

Technically speaking: Screen recording software for creating instructional material

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Screen recording software overview

Screen recording software can be used for numerous tasks. It can be used to make instructional videos on how to utilize software applications or how to register for online websites. It can also be used to create narrated presentations or for developing sophisticated interactive learning content.

The core function of screen recording software is to record the computer desktop as a user selects menus, moves between applications, visits websites or makes system configurations, and then saves the captured desktop actions as slides or a video file. All mouse movements, menu selections, text entries and launching of applications are recorded.

For educators, screen capture software can be an extremely effective tool when introducing new technology to learners. Educators, particularly language instructors, are often faced with the task of teaching language skills in addition to teaching computer skills. While many language educators agree with the notion that the process of teaching students how to use a new technology in the target language establishes an authentic language learning task, many also find the dual role of teaching language and computer skills to be overwhelming. Furthermore, teachers often avoid using new technologies in the classroom due to time constraints. Although many educators would like to encourage students to develop their technology skills, there is often

not enough time to manage both language and technology instruction. Another challenge that teachers face is coping with the different levels of familiarity that students have with technology. Some students may have little or no previous experience with educational technology and the Internet. For other students, even those who are capable users of cell-phones and game-controllers, it may be their first time to use a PC with a large screen, keyboard and mouse. Conversely, there may well be other students who are already proficient users of PCs and have no difficulty searching and surfing the internet, inputting text, accessing PC files and using the menus and standard keyboard shortcuts that PC applications typically employ.

To help overcome these challenges, teachers can make use of screen recording software to develop video tutorials that introduce technology skills needed to complete a particular task. The video tutorials can be made readily available and accessed on demand by learners who require additional support with using a particular technology. Technology tutorials may include simple tasks such as spell-checking a document or logging in to a course, or more advanced tasks such as generating a chart from a spreadsheet or inserting audio into a slide presentation. Basic tutorials that demonstrate how to use an application can typically be created by the instructor in the same amount of time that it takes to perform the initial task on the computer. Producing a basic tutorial entails launching the screen recording application, completing the target computer task, and exporting the captured video file which can be uploaded to the web.

Screen recording software can also be used to create more elaborate interactive learning materials. After the initial screen capture is completed, it is possible to edit and add to the content of the video. Many of the screen recording applications have options to add titles, highlight specific areas of the screen, insert callouts and add menus to navigate to particular parts of the video. With most screen recording applications, you are able to record live audio while capturing the screen, or insert a separate audio track later. The most advanced screen recording applications also allow the inclusion of questionnaires and surveys to check that the material has been understood.

Another novel use of screen recording software is for the creation of animated learning material. Animations can be created with your favorite application and then using a screen recording application, the animation can be captured, edited and exported. One simple method to create web-based animations is to insert or draw images using PowerPoint and add animated effects using the primitive PowerPoint timeline. After the animation is created, it can be captured and converted to web friendly video format using a screen recording application.

Screen recording software can also be used to support professional development and research as it allows teachers to easily create online narrated presentations.

The first part of this article will compare two of the most sophisticated screen recording applications, Adobe Captivate and Camtasia Studio. The second part of the article will introduce several shareware and freeware alternatives to Captivate and Camtasia.

Captivate

Adobe Captivate is software for recording screen and mouse activity, and for creating interactive tutorials and e-learning materials. It can produce Flash files to be embedded in webpages or pdf documents, or avi files suitable for upload to online video sites such as YouTube.com.

Currently, the stable version of the software is available only for Windows. The Mac

version of the product is in the beta stage of development, so Mac users have a choice of using that or using the Windows version on a Windows simulation tool such as Mac OS^X's built-in "BootCamp", or a commercial solution such as "Parallels".

The installer software for Captivate can be purchased on DVD or downloaded from adobe.com. While the full commercial price is about \$800, cheaper versions may be found by shopping around on the Internet and those eligible for academic discounts can obtain the software for less than half the full price. For those wishing to try before they buy, there is a 30-day trial version of Captivate available from adobe.com.

Installation is as easy as inserting the DVD, or clicking on the downloaded installer file, and then following the onscreen directions. Be aware that the recommended hardware requirements are at least 512MB of RAM (1GB recommended) 1.5GB of disk space.

Captivate records screen and mouse activity as a series of screenshots called "slides". A collection of slides is called a "project". The automatic recording mode will usually create slides satisfactorily, but more detailed control of what is captured is possible in manual recording mode. If there is onscreen activity such as an animation or mouse movements that do not involve clicking, then full-motion recording mode will capture the screen as a continuous video clip. However for software demonstrations, automatic recording mode will generally suffice.

After capturing the screen activity, the teacher can edit the slides and specify how they are to be sequenced. As well as editing the captions and instructions that are added automatically for certain actions such as selecting menu options and clicking on buttons, it is possible to alter the mouse movements, add new captions, insert images and movies, and of course to add an audio track.

In a simple Captivate project, the slides will be displayed one after the other. Each slide can be setup to display for a set time, or to wait for the click of a continue button. The exact timing of the slides can be adjusted using the timeline which gives a visual representation of the order in which items are displayed on the screen (Figure 1).



Figure 1. Captivate's timeline

A more complex Captivate project may include "branching" pages which have navigation buttons that allow users to choose what they wish to see next. A branch may lead to another slide in the project, a slide in another project, or an external webpage or application.

Captivate features a convenient tool to create a table of contents for the project. Slides can be selectively included or excluded from the table of contents as required. Another important editing task is to select a "skin", which defines the look and feel of the playback window and controls. Once a project has been saved, it can be used as a template for future projects. Projects based on the same template will share the same settings for appearance and behavior.

As well the compatibility with other Adobe products, for example the ability to import Photoshop's psd files, the thing that sets Captivate apart from its rivals is its ability to make

interactive e-learning materials. The simplest way to do this is to enable “training mode” when doing an automatic recording of screen activity. During playback, the user will be given the opportunity to duplicate the menu choices and mouse clicks that are modelled in the tutorial. Automatically generated hints and feedback will guide the user to complete the task by themselves.

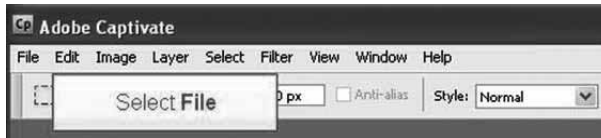


Figure 2. Captivate in training mode showing hint of what to click next

Captivate can go further. It offers the teacher the ability to create quiz slides, each of which contains a single question. There are seven types of question: multiple choice, true/false, cloze, short answer, hot-spot, sequence and rating. It is probably clear to most language teachers what multiple choice, true/false, cloze and short answer questions are. Hot-spot questions require the user to click on a certain area of a picture. A sequence question has several items which must be arranged in a particular order. Rating questions are useful for surveys as they invite the user specify a level agreement with a statement such as “I found this tutorial useful.” As well as displaying specific questions, slides can also be set up to display a randomly selected question from a specified question pool, which can contain different types of question.

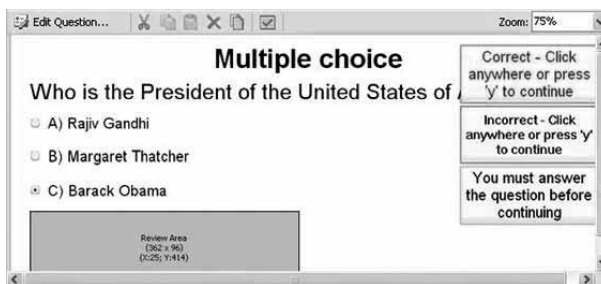


Figure 3. Captivate’s input screen for a quiz slide

Each quiz slide can be designated as a graded question or a survey question. The grades for graded questions can be combined to produce a final score which can be used to decide if the user has mastered the materials or not. The results of both graded and survey questions can be recorded and sent via email to the teacher or directly to a **SCORM** compatible learning management system such as Moodle.

Camtasia Studio

TechSmith Camtasia Studio is a simpler screen recording solution in that it captures all desktop actions as full-motion movies, unlike Adobe Captivate’s approach of capturing individual slides. In this respect, Camtasia requires far less computer processing power.

Camtasia Studio is currently only available for Windows users and costs USD \$299 for the non-academic version and \$179 for the academic version. The current version, at the time of writing, is 6.0. A fully-functional 30-day trial can be downloaded online. The downloadable trail is a .msi file which you can double-click to start the install.

After installing and launching the application, use your mouse to select the area of the desktop to record. You can select the entire desktop, a single window or a specified area of the screen and then use either the 'record' button which appears or a pre-assigned hot key to start, pause, and stop the screen recording process.

After capturing the screen movements, the video can then be edited. Editing in Camtasia, as shown in figure 4, is quite intuitive and similar to other video editing applications such as Windows Movie Maker or Apple's iMovie. The timeline on the bottom includes tracks for both audio and video. Narrations can be recorded in real time while capturing the desktop or as separate sound tracks that can be imported at a later time. There are several audio editing tools that allow you to change the volume of the audio tracks and to remove background noise. The 'Picture in a Picture' function creates video with both the presentation and the presenter side by side. If recording a narration separately from the video capture, it is possible to freeze any frame within the video while narrating.

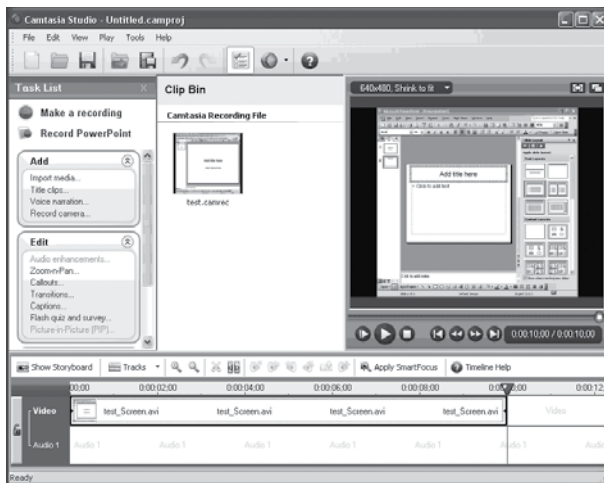


Figure 4. Camtasia's editing mode.

As with most video editing applications, you can overlay text to the video and add titles and credits. The interactive callouts and arrows can be used to create onscreen navigation objects that allows users to jump around within a presentation or click on a video within the presentation to view it. Another particular interesting feature is zoom-and-pan. This can be especially useful for displaying presentations on portable device screens.

If you are interested in creating interactive learning content, it is possible to embed quizzes or surveys with multiple-choice or open-ended questions anywhere within a video. The quiz or survey responses can be sent directly to a SCORM-compliant learning management system or emailed to a specified address.

One feature that is particularly useful when making online learning content is Camtasia's 'menu maker'. After capturing a screen recording, markers can be placed within the timeline. The markers can be used to create a static menu that allows users to jump to a specific point within the video.

Camtasia also has a PowerPoint toolbar which once activated, appears in the PowerPoint menu so you can easily record a full screen PowerPoint presentation.

Camtasia can export captured video to several popular video formats, including H.264, Windows Media, **AVI**, **SWF**, and **FLV**. An expansive choice of preset video formats, shown in figure 5, makes it easy to create video files that can be easily distributed via the web using sites like YouTube or played on portable devices such iPods.

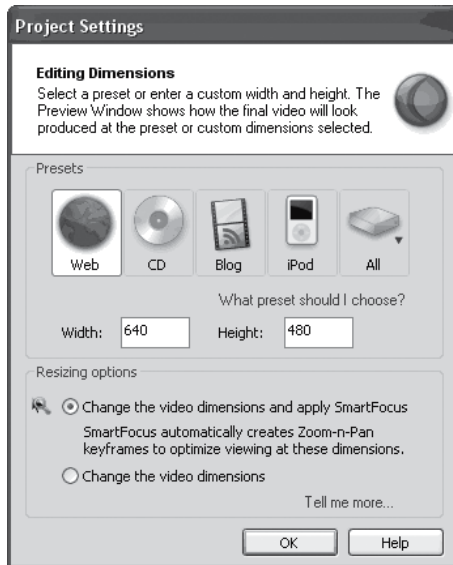


Figure 5. Camtasia's presets.

Alternative video capture software

CamStudio

CamStudio is an open source alternative video screen capture application for Windows. While it lacks sophisticated editing functions, such as a zoom feature and a video editor, it is quite capable of capturing screen actions and it has basic editing options that can be used to add video annotations and comments to captured video or highlight the cursor. Video annotations and comments are limited in that they must be laid out on the screen before recording. The application also includes basic audio and video sync tool. CamStudio saves recorded video files in either **AVI** or **SWF** format and allows users to set the compression rates of the video to best match the distribution environment.

Jing

Produced by Techsmith, the same company that sells Camtasia, Jing is a free but limited screen recording package that includes both a screen capture application for static screen shots and a screen recording application for capturing video. You can select a window or part of a window to capture, and it will only export screen casts in **SWF** format which requires Adobe Flash player to view the exported video. The **SWF** files can be uploaded to YouTube, or to a site called Screencast.com hosted by Techsmith. Jing is quite limited in that it only allows you to record a screen cast of up to five minutes and when viewing the final video production, the product name appears in the final video.

Wink

Wink is a Freeware screen capture application that runs on Windows and some versions of Linux. It works in a similar way to Captivate, in that it captures screenshots and then allows the teacher to edit and sequence them. There are three recording modes: manual, timed and input-driven, where the latter resembles Captivate's "automatic" recording mode. During editing, it is possible to specify when slides and the objects they contain are to appear and disappear, but there is no timeline so the timing values must be entered numerically. Also note that unlike Captivate, Wink does not create captions automatically. Wink does allow branching between slides through the use of navigation buttons, but it has no equivalent to Captivate's quiz slides. Wink's output formats are suitable for the producing web-based or paper based materials. It can produce Flash files (swf), stand-alone Windows files (exe), printable documents (pdf) and web files (html). Wink is free and backed by an active development community so it may well appeal to teachers who are on a tight budget but want versatile software.

Screenflick

Screenflick by Araelium Group is a Macintosh application for screen recording. It has a simple Macintosh-like user interface and can record the entire desktop or a specified area of the screen at up to 60 frames per second. It also allows real time audio recording, has a mouse highlight feature and can display keyboard commands within the presentation. The final recording can be compressed using several preset resolutions. Users can also set the video capture rate and when recording audio a microphone or another audio input can be selected. The size and length of the recording is also displayed in the menu bar when recording. There is no video editor included with ScreenFlick but its basic editing features allow you to show or hide the mouse, highlight and customize mouse clicks and insert visuals of keyboard shortcuts.

Windows Media Encoder add-on

Windows Media Encoder add-on is built into the Windows Media Encoder and is freely available to Windows users. The add-on can be downloaded from Microsoft's website. Once installed, an option for 'Capture Screen' appears when the application is launched. You can then select whether to capture a specific window, a region of the screen or the entire screen and whether to capture audio from the default Windows audio device. You can pause the

recording at anytime by using [alt] [tab] and switching back to the Windows Media Encoder program. The application only outputs files in the Windows Media Video (.wmv) format and there are three options for video file size: small, medium, or large. The resulting **.WMV** file can then be edited using Windows Moviemaker. I found that the smallest video size resulted in a very poor quality video so I would recommend using either the medium or large video file size option. Also, if importing the captured screen recording to Moviemaker for editing, the quality of the final video will further degrade. While Windows Media Encoder is not the most elegant solution for creating learning content, it is free and can be used in a pinch for basic screen recording tasks.

Table 1: Screen recording application comparison chart

Application	Captivate	Camtasia	Screenflick	CamStudio	Jing	Wink	Windows media encoder
Developer	Adobe	Techsmith	Araelium	RenderSoft	Techsmith		Microsoft
Cost	Commercial	\$300 USD	\$25 USD	Free	Free	Free	Free
OS	Windows Mac Beta	Windows	Macintosh	Windows	Windows & Macintosh	Windows & Linux	Windows
Capture method	slides	video	video	video	video (up to 5 minutes)	slides	video
File formats	avi, swf	avi, swf	mov	avi, swf	swf	swf, exe	wmv
Video Editing function	yes	yes	no	no	no	no	no
Audio recorder	yes	yes	yes	yes	yes	yes	yes
Audio editor	yes	yes	no	no	no	yes	no
Edit mouse movement	yes	yes	no	no	no	yes	no
Highlight areas of the screen	yes	yes	no	limited to pre-recording layout	no	no	no
Zoom and Pan	yes	yes		Auto pan	no	no	no
Add menus	yes	yes	no	no	no	no	no
Add guided tutorials	yes	yes	no	no	no	no	no
Add quizzes	yes	no	no	no	no	no	no

Online Resources

Adobe Captivate download: <http://www.adobe.com/products/captivate/>
Adobe Captivate help: http://help.adobe.com/en_US/Captivate/4.0/Using/
Camtasia Studio download: <http://www.techsmith.com/camtasia.asp>
CamStudio download: <http://camstudio.org/>
Jing download: <http://www.jingproject.com/>
Moodle: <http://moodle.org>
Parallels: <http://www.parallels.com/jp/products/desktop/>
Screenflick download: <http://www.araelium.com/screenflick/>
Windows Media Encoder add-on download: www.microsoft.com/windows/windowsmedia/forpros/encoder/default.mspx
Wink download: <http://www.debugmode.com/wink/>