(zombies banging)

I also think it is important to understand what fully accessible captions are. It may seem like a no-brainer but as I have come to realize as I provide training on the topic that not everyone has the same understanding of what captions are and should be.

If you are just putting "words on the screen" then that does not provide full access to the content. How you put those words on the screen is critical.

Example of Accessible Media

Twenty-five years ago,
most people would have said

This video is a good example of what full accessibility means. It includes both captions for the deaf and descriptions for the blind. Since you never know who will be in your audience it is important to plan for accessibility for all.

Captions vs Subtitles

守ってくれと頼んだおぼえはない

Who invited you to come help me?

There are many different terms used for captioning: captions, subtitles, subtitles for the hearing impaired, offline captions, post production captions, etc. In general captions are when audio information is converted to text to make it accessible for individuals who are deaf and hard of hearing. Subtitles are when text is used to translate from one language to another. Captions include more information than do subtitles, such as; speaker identification and sound effects.

Open captions are part of a video. They cannot be turned on and off. Closed captions provide captions in a separate file and must be turned on in the player. Pros and cons: open captions are fool proof. They are there no matter what so access is assured. However, the quality can be an issue if you compress the video since the captions are part of the video. Closed captions have to be turned on an off and depend on the knowledge of the viewer to do this. Not all online players support closed captions since it is a separate file.

Offline vs Realtime

A good rule of thumb in the biology lab is to treat all /SPAOES minutes as if they were inif he can /KWROUS. Wash your hands before leaving the lab. (Music playing). If

Offline or post production captions refer to captions created for a recorded video. Realtime captions are produced in the moment for live presentations. You may see these at conferences or webinars or live news broadcasts. They are slightly delayed and will contain errors since they depend on a live person listening to the audio and typing it in realtime. If you have a realtime transcript for a live presentation that can be a starting point for creating offline captions but it should first be proofed, corrected, and captioning features added such as speaker identification and sound effects.

Captions vs Transcript

It goes without saying that you must never directly touch any chemicals with your hands. Nor should you directly smell chemicals. If you are asked to smell a chemical solution, fan the gas towards the nose with the hand and sniff cautiously. Some chemicals irritate and damage the lungs, nose, and throat. While others can be absorbed into the bloodstream through our airways.

▶ 0:08
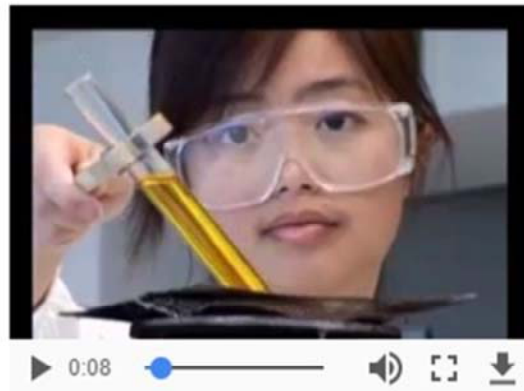
Sometimes it is suggested that a paper transcript of the audio is sufficient and time synced captions are not needed. This is only true if the audio is a talking head, with no other visuals, and the transcript is verbatim. Otherwise it is not equal access. However, it is a good idea to post the transcript for those would like a copy. Some individuals may want to use it as notes. It adds to the Universal Design of a training.

Producing Your Own Media

Do

- Write a script.
- Practice, practice, practice.
- Verbally describe any graphics or equations.

Don't

- Record a live lecture.
- Say things like, "In this equation move this here and add that there."

Making video accessible requires time and effort. You don't want to put this much effort into something that you'll only use once. Would you spend $100 on a pair of shoes you could only wear once? So why not put in a little more effort to create high quality video that will have a long shelf life?

Very few of us are good at speaking off the cuff. We will stutter, misspeak, back up and start over, even mispronounce words. If you script what you want to say and practice, your recorded lecture will sound more professional and is more likely to hold the audience's attention. Trying to record a live lecture is rarely a good idea. Student who view the recording miss out on the live interaction and often become bored with all the extraneous comments that only pertain to the live classroom.

It is also a good idea to learn to describe any visuals that are used. For one this can eliminate the need to add post-production descriptions for the blind but it also enhances the lecture for everyone.
Ex. If you see on the screen 2 x (4 + 3) - 5 , this would need audio description to make it accessible to a person who is blind. But the teacher could say, "The equation is 2 times open parentheses 4 plus 3 close parentheses minus 5. So in this case we would work what is in the parentheses first, 4 + 3 and get an answer of 7....." That would be accessible as opposed to, "In this problem we work what is in the parentheses first and get a 7 there."

What's Involved?

- Obtain permission from the copyright holder to add captions
- Create a verbatim transcript
- Import transcript into captioning software
- Create grammatically correct line breaks
- Time code the captions
- Export the captioned file(s) to the final destination

The captioning process can be broken down into several basic steps. However, captioning is not always an easy process. It requires knowledge of technology and English grammar.

If you did not produce the video yourself you must get permission from the copyright holder before adding captions. If not you are breaking copyright law.

First you must create a verbatim transcript. It should include uhhs, umms, and misspeaks. It should be checked for spelling, especially technical terms and proper names. Adding proper punctuation can be tricky with normal conversation. These are all reasons why scripting a lecture before filming is helpful.
Then import your transcript into your preferred captioning software.

Next create grammatically correct line breaks. Each line should be no more than 32 characters, including spaces. Some captioning software allows you to set some parameters such as the number of characters per line and to follow punctuation as a guide for creating line breaks. However, it is important to have a live person review all line breaks.

Once captions are correctly broken up it is time to add time codes. The software will assist in this. Normally each caption is on a different line and you use keyboard commands to tell the software when a caption will start and end.

When the time coding is complete and has been checked for accuracy you can export the caption file to the final destination.   If you are creating closed captions the caption file and the video file need to be saved in the same folder with the exact same name except for the file extension: Video1.mp4 and Video1.srt. Open captions do not have a separate file since the captions become part of the video.

- http://www.captioningkey.org
- Two lines of captions are preferred
- Captions should be left justified; centered on screen
- Lines should not exceed 32 characters
- Create grammatically correct line breaks

Incorrect:	Correct:
Mary scampered under the table.	Mary scampered under the table.

Now let's look at guidelines for creating high quality captions. These guidelines come from the Described and Captioned Media Program or DCMP. They are a federally funded project and the only group to have researched and developed captioning standards. You can access a copy of the Captioning Key via the URL listed on your screen: http://www.dcmp.org/captioningkey

Captioning Software

Free Download
- Subtitle Workshop
- Aegisub
- Jubler Subtitle Editor

Fee Based
- MovieCaptioner
- CaptionMaker / MacCaption
- Camtasia

Free Online
- HTML5 Video Caption Maker
- Accessify
- Subtitle Horse
- dotsub
- Amara

Free Download
- Subtitle Workshop - http://subworkshop.sourceforge.net/index.php
- Aegisub - http://www.aegisub.org/
- Jubler Subtitle Editor - http://www.jubler.org/

Free Online

HTML5 Video Caption Maker - https://testdrive-archive.azurewebsites.net/Graphics/CaptionMaker/

Accessify - http://accessify.com/tools-and-wizards/accessibility-tools/easy-youtube-caption-creator/

Subtitle Horse -http://subtitle-horse.com/

Dotsub - https://dotsub.com/

Amara - http://www.amara.org/en/

Fee based

MovieCaptioner - https://www.synchrimedia.com/

CaptionMaker / MacCaption - https://www.telestream.net/captioning/overview.htm

Camtasia - https://www.techsmith.com/products.html

Another popular solution to captioning is voice recognition software.   Some captioning agencies use voice recognition software to create transcripts and some institutions are trying to use voice recognition software to create transcripts in house. Before going either route you need to understand what the software is capable of doing and what it isn't.

According to   :
- Speech Recognition results are inaccurate, unreliable, and inconsistent – with error rates often exceeding 20%.
- 80 – 90% accuracy is simply inadequate for most applications.
- Accuracy below 97% is insufficient when comprehension is crucial.
- Transcripts with high error rates do not satisfy compliance with legal mandates.
- It costs more to edit speech recognition scripts than it does to use a professional transcriber to start with.

This does not mean speech recognition can't be helpful but it cannot create an accurate transcript without editing. Currently there is not cheap and easy way to create fully accessible and accurate captions. Of course technology is always advancing. At some point in the future captions may be as easy as pushing a CC button. But for now we cannot assume that having words on the screen means equal access.

The most effective way to use automatic speech recognition software is to have a person train it to recognize their individual voice. Then to respeak everything that is said on the video. This person must also speak punctuation or it will not show up. Simply using the software to create text from a video is even less effective.

Watch a video by BBC on their use of automatic speech recognition software to create TV captions: http://www.youtube.com/watch?v=u2K9-JPIPjg

Read an article by DCMP for more infomraiton: http://www.dcmp.org/caai/nadh32.pdf

The captioning process can be cumbersome and time consuming. There are a few things that can make the process smoother. The first is transcription software such as Express Scribe. This software makes creating a verbatim transcript easier. It also works with a foot pedal. The foot pedal connects to your computer via USB and allows you to start, stop, and rewind a video without removing your hands from the keyboard. It can significantly increase productivity.

You may also want to invest in software that will convert video formats, since most captioning software only accepts a limited number video formats.

Additionally, you'll want to look for software to convert caption file formats, the software will only create a limited number of caption formats.

The add on pieces are usually inexpensive but are very helpful to the process.

Caption Fail

PERSON TO ATTEND IOWA STATE.
THE FIRST TO GRADUATE.
AND THE FIRST TO BE

This clip is definitely an example of unacceptable captioning.

First the timing of the captions does not match the audio. This can be confusing to an individual who is hard of hearing and trying to use the captions as support for what they can hear. It is also confusing when the captions don't match the action on the screen. This means a deaf individual would either be behind the action or ahead. Either way can be confusing and frustrating. With post production captions there is no reason why the captions should not be perfectly time synced with the audio.

Next let's look at some of the horrific spelling errors such as: sign tifk for scientific and knee gross for Negros

There is no speaker identification so we don't know when the speaker changes from the narrator to Carver reading a letter he wrote. To a person who can't hear the voice change it appears as if one person is saying all of this.

Also notice that each word appeared on screen one at a time and as the last row ended the text would scroll up. This is a lot of unnecessary movement that can cause eye fatigue.

Transcript Standards

- Captions are only as good as the transcript.
- A transcript should be verbatim.
- It should include speaker identification.
- Spelling, capitalization, and grammar must be correct.
- Punctuation follows standard rules, but also special rules unique to captioning.
- All essential sound effects are included, either in words or symbols (e.g., "buzz" or ♫).

The captions are only as good as the initial transcript, so this is one place to focus on quality. The transcript should be verbatim. Sometimes the rate of speech will be too rapid to allow captions to remain on screen long enough to be easily read. In this case the captions maybe revised. It is more important that the captions remain on screen long enough to be readable rather than be verbatim. DCMP has done extensive research on presentation rate and a report can be found at: https://dcmp.org/caai/nadh137.pdf#search=captioning%20presentation%20rate.

Transcripts should include speaker identification. A preferred method is to position the captions on the screen to show who is speaking. However, most current online media players do not support this formatting. The options are to use open captions which become part of the video and will retain placement or to add text to identify the speaker.

Spelling, capitalization, and grammar must follow standard rules. Transcripts should be reviewed for technical terms and proper names. If you are outsourcing it is helpful to include a list of these words so that the captioning agency does not have to do the research, which can save you money.

The final captions should include sound effects either in a symbol or word. It is usually better to spell out words since most player do not support many symbols other than those on a standard keyboard and the single or double music note.

Be consistent throughout the captions. Some may choose to use { }. [ ]. Or ( ) to offset sound effects. All are acceptable but you should not switch between them.

In House or Outsourcing

- Amount of media
- Available resources
  - Personnel
  - Time
  - Technical expertise
  - Expense
- Quality

Now that you understand the benefits of captioning and the basics involved it is time to decide how you will deal with captions at your institution. Your two basic choices are to pay a professional company or to purchase equipment to create captions yourself. The first consideration most administrator look at is cost. Of course expense is important to us all. However, I challenge you to just as strongly consider quality. If captions are not high quality, they are not providing truly equal access, thus they are a waste of money if done "cheaply."

When considering cost it is important to look at all factors. Purchasing high end captioning software and equipment can run from $5,000 to $10,000 or more. In theory you could get a one time grant and have the equipment you need. However, this does not take into account the staffing needs. Some institutions try using student workers but the reality is that once they are trained to do the job efficiently they move on. Captioning is not a simple or easy process. The more you do it the more comfortable you are with the process and the efficient you'll be. So if you are willing to hire full time or part time staff who can be devoted to captioning then you can establish good in house captions. However, if you have inconsistent staff and they only work with the equipment infrequently they are going to waste a lot of time relearning the process each time. It can take 7 to 10 hours to caption a 30 minute video start to finish.

Outsourcing captioning may seem expensive in the beginning. Companies charge

between $8 to $28 per minute to caption a video. But it could be the best way for you to get high quality captions without a lot of personal time and hassle involved.

What type of media do you need captioned?
      Digital: online courses, online promo videos
      DVD or CD
      VHS
How much media do you need captioned?
How often will you need to caption in the future?
What is your budget?
      Money and Time

Ideally setting up for in house captioning would involve creating a department with full time staff to work on captions. Trying to use existing staff and part time student workers will probably mean that workers are soon overwhelmed and the quality of the captions is not at an appropriate level.

From: *To Kill a Mockingbird*

than Boo Radley's gate.

This is an example of when everything goes right. The captions are clear and easy to follow. They are grammatically correct and time synced. The descriptions fit within the available time. They clearly and concisely explain the action and the voice talent matches the tone and mood for the film.

Resources

- Caption it Yourself
  - http://dcmp.org/public_content/ai/ciy/

- Captioning Service Vendors
  - http://dcmp.org/caai/nadh10.pdf

- Collaborative for Communication Access via Captioning
  - http://ccacaptioning.org/tools-diy-captioning/

- "YouTube Ready" Qualified Captioning Vendors
  - http://youtubeready.dcmp.org/

- DCMP Labs
  - http://labs.dcmp.org/