Use of Screencasting for Instructional Purposes: Ingredients for Success

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Abstract: Screencasting, the recording of video with content from a computer screen and instructor narration, is an essential element of online and flipped pedagogies. This Quick-Hit provides a detailed description of methods for designing and implementing screencasted productions. Considerations for hardware, software, storage, and accessory specifications are identified. Specific pedagogical considerations, such as concept-based lesson design and a short running time, which are critical to ensuring repeated viewings, are also discussed. Numerous potential applications are reviewed, including merging video, screencasted narrations, and other modalities through basic editing techniques.

Keywords: screencasting, scholarship of teaching and learning, instructional design, video productions, pedagogy

The growing presence of online courses and an evolving understanding of high-impact pedagogies for face-to-face instruction have converged, obligating an increased use of video productions for course materials. Using screencasting technology to create video productions involves capturing images and/or audio from a computer screen and adding guided instruction to produce customized, independently-reviewable video content. Guided instruction may include narration or on-screen call-outs. Screencasted productions can include website tutorials, lessons captured during face-to-face class time, onscreen demonstrations, written edits of student work with accompanying instructor audio commentary, and multidimensional productions that contain audio, video, website demo, and other digital content.

Specifically, video productions created with screencasting allow for a myriad of instructional support to learners including hand-over-hand teaching, mediated learning through instructor think-alouds, distributed or mass practice material, and just-in-time instruction for troubleshooting (Vondracek, 2011; Pinder-Grover, Millunchick, & Green, 2013; Betty, 2008; Gorissen, van Bruggen, & Jochems, 2012). These video productions can foster student engagement through multimodal presentations of content and opportunities for deeper learning, increase learning and self-efficacy, improve teaching efficiency, and contribute to teaching effectiveness (Marriott & Teoh, 2012; Lloyd and Robertson, 2011; Green, Pinder-Grover, and Millunchick, 2012). The focus of this paper is to address potential applications and implementation of the technologies; the effect of these supports on student learning is not examined.

Recipe for Getting Started with Screencasting

Various forms of technology including hardware and software formats exist for producing and distributing screencasts. Instructors select topics or outcomes that may benefit from or require
screencasts. Next, they must understand the technology options for screencasting and make a plan for the production. This includes operational competence, procedural competence, and knowledge of advantages and limitations of potential tools. Operational competence can be defined as the skills needed to use a tool or application accurately and efficiently. It relies on motor, cognitive, visual and auditory skills (Beukelman & Mirenda, 2013). Procedural competence encompasses the skills needed to implement a given technology accurately and efficiently. In order to evaluate advantages and limitations of screencasting tools, it is necessary to understand the potential implementation. Implementation is related to the pedagogical approach being used. Pedagogical factors are critical to consider as an instructor determines the ideal duration, content, and delivery platform for content. This is a time-consuming process, but critical to remaining responsive to innovations and meeting the demands of today’s learners and evolving teaching-learning contexts.

The following procedures are suggested to foster implementation and refinement of screencasted productions:

Isolate a Concept

Constrain the lesson to a single concept that can be taught in three to ten minutes (some exceptions may apply). It is important to make a pedagogical distinction between recording an entire 50-minute lecture and screencasting specific concepts. Concept-based lessons are intentionally brief and reviewable. By generating concept-based lessons, students and instructors can identify the specific points of breakdown or understanding.

Locate Resources or Materials

Choose the items that will be needed to show and tell. This may include electronic documents, images, website URLs, video files, or other content. Digital content may need to be captured, created, or simply gathered from existing resources. For some screencasting, it will be helpful to open each item and then minimize them on the screen so that they can be accessed efficiently during the screen capture process.

Select the Appropriate Hardware/Software Combination for the Lesson

This “tech-match” is a critical step and may occur at this stage (i.e., after the target lesson and materials have been identified). Note that decisions about technology should be based upon pedagogical purpose, but may be imposed based on available technology. Ideally, choose the best hardware and software for the type of lesson being screencasted. Some options will include:

- **Hardware**—A computer, tablet/mobile device, web cam, lecture capture unit, digital video camera, tripod, backdrop image (if capturing oneself onscreen), scanner, external microphone, headset with boom mic, animation tools (such as a stylus), or document camera may be used.

- **Software**—*Camtasia, Educreations, Explain Everything, Microsoft PowerPoint, Front Row* (software for lecture capture with Juno), *Reflector* software (for iPad mirroring), *Screencastomatic, Screencasts Online*, etc. may be used. We do not endorse any particular software, but rather utilize a variety of options.
• Editing software and hardware—Note that not all computers have processing capacity to complete editing of multiple video files. A host of high- and low-end video editing software exists. Consult with your instructional technology department for computer specifications and software recommendations.

In addition to the tech-match process, make sure potential background distractions have been minimized. Test the audio and video quality for the selected hardware and software tools; a 10-second “practice” capture will ensure all pieces are in place and working as needed. Failure to do so can result in wasted time with an empty or lacking capture.

Capture the Lesson

This next step is to record the lesson while remaining diligent to remain on-target during the screencast. To do this, remember the goal or isolated concept (i.e., the purpose) of the screencast, while being aware of timing. Content need only be presented once because the learner can review as needed. This is different from what might happen in a face-to-face classroom, where the instructor might restate a concept several times to clarify or stress importance. Use the software and/or hardware “pause” function to adjust and re-orient during the capture. Doing so will require less editing of the production after completion of the initial capture.

Edit and Produce to Add Features that Emphasize Concepts

This step is sometimes critical, especially when creating a formal production that is intended to be used repeatedly. It may not be necessary when creating a “quickie” production to address a specific question or concept. Editing may include adding call-outs, overlaying additional narration, deleting sections of the production not needed, or changing other aspects of the production. Be cognizant of the concept(s) to isolate and consider adding “quiz” features (e.g., offering a question to the learners and then inserting a pause to give them time to develop an answer before the production moves forward, allowing them to check their response). Be mindful of running time to avoid being too long or too brief.

Challenges and Potential Pitfalls

While a powerful and increasingly necessary teaching tool given the ever-changing format of higher education, screencasting presents potential obstacles that can be avoided or minimized. Some include:

Time Consuming

Typically speaking, the more time invested in planning before beginning a screencast, the less time necessary for editing. Although the learning curve can be steep, productivity and efficiency increase as the amount of screencasting increases. Moreover, as a repository of screencasted productions grows, screencasting becomes a time-saving teaching tool.

Screencasting Quality Issues
Lack of hardware, software, or internet connections can hinder the process. Be sure to do a trial recording, even if just for ten seconds, before launching into your full capture. Work with instructional technology support staff to find the tools that will work best based on production needs.

Compatible File Formats for Students

Be mindful of the types of file formats provided to learners. This can become an issue when accommodating learner access through varied technologies (i.e., PC, Mac, or mobile technologies). Ideally, use streaming media on a central server to avoid complications with hardware or software specifications of the audience. If this is not possible, choose universal file formats such as MP4s.

Server/Storage Space Demands

As the collection of productions grows, server space needs will increase. Be proactive with technology support staff and administrators to secure the space needed to allow for use of this critical teaching tool.

Conclusion

As online learning continues to grow through addition of fully online, blended, and flipped classroom designs, and classroom instructional pedagogy evolves, screencasting will be an even more relevant teaching tool. Development of screencasts allows instructors to provide content outside of class and sets the stage for innovative pedagogy, which allows students to be more interactive with the content during class time. Generating a repository of productions requires time and may not be feasible in a single iteration of a course; furthermore, revisions of productions will be required as you become cognizant of your learners needs or as pedagogy evolves. Technology changes rapidly, but the rationale, principles, and method for creating screencasts will remain.

Further application of screencasting could include a variety of purposes. Students may generate productions to demonstrate knowledge and skills related to disciplinary content. Instructors may draw upon this technology to facilitate asynchronous collaborations. Instructors and students may create productions to assist in troubleshooting. Such productions may include single-use or reusable learning tools. While some learner needs may be discipline-specific, screencasting offers a platform for efficiently disseminating content for student consumption, allowing face-to-face class time to be spent on in-depth discussion and application of content. It can easily become an essential adjunct to one’s instructional pedagogy.

References


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