Video subtitles: some creative uses

Paul Chandler guides us through some exciting and highly educational uses for subtitles in video production in the classroom.

The addition of subtitles to videos evolved primarily to support the viewing experience when language translation is involved, or when viewers have a hearing impairment. Yet it is very easy to create, and there are a range of other educational possibilities, for instance:

- Students providing additional ideas and material to complement the video
- Students creating a summary of the main points of a video as subtitles, which could be a multimodal equivalent to an ‘insert subheading’ task where students are provided with a slab of text, the headings erased, and need to construct suitable headings and subheadings
- Students using subtitles to ask questions about the content, which could be a multimodal equivalent to a ‘write on the reading’ task where students respond to a piece by ‘talking back’ to the writer.

The video itself might come from various sources, for instance:

- Taken from a video camera or phone, as taken by students themselves. It might be a documentary, a role play or an interview etc.
- Taken from video camera or phone, by the teacher (eg video of a demonstration conducted by the teacher and circulated to the class)
- Screen captures using a product like screenr (http://www.screenr.com)
- A portion of video studied in class or downloaded from the Web (legally of course!) [but be careful of file formats, as not every video format will be easily compatible with the process described below]
- An animation product created by a student, using a stick figure animator (eg. stykz), a stop motion animation creator (eg MonkeyJam) or an animator (eg Kahootz or muviz)

These are not ‘the last word’ on the topic, but it should be clear that the educational possibilities by complementing video work with the creation of subtitles are considerable. Assuming, of course, that the subtitling task itself is not a burden. Fortunately, the actual creation of the subtitles is extremely easy, and there is free software available for both Mac and PC. Combining the video and the subtitles into a single video file requires slightly more effort, but it is actually not essential. There are a range of options for the distribution of a subtitled video to cover all levels of expertise and a range of purposes. Again, free and multiplatform software is available.

Creation of subtitles

There are a number of no-cost packages for creating subtitles. I have found Subtitle Workshop (http://www.urusoft.net/), for Win32, to be quite useful for simple tasks (various online forums identify errors with it for sophisticated tasks), while Subs Factory (http://subsfactory.traintrain-software.com/) is available for Macintosh. The following screen shots are taken from Subtitle Workshop. There is a manual for Subtitle Workshop on the web site, and several instructional videos on YouTube, so I won’t go into details for how to use it here – except to note that’s extremely easy to use. Subtitle Workshop will run without installation, and so it is very easy to make this tool available to students.

After starting the program, the Movie menu can be used to open a video. A preview of the video is then shown in a small window. Subtitle Workshop supports a range of video formats, but for compatibility later in the process, it is necessary to be choosy with the format of the video you are subtitling. Notably, it does not support FLV files (eg from YouTube), QuickTime MOV and struggles with MP4s. Avidemux (described later) seems to have problems with WMV files. 

1http://www.stykz.net
2http://www.giantscreamingrobotmonkeys.com/monkeyjam
4http://www.kahootz.com
5http://www.muvizu.com/
files. Experience suggests that it is helpful to start with an AVI or MPEG, converting the chosen video into a more useful format at this stage in the production process, before beginning the actual subtitling process.

After creating a New subtitle, using a combination of the play/pause button (or ctrl + space) and the start subtitle button (or alt-z) and end subtitle button (or alt-x), you can easily create a sequence of subtitles which matches different (time) segments of the video. You can easily revisit the timing and words of the subtitle, and make adjustments as necessary.

To save the subtitled: The subtitles are saved in a separate file with the same filename as the video, but a different extension. For instance, myvideo.avi can have an accompanying subtitle file of myvideo.srt. The subtitle file is actually a text file in a surprisingly simple format. _Subtitle workshop_ allows you to save in any one of up to 60 different formats – enough to thoroughly bamboozle the novice. For compatibility later in the process, saving in SubRip format is highly desirable, which will produce a file with the .SRT extension. It is important that the subtitle filename is exactly the same as the video file name.

**Viewing subtitles**

Once the matching pair of files have been created and located in the same folder, video players such as VLC and _mplayer/mencoder_ will automatically display the subtitles when the video is played. It really is as easy as that. It is probably worth playing the video in VLC as a test before exiting _Subtitle Workshop_. A critique or commentary of a few minutes of video could easily be produced within 30 minutes.

A person (teacher or other student) equipped with VLC, _mplayer_ or _Subtitle Workshop_, if provided with the pair of files, can be viewing what another person has done very quickly. Softburning and hardburning subtitles (discussed below) certainly have advantages, but if you want to minimise complexity and concentrate on the learning, it is not essential to engage with these processes.

**A subtitle track**

This viewing of subtitles is all well and good as long as you’re prepared to transport two files and have access to software which recognises the subtitle files. But how do you combine your subtitles ‘into’ your video, as a single file? There are two solutions: ‘softburn’ and ‘hardburn’. To appreciate the difference requires an understanding that any video file actually consists of several ‘tracks’ bundled up as a container. Typically, there is a video track and an audio track. ‘Hardburn’ involves actually inscribing the words of the subtitle as a graphic onto the video track. In addition to audio and video, there might also be one or more subtitle tracks. ‘Softburn’ involves inserting into the video file (container) a subtitle track. Software which recognises the presence of the subtitle tracks (e.g VLC, Quicktime) can be used to either show or not show the subtitles as the video plays. In Quicktime, this looks something like:

Note that if there is no subtitle track available, Quicktime only shows the option “off”. Similarly, VLC allows the selection of a subtitle track from its video menu, if there is one available. Windows Media Player should also display a subtitle track if available. Its options are “Off” or “On if available”, leaving the detection and presentation of a subtitle track to the software rather than the user. Windows Media Player does not always correctly play the MP4 videos produced by _Handbrake_ (below) (a codec compatibility issue), or correctly recognise the presence of subtitles therein, which, admittedly, is somewhat of a nuisance.

You can in fact have several subtitle tracks. These might be different language translations of a video, but could equally be different educational ‘commentaries’ of the same video. Next time you’re playing a video, have a look to see whether there are any subtitle tracks available!

**‘Softburn’ of subtitles**

An easy way to softburn a subtitle is to use _Handbrake_ (http://handbrake.fr/), which is a product to convert almost any video file into...

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Note: The text appears to be cut off and incomplete at the end. The content discusses the process of working with subtitles in video editing software, focusing on the distinction between ‘softburn’ and ‘hardburn’ methods. It mentions the use of tools like VLC, Handbrake, and Quicktime for managing subtitle tracks, and highlights the importance of software compatibility and user settings for effective subtitle integration.
information on its website; so I won't go into any detail about general operation here. The starting point is the "video file" and "subtitle file" such as produced above, using Subtitle Workshop.

Adding subtitles involves the following steps:
1. Go to the subtitles tab
2. Click on import SRT button, and select the correct SRT file
3. Select the default checkbox
4. Click on the Add button

The interface will then look something like this:

If there is more than one subtitle track to be created, (eg different commentaries or annotations by different students or for different purposes), they can be added by repeating this process.

5. Then click start.

What is curious is that the M4V file produced by Handbrake can usually be renamed as an mp4 file without any ill effects. With a subtitle stream included, QuickTime will sometimes not play a file renamed as an MP4 or, if it does, it may treat it as if the subtitles are not present.

VLC doesn't seem to care about the extension. Just one of those oddities, it seems.

The advantage of the 'softburn' of subtitles is that they can be presented or not, depending on the need, and they are 'bundled' in the one file. If included in an M4V file produced by Handbrake, they are very easy to produce, requiring less than 10 clicks. The disadvantages are that the choice of output container is restricted, so the file may not play in all video player software (the opensource Matroska format, or MKV files, seems to be poorly supported by commercial video players), and not all video

Adiademux (http://avidemux.sourceforge.net/) is a free video editor designed for simple cutting, filtering and encoding tasks. One of its filters hardburns subtitles. Avidemux can produce files in a range of container formats, so one is not restricted to MP4 or MKV formats. There is plenty of tutorial information around (its own website, YouTube) on the general functions of using Avidemux; so I won't go into any detail about that here, but rather concentrate on the hardburning of subtitles. The starting point is the video file and 'subtitle file' such as produced above, using Subtitle Workshop – 'hardburning' and 'softburning' are two completely separate processes, and one does not follow from the other. The trick is to start with a video in a format which Avidemux will process, as mentioned above. It seems to have problems with WMV files, and manages AVI or MPEG files most easily.

‘Hardburn’ of subtitles

The advantages of ‘hardburned’ subtitles are that they are ‘totally included’ with the video, and are guaranteed to play. The disadvantages are that they can’t be turned ‘off’, you can’t have several possible subtitle tracks from which you can select according to purpose, and they are slightly more difficult to produce.

Assuming that everything else has been set up to convert a video from one format to another, the process of adding subtitles is as follows, referring to the diagram to the left:
1. Select video filters
2. Select the subtitles filter
3. Select the subtitler (sub/srt subtitles) option
4. Click on the + button to add the filter, and the following dialogue will appear:
5. The **Subtitle file** is straightforward enough (it is the same one as generated previously and potentially used for the softburn process).

6. The **font (TTF)** is a little curious, as **Avidemux** needs to know the file which contains the font you want to present the subtitles in. Even though a file navigation dialogue is shown, you actually need to key into the “file name” the actual file name of this font, which for Arial is something like `c:\windows\fonts\arial.ttf`.

7. Set the **font colour** for the subtitle.

8. Set the **size and position** for the subtitle.

9. For the **encoding**, select UTF-8 (unless you know what you’re doing, or have created your subtitles in a somewhat exotic character set).

The completed dialogue box will then look something like:

10. Click OK and the **Subtitler** will then show up as an active filter, as follows:

11. Click close.

12. Then produce the video as per the normal process of using **Avidemux**.

**Conclusion**

What I have endeavoured to show is that the creation of video subtitles is easily achieved by teachers and students alike. Furthermore, creative and engaging teachers will be able to think of valuable teaching and learning activities which use this technology. And the bonus is that it can be done for no additional cost.

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