CREATION OF EDUCATIONAL VIDEOS: TOOLS AND TIPS

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Abstract

With the education scenario in evolution and continuous change, and with more and more people turning to the Internet as a primary source of learning and knowledge, many institutions of higher education are using video to transmit their message.

According to some recent findings, almost 70 percent of Internet users watch videos online frequently. Moreover, young adult internet users between 18 and 29 year olds, continue to be the heaviest consumers of online video. Since 2007, educational videos have also experienced considerable growth, from 22% of online adults watching this type of video in 2007 to 38% watching in 2009. Therefore, online videos are a great opportunity to improve the educational process.

Nowadays, it is not necessary to have the support of a video production company or the knowledge of an expert to make quality online videos. All this creates a huge opportunity for education. Any teacher with a normal computer can produce and publish quality videos that can reach a broader audience. Besides, online videos are a perfect way of reaching our students "in their bedrooms".

In this paper, different aspects of educational online videos are explored. Firstly, the production of an educational video is explained step by step, from the definition of the objectives to the making and the online publishing of the video. Then, different tools that can help to make educational videos are presented. Finally, some advices to enhance the production of educational videos are provided.

Keywords: Video, e-learning, internet, education, innovation.

1 INTRODUCTION

Nowadays, the education scenario is in evolution and continuous change, and more and more people are turning to the Internet as a primary source of learning and knowledge. A clear example of this situation is the latest buzzword in online learning: massive open online courses (MOOCs). MOOCs are attracting large numbers of participants.

Another example of this situation is YouTube for Schools [1]. In 2011, YouTube for Schools was introduced, a program free of charge that allows schools to access thousands of high-quality educational videos from different YouTube channels like PBS, TED, and Khan Academy in a safe and controlled environment.

Because of this, many institutions of higher education are using video to transmit their message. All that is needed to participate is an Internet connection.

A wide range of educational videos are available on online video-hosting services, such as YouTube or Vimeo. According to some recent findings, almost 70 percent of Internet users watch videos online frequently [2]. Moreover, young adult internet users between 18 and 29 year olds, continue to be the heaviest consumers of online video. Since 2007, educational videos have also experienced considerable growth, from 22% of online adults watching this type of video in 2007 to 38% watching in 2009. According to a report from YouTube, views of educational content doubled in 2011, with 2012 looking to double that viewership again [3]. Therefore, online videos are a great opportunity to improve the educational process.

Fortunately, it is not necessary to have the support of a video production company or the knowledge of an expert to make quality online videos at the present. A few years ago, only an expert could produce a video. If you did not have the skills you could not edit videos and you could not use them in your courses. Thanks to the improvements in technology, nowadays the scenario is totally different: non-qualified people can create their own educational videos. However, using videos is not necessarily going to make one's courses better automatically.

This new situation creates a huge opportunity for education. Any teacher with a normal computer can produce and publish quality videos that can reach a broader audience. Besides, online videos are a perfect way of reaching students "in their bedrooms".

Educational videos are an invaluable tool, because it is much easier to grasp concepts when students can see them. Educational videos can add a huge value to the learning process. Besides, the ability to pause or rewind a video gives the viewer the power to learn at their own pace, something a traditional classroom cannot offer.

In this paper, different aspects of educational online videos are explored. Firstly, the production of an educational video is explained step by step, from the definition of the objectives to the making and the online publishing of the video. The type of educational video that is explored in this paper is the screencast. A screencast is a recording of the screen activity along with narration from a microphone. Then, different tools that can help to make educational videos are presented. Finally, some advices to enhance the production of educational videos are provided.

2   STEPS TO CREATE A VIDEO

In this section, the creation of a screencast is broken down into ten easy-to-digest steps. A screencast is a recording of the screen activity along with narration from a microphone. Usually, screencasts are used to help demonstrate and teach the use of software features. However, screencasts can be also used to show and teach any kind of subject.

2.1   Think an Idea

The first step, and probably the most important step, is to have an idea, to have something to tell and show viewers. A video can be used to show how a program is used, to answer the most frequently asked questions of students, or to support or extend a lecture in the classroom

One important question about the content of the video is to figure out the audience of the video, i.e., to define the target of the video. The educational video has to be matched to the needs of the potential viewers.

Some advices for elaborating a good idea are: be memorable, stay relevant, and make the point of the video from the beginning.

2.2   Write a Script

The script or screenplay describes the actions and the key points to cover in each scene of the video. The major components of the script are the scenes (the images) and the narration (the dialogue).

The script helps one to focus on the needs of the potential viewers (the target audience). A fully-defined script is hard to prepare, but it is easier to follow when recording the video and will help to save time and reduce errors.

A storyboard, a set of draws or images displayed in sequence for the purpose of pre-visualizing the video, also helps to visualize the scenes and find potential problems before the recording.

2.3   Source the Multimedia Content

There are hundreds of web sites where multimedia content in the public domain free of charge can be found. However, the multimedia content, such as images and photographs, should not conflict with the message of the video.

Some of the most popular web sites where free of charge photos and illustrations can be downloaded are FreeDigitalPhotos (http://www.freedigitalphotos.net/), stock.xchng (http://sxc.hu/), and Wikipedia (http://www.wikipedia.org/).

2.4   Create the Animations and Annotations

Animations and annotations help to create stunning videos. Typically, video recording and editing software video include some types of animations and annotations, so it is not necessary to be an expert to use them. Use animations and transitions, because video is the best medium to show motion.

Annotations, on-screen text, help to support what you say. For instance, if your video is about an academic program with six components which you are about to describe one by one, show them on the screen as you tell the audience about them.

2.5 Plan the Recording

Everything must be planned before starting the recording. For example, when recording a demo about some applications open and resize all of them to the record window so it looks seamless and flows well.

Moreover, record a quick demo to make sure that everything is working as it should.

2.6 Practice

Practice reading the script of the video a few times to make sure it sounds natural and clear. Look for words or phrases where you might face problems.

Educational videos have to teach the viewer some subject in the shortest amount of time possible. Because of this, educational videos have to be as clear as possible.

2.7 Record the Screencast

It is important to speak clearly to avoid any confusion and to move at a pace that is comfortable for the viewers to follow the video.

If there is an error during the recording, editing may be an option, but sometimes it is better to simply start over and have a nice flow to the production rather than piecing together small parts.

2.8 Edit

If necessary, the video can be edited to correct some content, or to add transitions or other post recording material. For example, audio can be edited and added when editing the video instead of being recorded during the presentation. Or video can be edited to adjust the brightness, contrast, or colour of the image.

2.9 Produce

The video has to be produced to fit the intended output, such as streaming from a web page, downloadable media or delivery on a disc.

2.10 Publish

There are several video-hosting services, such as YouTube, Vimeo, or Screencast.com, that can be used. Besides, the video should be advertised or posted in different web sites to get the attention of the audience.

3 TOOLS FOR WORKING WITH VIDEOS

As is often the case with software, the options are plentiful for working with videos. In this section, some tools to create low cost videos are presented.

3.1 Recording the Video

CamStudio is a desktop software free of charge able to record all screen and audio activity on the computer and create video files and Streaming Flash videos (SWFs). In Figure 1, the main window of CamStudio is displayed.

The main features of the CamStudio allow you to choose the area and type of video capture, set the video options, the audio options, and the cursor options.

There are three types of regions that can be defined to be captured: an arbitrary region that can be defined before the recording starts, a fixed rectangular region, and the entire computer screen.

Figure 1: CamStudio main window

The video options, shown in Figure 2, allow you to optimize the video recording by choosing the quality and frame rates of the video files.

The compressor allows you to select the encoder for the video files. Different encoders have different characteristics and performance. CamStudio comes with its own Lossless Codec that produces crystal clear results with a much smaller file size compared with other more popular encoders.
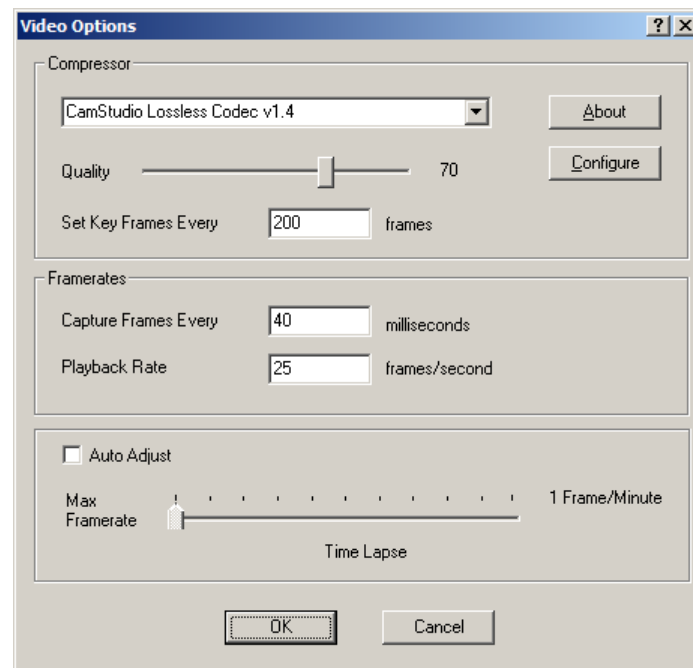

Figure 2: Video options in CamStudio

CamStudio can record voice input from the microphone while it is capturing video. The audio options, shown in Figure 3, allow you to set the recording and compressed format of your audio.

The recording format is the format the computer use to record the voice from the microphone. Its main attributes are samples per second (measured in kHz), mono/stereo input, and bits per sample (usually 8 or 16 bit).

The compressed format allows you to select the encoder for the audio. An encoder compresses the audio to make video files smaller in size and cause them to play faster. However, the more a file is compressed, the worse the quality is.
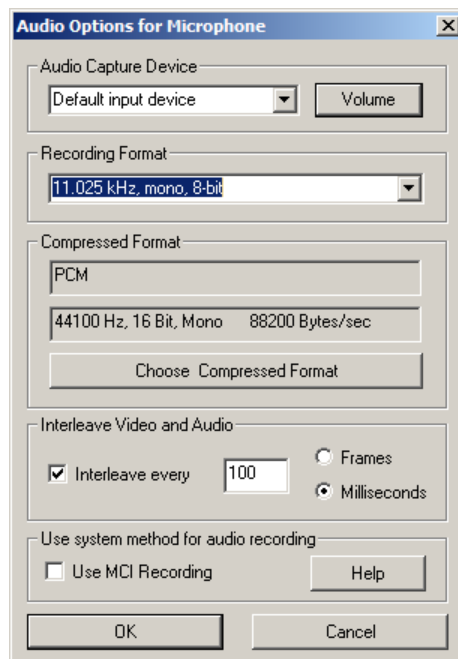
Figure 3: Audio options in CamStudio

The cursor options can help illustrate the action is being recorded by drawing attention to the area where the action happens. The cursor can be hidden during screen capture or can be replaced with a customized cursor. Besides, the cursor can have a highlight are around it. This helps in calling attention to the movements of the cursor.
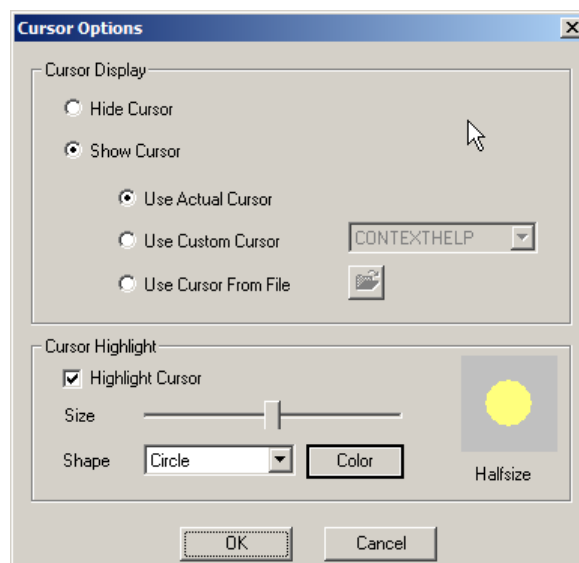

Figure 4: Cursor options in CamStudio

During the recording, the video can be paused when some actions not important must be carried out, such as clicking some buttons or opening an application. The use of the pause creates faster screencasts that will look more polished and professional.

3.2 Editing the Video

Editing a video is a time-consuming activity. The visual industry rule of thumb is that for one minute of finished video in a program, it takes at least one hour of editing time.

There is plenty of free editing software available online, but this software does not offer as many options and controls as a paid editing software.

In Microsoft Windows operating system, Microsoft Windows Live Movie Maker is an editing software free of charge. This software allows you to combine videos and photos, to add special effects and themes to make videos stand out, and to automatically share videos online on web sites such as YouTube and Facebook.

3.3 Publishing the Video

There are several video-hosting services, such as YouTube, Vimeo, or Screencast.com, that can be used. Besides, the video should be advertised or posted in different web sites to get the attention of the audience.

4 TIPS

If one is not used to making educational videos, the first tip is to spend a little time watching some educational videos to detect best and worst practices. Besides, in this section ten essential tips are provided.

4.1 Keep Simple in the Beginning

Do not try to create and produce complex videos in the beginning. Try to keep it simple in the beginning. Try to create videos in one shot, which most likely means less editing and retakes.

4.2 Prepare Your Environment

Before starting the recording session [4]:

- Control the ambient noise. Turn off any machine or appliance that can make disturbing and annoying noises. For example, remember to switch off the telephones and alarm clocks. Check that the chair does not squeak. If the ambient noise cannot be reduced, try screening it out by playing some music in the background while recording.

- Get rid of distractions. Put out of sight everything that can attract your attention while you record, such as flash lights or the view through a window.

- Get comfortable. Check the position of the microphone and the screen. Check that there is enough room to move the mouse.

- Prepare the computer. Shut down all the applications that are not necessary. Specially, shut down the antivirus and the screen saver.

4.3 Prepare Yourself

Recording a high quality screencast demands a strong and deep concentration. When a person is tired or nervous, he or she commits more errors.

4.4 Screen Resolution

As monitors get bigger and bigger, larger screen resolutions can be used. In Figure 5, the evolution of the top ten screen resolutions is displayed from April 2011 to April 2012 [5]. Nowadays (April 2012), the most common screen resolution is 1366x768 (bigger that HD resolution) with a share of 19.5%. However, Full HD (1920x720) only has a share of 5.3%, but it is steadily increasing and the trend is to continue increasing until becoming the most popular screen resolution.

Therefore, it is quite better to record videos at the largest screen resolution, Full HD at best.

On the other hand, the smaller, the better. A smaller capture resolution means faster publishing and faster playback for viewers. It also makes recordings sharper for viewers who do not have a high screen resolution.
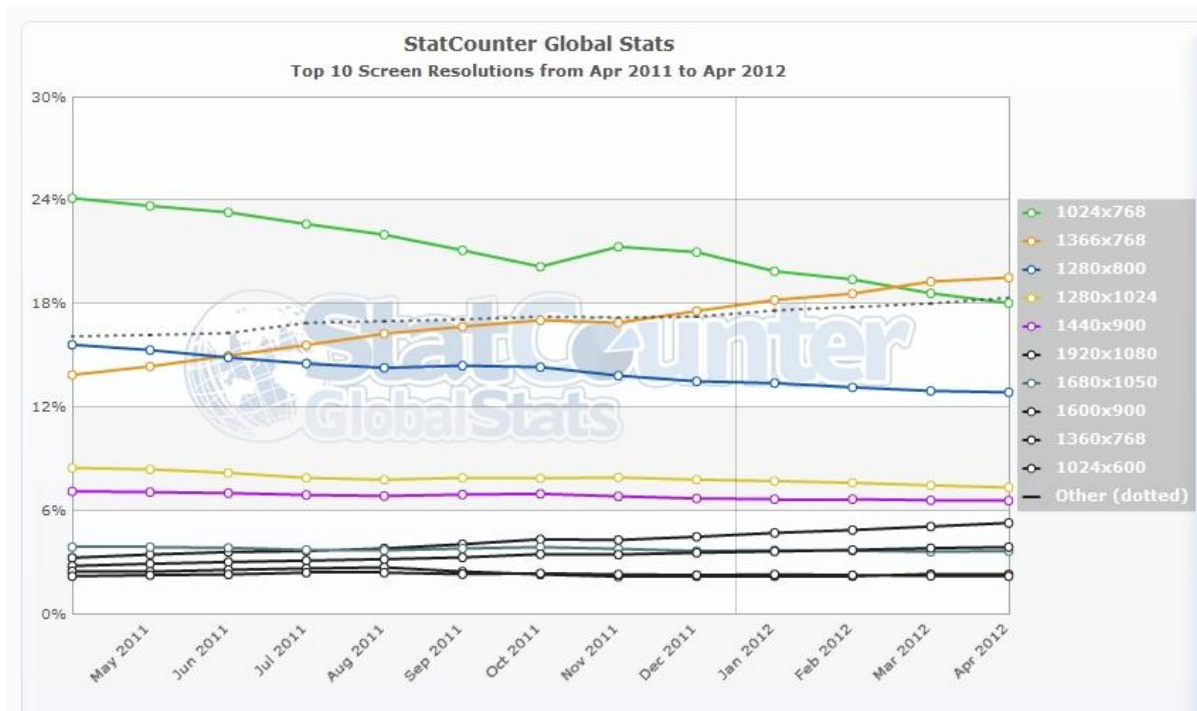
Figure 5: Screen resolution statistics

4.5   Invest in a good quality microphone

Good audio is critical to guarantee the success of a video. Some experts say bad audio is worse that a bad screen [4]. Some cameras may have a built-in microphone, but more than likely it is better to invest in an external microphone.

Basically, there are two types of microphones: omnidirectional and unidirectional. An omnidirectional microphone records sound from all directions, whereas a unidirectional microphone records sound from only one direction.

When recording a narration, it is extremely better to use a unidirectional microphone, because it only records the sound coming from the narrator, so the ambient noise is not recorded. In this way, videos will sound crisper, louder, and overall better.

Moreover, there are also headset and desktop microphone. With a headset microphone, the pops of air and movement of the mouthpiece can be recorded.

To check the quality of the sound is better to use headphones, because they help to isolate the audio and the problems can be detected better than with speakers.

4.6   The Length of the Video

The Web is a medium quite different from traditional communication medium. For example, web pages typically have shorter paragraphs and long-form articles are broken up into different web pages when published online.

In the same way, if a screencast is too long, it can always be broken into smaller parts. The length of an educational video should be between three and five minutes, perhaps stretching to ten minutes for more complex subjects.

4.7   The Title Screen

The title or splash screen is one of the most important parts of the video. The title screen helps the viewer to identify the author of the video. Besides, it also helps the viewer to decide if it is worth watching it.

A small logo as a watermark can be placed in one of the corners of the screen to identify the author or the origin of the video.

4.8 Grab the Attention of the Audience in the First Minute

The intended goal of the video must be defined in the first seconds of the video. Make use of emotive hooks to engage the audience with the content in the first minute of the video. A variety of techniques do this: telling an anecdote, using quotations, asking a question, stating an interesting statistic or fact, giving a definition, and many others.

4.9 Use Visual Aids

Use plenty of visual aids, such as photographs, graphics, charts, or key terms for added emphasis. Videos are basically visual, so they need a large change of images. Otherwise, videos tend to bore the viewer.

About transitions and other similar effects, stick to one or two types of effects and keep them brief (one or two seconds is enough).

4.10 The Closing Screen

The closing or credit screen should mention contact details of the author, such as the web site address, the blog address, the email, or the twitter user name. Moreover, to include a license of the video (e.g., can a commercial organization use the video in a public review?) and a reference to the different resources used is also a good idea.

5 CONCLUSIONS

Internet is rapidly becoming the primary source of learning and research. Because of this, it is increasingly important to take advantage of the possibilities Internet offers to communicate and videos is one of the most prominent ways.

Today's authoring tools make it easy to leverage the power of multimedia to students. An instructor does not need to be a professional audio engineer or video producer to create good videos. But it sure does help to know a little about both and how to get the best quality possible.

In this paper, we have reviewed some tools that can help instructor to create low cost videos. If an instructor has a limited budget, these tips can help them do the best job possible.

The success of a video stems from the ability of the instructor to show the ideas and theories rather than simply explain them. On the other hand, education videos have to fight against endless distractions: it is very difficult to hold the viewer's interest. One of the most important key factors in the success of a video is its length: after five minutes, attention dramatically starts to drop.

Nonetheless, students can also do screencasts to demonstrate their skills. This can be a good idea to reinforce the learning process. Instructors can also use screencasts as another means of integrating technology and digital skills into the curriculum. Students can record video and audio as they demonstrate the proper procedure to solve a problem on an interactive whiteboard.

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