Examining the Use of Educational Video Clips in Distance Education

Dr. Robin Kay
Associate Professor, UOIT
Oshawa, Canada
robin.kay@uoit.ca

Abstract: A well-documented advantage of distance learning is that students control the time, pace, and pathways of learning. This control over learning is particularly appealing when just-in-time support is readily available. However, providing effective, timely assistance is challenging for instructors and tutors. The time and money required to provide help 24 hours a day, 7 days a week is both time and cost prohibitive. One possible strategy that could reduce the time required to address student questions in a distance learning environment is the use of educational video-clips (EVC). This paper will report on the benefits of EVCs in four key areas: instruction, assessment, administration, and creating community.

Overview

Participation in distance education has grown at a remarkably rapid rate. In the United States, almost five million higher education students reported taking an online course in 2008 (Allen & Seaman, 2008), an increase of over 180% since 2002. Over 96% of the largest higher education institutions (more than 15,000 students) offer distance education (Ruhe & Zumbo, 2009) and more than 25% of all college students have participated in at least one online course. It is reasonable to conclude, that distance education is becoming a fixture in college and university settings. One well-established advantage of participating in distance education is that students are able to control the time, pace, and pathways of learning (Burgess & Russell, 2003; Pierrakeas, 2003). This control over learning is very attractive to a user, particularly when customized or just-in-time support is available (Harper, Chen, & Yen, 2004).

Providing effective, timely support for students, though, can be stressful and time consuming for instructors and tutors (Harper et al., 2004; Levine, 2003; Wallace & Wallace, 2001). Unlike a face-to-face classroom, students cannot get immediate guidance when they need it. The use of email or online discussion necessitates a time lag between a student's question and an instructors response. Instant messaging (IM) is possible alternative, however, it is unrealistic and cost prohibitive to have instructors and tutors available 24/7. Furthermore, IM is limited in the type of question that can be answered – complex formulas and equations, for example, are difficult to explain using this medium.

One possible strategy that could reduce time delays in addressing student queries in a distance learning environment is the use of educational video clips (EVCs). An EVC is a 3-10 minute video providing help in a wide range of educational problems that a student might have. EVCs have video controls that enable a user to easily pause, rewind, and fast forward a clip. More importantly, they are small, easily downloadable, and available at any time. The purpose of this paper is to provide a detailed discussion of the use of EVCs in four key areas: instruction, assessment, administration, and community support.

Instruction and EVCs

An instructional EVC is a relatively short video clip of an instructor talking aloud while solving a worked-example. Viewing this clip is similar to watching an expert solve and explain a problem on a whiteboard, however, in an EVC you only see the whiteboard, not the person. Video controls (e.g., pause, rewind, fast forward) allow the user to determine the pace of learning. EVCs are stored in a shockwave format to reduce size and download time. Ideally, EVCs should be stored in a well-organized database so that users can easily search and find what they need.

In order to get a complete understanding of an EVCs, it is best to simply view them (see Appendix A). While a majority of the examples provided focus on mathematics, EVCs could be created for a variety of subject areas. For example, most science-related subjects, with clearly defined problems, are appropriate subject matter for EVCs.

If it were extremely difficult and time consuming to make EVCs, their use in distance education might be limited. Fortunately, based on the experience of approximately 125 pre-service teachers at the faculty of education...
at UOIT over the past three years, a 5-8 minute clip can be made in 40-60 minutes. It typically takes 5-10 minutes to get used writing with a graphics tablet, another 5-10 minutes to learn how to use the annotation software, and 2-3 minutes to learn how to use the screen recording software. Of course, the majority of time taken involves planning a carefully thought out explanation.

Not all explanations are equal, as you may have noted if you viewed any of the EVCs listed in Appendix A. Intuitively, most of us have a sense of what a good explanation is, but it is challenging to articulate this knowledge. In fact, little research has been done on what constitutes good explanation (Van Gog, Paas, & Van Merrienboer, 2004). Clark & Mayer (2008) suggest that a conversational as opposed to formal tone be used to teach. They also recommend that fading be employed where the scaffolding provided in a worked example is slowly removed and student cognitive load and responsibility is gradually increased. Finally, the use of relevant visual material can be particularly helpful. Clearly, an EVC will be of no use if the explanation provided is weak. The best possible explanations need to be available to students to maximize effectiveness. Otherwise, instructors and tutors will be inundated with questions and requests for clarifications, thereby eliminating the positive effect that EVCs could have on reducing demands on time and resources.

There are several advantages to using EVCs for students and instructors. For students, EVCs offer five main benefits:

1. the ability to stop and start explanations and digest information at their own pace;
2. quick access to a wide range of explanations at any time;
3. an alternative to detailed, text-based instructions which can be cumbersome to follow and decode;
4. access to the best quality explanations; and
5. access to administrative and procedural information about a course.

For instructors of distance education courses, the main benefit is markedly reduced demands on time with respect to course administration and course content. While the initial demand on time in developing clips may be extensive, EVCs can be created by tutors and shared among many sections of the same course. Once a set of clips is created for a course, students should become more self-sufficient in seeking help. An instructor or tutor no longer has to answer the same conceptual questions over and over again. Furthermore, it is entirely possible that more students can be served in a specific course because question load on instructors will be substantially reduced.

To date, only two studies have been done examining the impact of instructional EVCs (Kay & Kletskin, in press; Loomes, Shafarenko, & Loomes, 2002). Loomes et al. (2002) offered a general discussion of the potential benefits of EVCs. Kay & Kletskin (2008) reported that higher education students thought the EVCs were clear, easy to use, well explained, providing useful visual supports and improved understanding. Students also noted that the EVCs were helpful because they could be viewed at the student's own time and were easier to follow than a textbook. Finally the use of EVCs was significantly correlated with increase learning performance.

Assessment and EVCs

EVCs can be used to offer detailed feedback on student assignments (Kay & Petrarca, 2009). Formative feedback can be offered for in-class work, participation, and home activities. Detailed summative assessment can be provided on student assignments (see Appendix A for specific examples). Note that the EVCs used to provide feedback to students can be quickly and easily created by a free software package known as Jing (see http://www.jingproject.com/). Jing is a simple screen recording tool that allows an instructor to create an EVC and upload it to a website in a matter of minutes.

To date only one study has been done on the use of EVCs and assessment (Kay & Petrarca, 2009). Kay and Petrarca noted that there are a number of challenges involved in giving effective feedback in distance education including time required, detail of feedback, clarity of message, student willingness to read feedback, and tone. Students in this study rated EVC feedback as being significantly more clearer, detailed, helpful in terms of learning, and personal than written feedback.

The instructor in the Kay and Petrarca (2009) who created 120 assessment EVCs reported that it was as time consuming as providing written feedback. However, the instructor also reported EVC feedback was more detailed, accurate, and personal than written comments. Students agreed with the comments made in EVC feedback significantly more than those offered in a written format. The instructor in this study anecdotally reported that students asked far more questions after written feedback than after EVC feedback.

In summary, the preliminary evidence suggests that assessment-based EVCs offer high quality, detailed, personal feedback in a distance education environment. More research is needed to determine whether this is a viable long term strategy for using EVCs.
Administration and EVCs

While there is no formal evidence supporting the use of administrative EVCs, two key areas where distance education students ask for the most help are administrative and procedural issues (Harper et al., 2004). While it is standard practice to present and discuss the details of course assignments at the beginning of a course, students naturally forget these details when it comes time to complete the assignment. Even though written instructions may be posted, it is typical for instructors and tutors to be inundated with questions from anxious students about the details, nuances, and subtleties of how to complete assignments. A detailed EVC explaining how to complete an assignment provides just-in-time guidance for students and reduces the deluge of last minute emails from desperate and confused students. Concrete examples of this kind of EVC are provided in Appendix A.

Community and EVCs

EVCs can also be used to provide guidance to students on a wide range of issues that support classroom community. For example, EVCs can be used to instruct students how to submit assignments, provide an overview of what an upcoming lesson will cover, help students better prepare for a class, remind students about upcoming tasks and assignments, and answer idiosyncratic questions that are difficult or time consuming to explain in writing. These kind of EVCs can set the tone and expectation of a classroom community. There is no research on the effectiveness of community support EVCs, but from personal experience, I have found this type of video clip essential for developing a strong, personal classroom environment in distance education.

One of my students summarized the impact of community-based EVCs:

"The videos help minimize questions, grey areas and provide an outlet for clarification without the need for individual Skype or phone calls. They are particularly helpful given that I am multi-tasking 24/7. So I keep the videos refer back to them as often as necessary so as to be clear on what's expected of me."

Conclusion

Distance education is a promising alternative to traditional, face-to-face course, particularly for students who wish to determine the time, pace, and pathway of learning. Customized support of student learning, though, comes at a cost with respect to instructor time. Considerable time and effort is required by educators to communicate with students and answer their questions. Educational video clips (EVCs) offer a potential solution to this problem. Real-time, high-quality explanation can be offered on how to do specific problems in a course. A well organized set of EVCs can be a tremendous resource for students in a distance education course. Clear, detailed, comprehensive, and personal feedback can be provided to students regarding their progress and assignments. EVCs dedicated to answering numerous and repetitive administrative questions can help reduce the time burden and tedium for educators. Finally, timely EVC announcements and suggestions can help a distance education course run more smoothly and feel like a stronger knit-community. While some evidence exists to support the use of instructional and assessment-based EVCs, more research is needed on the use of administrative and community focussed EVCs.

References


**Appendix A**

*Instructional Educational Video Clips*
- Pre-Calculus: Website: [http://faculty.uoit.ca/kay/precalc/index2.html](http://faculty.uoit.ca/kay/precalc/index2.html)

*Assessment Video Clips*
- Term Feedback (Formative Assessment) [http://www.screencast.com/t/OWYyMjdjZD](http://www.screencast.com/t/OWYyMjdjZD)
- Assignment Feedback (Summative Assessment) [http://faculty.uoit.ca/kay/vVF_Sample1/VF_Sample1.htm](http://faculty.uoit.ca/kay/vVF_Sample1/VF_Sample1.htm)
- Feedback to Masters (Homework) [http://www.screencast.com/t/NjViYzNIY](http://www.screencast.com/t/NjViYzNIY)

*Administrative Video Clips*
- Teaching Activity Assignment (Pre-Service Teachers) [http://www.screencast.com/t/gkn3vJMD9Q](http://www.screencast.com/t/gkn3vJMD9Q)
- Designing a Scale (Masters Students) [http://www.screencast.com/t/OWQ0OTg2YWU](http://www.screencast.com/t/OWQ0OTg2YWU)

*Community Support Clips*
- Preparing for Next Class (masters Students) [http://www.screencast.com/t/Zjg3ZmJmMzgt](http://www.screencast.com/t/Zjg3ZmJmMzgt)
- Learning Objectives for a Class [http://www.screencast.com/t/YTUyYzE4ZGY](http://www.screencast.com/t/YTUyYzE4ZGY)
- Response to Student Question [http://www.screencast.com/t/MTg0YjY5](http://www.screencast.com/t/MTg0YjY5)