Chapter 6
Video Lectures in eLearning

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ABSTRACT

Video presentations, also referred to as mini-lectures, micro-lectures, or simply video lectures, are becoming more prominent among the strategies used in hybrid or fully online teaching. Either interested in imitating a Khan Academy style of presenting content or responding to other pedagogical or administrative needs, there are more instructors now considering the creation of short video lectures for their courses than before. This chapter examines the use of video lectures in online and hybrid courses, describes the design and application of them in graduate and undergraduate courses, and analyzes primary and secondary data results to expose strengths, weaknesses, opportunities, and challenges experienced in the development and implementation of this technique. The use of short video lectures is a regular practice in MOOCs and has the potential of becoming a successful practice, especially with the expansion of new approaches such as the flipped classroom.

INTRODUCTION

Online education in any of its forms (flipped, blended, and fully online) is using video extensively. It can be seen in versions of the flipped classroom where the instructor pre-records video for out of class and uses time in class for interaction and problem solving (Bergman & Sams, 2012). In blended learning courses (Arvan, Dyer, Scagnoli & Moore, 2008; Scagnoli, Moore, & Dyer, 2011), in regular online classes, and now in massive online open courses (MOOCs) (Williams, n.d.). Khan Academy in 2006 became the example of uses of video for educational purposes when a *regular guy*, not a teacher, decided to teach math concepts to his cousins by using videos (Kolowich, 2011). After that case gained public recognition, the use of video to teach something exploded.

Administrators are now wondering how many resources will be needed to develop videos in

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teaching, and faculty are wondering not only how do I go from classroom teaching to the high definition (HD) screen, but also how much effort will it take. The use of instructor-produced videos in education in this form of video lectures will have new implications in the design, development, and implementation of hybrid and online courses.

Educators and non-educators are only just now beginning to explore the advantages and implications of the use of short video lectures in education; therefore, uncovering their benefits and challenges in implementation will enhance educators' and learning technology administrators' knowledge about resources needed and preparation required for proper development and utilization of this innovative practice.

BACKGROUND

Mini-lectures are short videos purposefully fragmented, and grounded on cognitive principles such as the strategy of 'chunking' content into meaningful pieces, a practice that increases the probability of recall (Miller, 1956). Mini-lectures have the potential of becoming a successful practice especially in large enrollment campus courses as well as in fully online courses, especially with the expansion of new approaches such as the flipped classroom and MOOCs. They used to be commonly associated with online instruction, but in reality mini-lectures have become part of any mode of instruction, including fully face-to-face courses that use flipped learning approach. While some authors have described them as "60-second presentations" (Shieh, 2009), there are some that are 1-3 minutes long and they are called "micro-lectures", and there are some that are a longer like 4-8 minutes long and they are also known as "mini-lectures." They are shorter than a traditional +30-minute lecture in a face-to-face meeting, therefore the names "mini" or "micro" suits the concept well. Micro or Mini-lectures are short, to the point and focused on one topic at time. They probably started as an attempt to include instructor's presence in online learning (Shea & Bidjerano, 2009) by imitating the "long standing educational tradition of lecturing" (Morris, 2009). The concept of mini-lecturing captured global attention in a *Chronicle of Higher Education* article (Shieh, 2009) titled "These Lectures are gone in 60 seconds." Sheih described mini-lectures as one- to three-minute videos specifically formatted to online and mobile learning courses. The author credited the design of the format to David Penrose for San Juan College, Farmington, NM, although other instructors have also advocated a similar lecture model (McGrew, 1993; Shieh, 2009).

The pedagogical theory behind this short video lecturing technique has roots in cognitive memory theory, cognitive theory of multimedia learning, and effective practices for online instruction. Mini-lectures use the strategy of 'chunking' (Miller, 1956) content into meaningful pieces, a cognitive practice that helps memory and creating connections to stored information (Bodie, Powers & Fitch-Houser, 2006). According to Miller, the amount of information a person can keep in active memory is about seven bits. Memory is not stored in terms of individual bits of information, but in terms of chunks -- for example, a word may contain several individual letters, but can be remembered as a single chunk of information by someone who recognizes it. The human brain uses this chunking technique to process new information in short-term memory by chunking it into categories that are already familiar in the long-term memory (Miller, 1956). Cowan (2001) amended this theory to propose that the ability to retain seven details in working memory is an ideal which is easily limited in actual practice, and that four chunks is the limit for which an average person can retain new information.

This cognitive theory is applied when large lectures are chunked and organized into smaller pieces of information. This technique, also supported by instructional design principles (Sweller, Van Merrienboer, & Paas, 1998) work better for students

to better process and organize new information in online environments. Information seems to flow better from our short-term memory to our cognitive load with shorter lectures organized in topical discussions rather than hour(s)-long lectures on multiple topics delivered at once. Students, after watching a single 5-minute video on their own time, ruminate the information presented, and then continue on to a related activity or to another mini-lecture at a pace that is more conducive to committing this information to long-term memory. This approach does not suggest that students are incapable of absorbing more details at one time, but recognizes that there are practical, realistic advantages to providing shorter, fewer chunks of information. In other words, and considering instructional design theory and new generational habits, less is more.

The cognitive theory of multimedia learning (Meyer & Moreno, 1998) espouses a chunking method of learning with multimedia-rich content, arguing that learning is more effective when auditory words and pictures are combined in a concise summary of information. This theory outlines five principles of multimedia design: (a) an explanation with words and pictures is better than words alone; (b) present words and pictures simultaneously rather than separately; (c) present words as auditory narration rather than visual text to avoid splitting learners' attention to visual information processing; (d) principles 1, 2, and 3 depend on individual learners and generally work better when the learners only have a limited prior knowledge of the content or limited spatial ability, and (e) use only the most essential words and pictures to present a coherent summary of information. Mini-lectures, commonly made up by video or visual slides with voice, have to follow these principles closely to be able to deliver in a very short time a concise message about a topic.

Mini-lectures also have the potential of being accepted by students because of their format. Familiar with Internet browsing and adapted to the use of the new medium, the so called YouTube Generation (Ashraf, 2009; Farnan, Paaro, Higa, Edelson & Arora, 2008) finds mini-lectures appealing and similar to a format they are used to: online video. In the past decade, advances in online technology and faster connection speed have helped pave the way for the proliferation of educational videos. Within the first month of YouTube's launch in 2005, eight million videos were viewed by visitors a day (YouTube, n.d.). The video *A Vision of Students Today (Wesch, 2007)* helped illustrate the need for instructors to re-think the classroom-based educational model by sharing facts and opinions collected from 200 students at Kansas State University about the disparity between the traditional way that their courses were being taught and the ways in which they were actually living and communicating with online technologies.

Two examples of open online education using YouTube as venues for sharing educational videos to learners worldwide are: Academic Earth and Khan Academy, both founded in 2008. Although they use both mini-lectures and longer videos, they use the principles outlined in this review. While Academic Earth boasts lectures from instructors at highly acclaimed institutions, the Khan Academy has probably received more attention from learners and the media. Salman Khan, founder of the Khan Academy, was listed among TIME magazine's Most Influential People in the World (TIME, 2012). Khan started creating short video tutorials as a way to help his cousin on the other side of the country learn algebra, but the khanacademy.org website quickly ballooned into a household name for instructors and students to share and learn in a worldwide classroom. Khan Academy differs from Academic Earth's model in at least two significant ways: (a) it allows more instructors to share their expertise, regardless of any affiliation with a prestigious university, and (b) videos are limited to 10-20-minute chunks especially purposed for viewing on the computer as opposed to being a longer video of a conventional physical lecture (Khan, 2012).

Either interested in imitating a Khan Academy style of presenting content, or responding to other pedagogical or practical needs, there are more instructors considering mini-lectures in their teaching than a couple of years ago. Morris (2009) and Arvan (2006) questioned the efficacy of traditional lecture formatting. If we can boil a 60-minute lecture down to 60 seconds, arguably, what is the point of blathering on for an entire hour? Of course, the concept has also drawn criticism for the same reasons (Brooker, 2009). Has the Khan Academy style or development of tutorials in screencasting influenced this development? It's possible, as mini-lecturing garnered public attention a year after the founding of Khan Academy. However, not everyone is sold on the effectiveness of Khan Academy videos. Two math professors at Grand Valley Sate University created a video parodying one of Salman Khan's original videos, pointing out inaccuracies in the style of the cult TV show Mystery Science Theater 3000 (Chen 2012).

What is really exciting about mini-lecturing can be imagined in its possibilities for the future. While it is rooted in pedagogical principles from the past five decades, technology has only made it feasible within the past five years. Video lecturing has become such a popular educational venue that even Google is getting in on the action. On September 13, 2012, Google announced a new partnership with the Khan Academy to find ten talented video educators to become their *Next EDU Gurus* - a team intended to support with training, promotion, and cash prizes (Lin, 2012).

Purpose

Interested in better understanding the advantages and challenges posed by this new pedagogical approach, we completed this research study in which we explored the use and implementation of video lectures in graduate and undergraduate courses and completed an analysis of strengths, weaknesses, opportunities and threads (SWOT) of their application and implementation. This research study complements a previous study by the same researchers that had focused more broadly on students' satisfaction with pedagogical practices in the blended and online classroom.

The purpose of this study was to examine the research question: *What are the benefits and challenges of using video lectures in blended (hybrid) and online courses for faculty and online developers?* For that purpose, data was drawn from data previously collected from the same participants group, and new data collection instruments were designed to reinforce the secondary data. It is our hope that professional researchers, faculty and instructional designers will use the results of this study to plan and improve online classes preparation and development in higher education. We also believe that it is important for faculty, instructional designers and online developers that work in course development to know more about the application of video lecture techniques and the benefits and challenges that can be expected of such implementation.

METHOD

Participants

The site of this study was a Midwestern University. Participants included seven instructors and 850 students in eight university courses - five undergraduate classes with a total of 750 students enrolled; and three graduate classes with a total of 120 students.

Research Design

This study used primary and secondary data. Secondary data came from two sources in a previous study (Scagnoli & Packard, 2011; Scagnoli, Moore-Reynen, & Dyer, 2011). by the same researchers: students' surveys and classroom observations. The previous study had examined

students and faculty satisfaction with online and blended learning practices. For the purpose of this study, the secondary data was reinforced with faculty interviews and students' focus groups. This primary data helped to support the information gathered in the previous study and focused on video lectures exclusively. The rationale for using these methods was the interest of capturing information from different perspectives of the stakeholders involved in the use of video lectures in elearning. The population was the university instructors and student population; our sample was male and female students in undergraduate and graduate courses in business. To ensure the ethical protection of human subjects both secondary and primary studies were presented and approved by the Human Subjects Institutional Review Board (IRB).

Data Collection Instruments and Procedures

Surveys: The secondary data analyzed in this study was collected in three rounds of surveys that used mixed methods instruments by the same researchers. Those surveys had been administered at the beginning, middle and end of the semester. The first and last surveys had focused on three elements: Students' learning habits, attitudes towards online learning, usage and preferences of different pedagogical strategies, including video lectures in their classes. The survey administered in the middle of the semester was shorter, and tried to capture students' comments about the current course design, also including questions about the usage of video lectures. This study focused only in the questions that pertained to attitudes, preferences and usage of video lectures.

The undergraduate students' survey consisted of two demographic questions, class standing and major. The graduate students' survey included major and level. Questions in the primary surveys had been formed by literature and theory regarding learning habits and strategies used in the traditional classroom, the strategies were presented in the survey in the context of blended courses which require watching video lectures before or after they come to the face-to-face class meeting. The questions and concepts addressed in the survey were literature-inspired; it was determined that they clearly connected to general issues pertaining learning habits and strategies in large enrollment courses. They also addressed student's attitudes towards using technology for learning. The surveys had been piloted one semester before it used in the primary study.

Focus Groups: To reinforce the information collected in surveys and to limit the focus of the study to the use of video lectures, four focus groups were organized, inviting the students that had participated in the previous study. Students' focus groups consisted in 4 self-selected groups of 10 students from the classes in the study, 2 groups formed with undergraduate students, and 2 with graduate students. Students were invited to share their experiences using video lectures instead of or as a complement of shorter live lectures in the class. Invitations were sent by email and students had to complete a form to indicate their interest in participating. The first 10 respondents were selected to participate. The invitation explained that only 10 individuals would be selected. We also asked them to compare a class with video lectures and a class without video lectures, and we also talked about the learning strategies used when they watched video lectures compared to what they did when they were present in traditional classes with live lectures. One or two of the researchers were present in the focus group and a note-taker. Focus groups were audio recorded.

Classroom Observations: Notes from classroom observations from the previous study were also used to identify elements that could demonstrate integration of video lectures in the overall context of the face-to-face meeting (in blended courses) and of the online classes. Data collection instruments from the previous study were used as is in this research. Previous study included notes

from the actual face-to-face class meetings and analysis of the class design in the online settings. The face-to-face observations had consisted of visits to classes where the researcher would sit at the back of the class and record information about activities in the class that related to the use of online content, including video lectures. There was one classroom observation per course. The analysis of online settings included study of the instructional design model used in the course and the distribution and integration of video lectures with other components in the course site such as quizzes, forums and assignments.

Faculty Interviews: To better understand the faculty perspective regarding the use of video lectures, faculty interviews were conducted for the sole purpose of this study. Interviews were unstructured, and we used a guide of questions that focused on the type of video lectures used and preferred, their level of comfort being on camera, their level of satisfaction creating screen captured videos and their satisfaction with students' performance using video lectures. Instructors were invited to participate of the interviews by email and in person. The interviews were conducted in the instructors' offices and recorded.

RESULTS

Results for this study are drawn from the literature as well as from the primary and secondary sources of data. Data has provided us with elements that are key to be considered in a SWOT analysis of video lectures. Those key elements together with the source of data collection are presented in the following paragraphs.

What are the benefits and challenges of using video lectures in blended (hybrid) and online courses for faculty and online developers?

Classroom observations and course site analysis revealed that: (a) there are different types of videos that would fit in the category of *short video lectures*; and (b) video lectures are used in different ways depending on the discipline and on what the instructors identify as the need for them.

The different *types* will require different training and resources. The categories we saw in the studied population were:

Studio Recorded Video Lectures: Those that require help from a professional who will video tape the instructor in a setting meant for the recording. These videos show good video and audio quality. The instructor is the center of the video, and video of the instructor is interspersed with slides or other visuals that focus on the topic of the lecture. Some are created in a studio setting; others show the classroom or conference room as background. In all of them the instructor is alone, except for one where the instructor is being recorded as he teaches to a small group of students in a conference room.

Instructors' Self Recorded Video Lectures: These include recordings done by the instructor using an external webcam or the camera attached to the computer. These videos show an amateur quality, the brightness of video images and the audio of the recording are not as good as the quality achieved in a studio setting for 80% of the cases studied. These videos are recorded in the instructors' offices.

Instructors' Screencasting: These consist of "the capture all of the action on a computer screen while [the instructor is] narrating" what he/she is capturing in a video format (Shrock, 2014). Screencasting did not include the instructor's video image except in one case. Most samples studied only show the action on the screen with the instructor's narration. The videos show very good quality in audio and image. The recordings are targeted to specific topic.

Instructors' Narrated Slides: A set of PowerPoint slides or other visuals are included in this category. Special software has been used to produce these narrations on top of the slides.

Regarding the different ways they are used we observed that they were mostly used:

- *To introduce new concepts and to prepare students for class (See Figure 1).* In several online courses video lectures are used to present new content, and these lectures are paired with other activities (quizzes, discussion, questionnaires) to help the students build knowledge around the ideas introduced in the short video lecture. For example in one of the large undergraduate Finance course, the video lectures replace one class meeting (lecture) per week (Figure 1). Video lectures were used to introduce students to new topics and prepare them for the one remaining lecture each week. Video lectures were created for key concepts and for additional information that students who needed or wanted more details could go to. So the instructor used the video on key concept as *required* videos to watch, and the ones that demonstrated how to work problems or examined topics more deeply were *optional*. Studio or third-party recorded videos were preferred for this use of video lectures.

To engage students in assignments and discussion: Some very short, key videos were embedded in weekly quizzes in the course as well (Figure 2). Multiple-choice quizzes were the preferred activity to be completed before coming to the face-to-face class each week in blended courses. Follow up discussions were especially used in post class meeting activities, mainly in graduate courses (See Figure 3).

To update class status, to inform students about current events, modifications or current matters in course content. Instructors used short video lectures to enter an advance agenda for the week (See Figure 4) and comment on new information such as current public events, usually from news articles, that pertain to the topic of the class. This use helps connect theory and current events and add instructors' presence in a course. New information or modifications in a course, such as updated quiz results, detailed explanation on the steps or processes to solve a problem, or other just-in-time support has also been provided via video lectures. Instructor's self-recorded videos were used for this in 100% of the cases when just-in-time videos were created.

To follow up on topics discussed in face-to-face class, to answer hanging questions and provide clarification, to provide feedback about student performance (See Figure 5). In several of the undergraduate online courses, the video lectures were used by the instructor as an opportunity to extend the topic discussed in class, cover materials that students did not have time to see in class, to provide a resource the students can use for review. or to reach the students on a weekly or periodic basis. They use instructor's self recorded videos to introduce the agenda for the week, or to give feedback about the students' performance in the course.

To provide a demonstration, to work extra problems. For example in one online statistics course, in addition to creating video lectures that introduce new concepts, the instructor created numerous videos (See Figure 6) that demonstrated how to use specific software for statistics, and how to work the problems in the course.

Literature reviews and the instructors' interviews exposed that it is really important to set up the process for training early to help faculty prepare. Sheih's step-by-step instructions (2009) on "How to create a one-minute lecture" help faculty preparation for the task, and this will also have implications on the resources needed for video lectures. Pemrose (in Sheih, 2009) suggests that to prepare video lectures instructors need to go through these steps:

- List the key concepts and they will become the core of the micro-lecture.
- Write a short introduction and conclusion to provide context for the key concepts.
- Identify activities and assignments where the key concepts will be important.
- Proceed with the recording.
- Combine the video lectures with activities in your course management system.

Figure 1.

Figure 2.

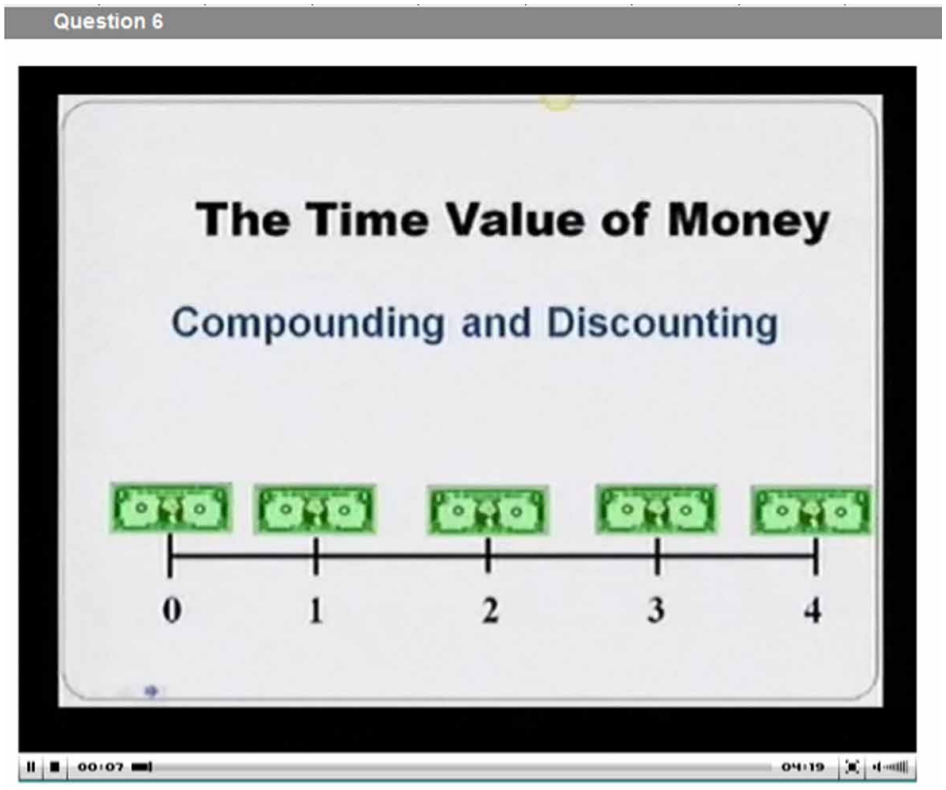
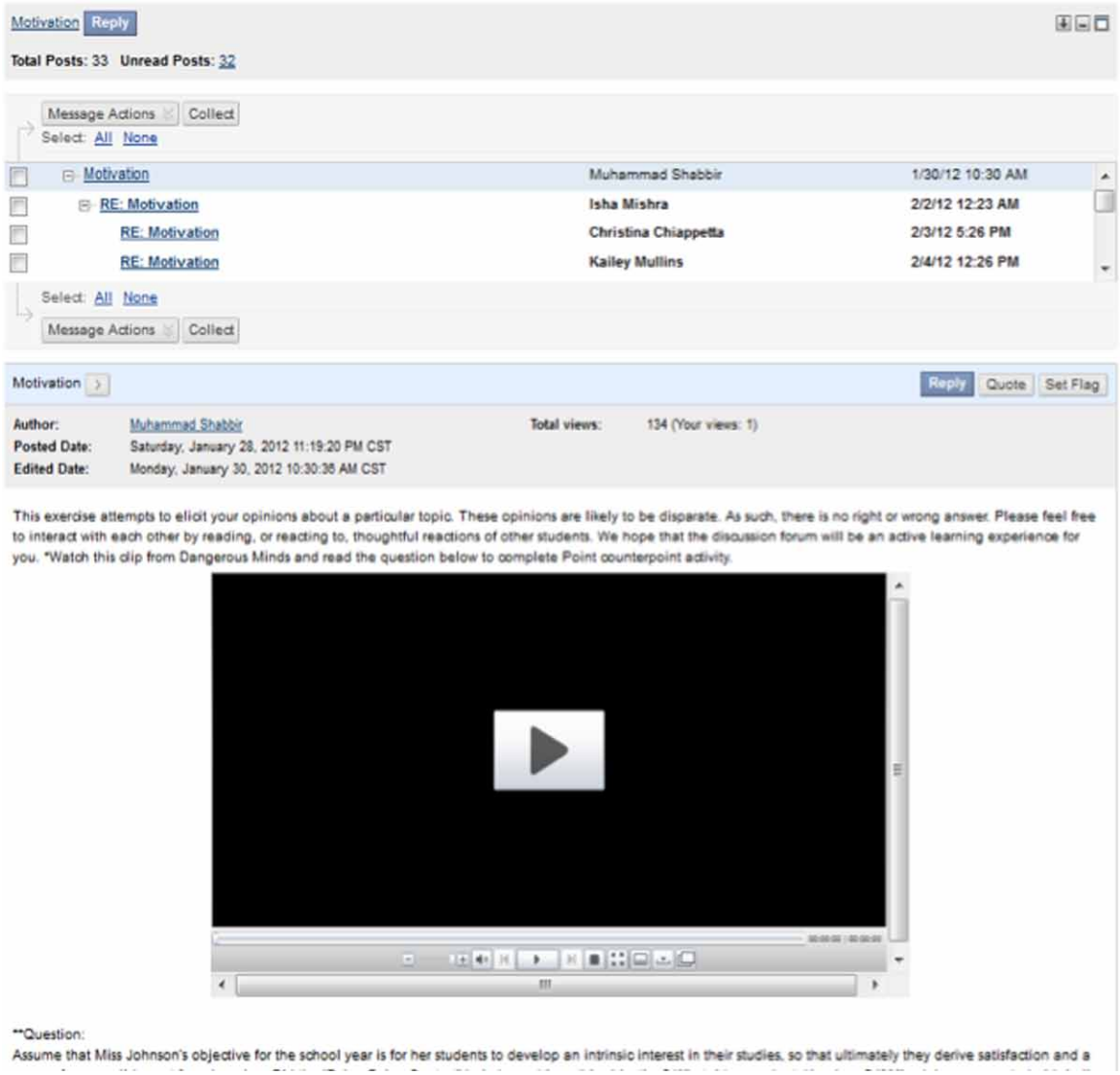


Figure 3.

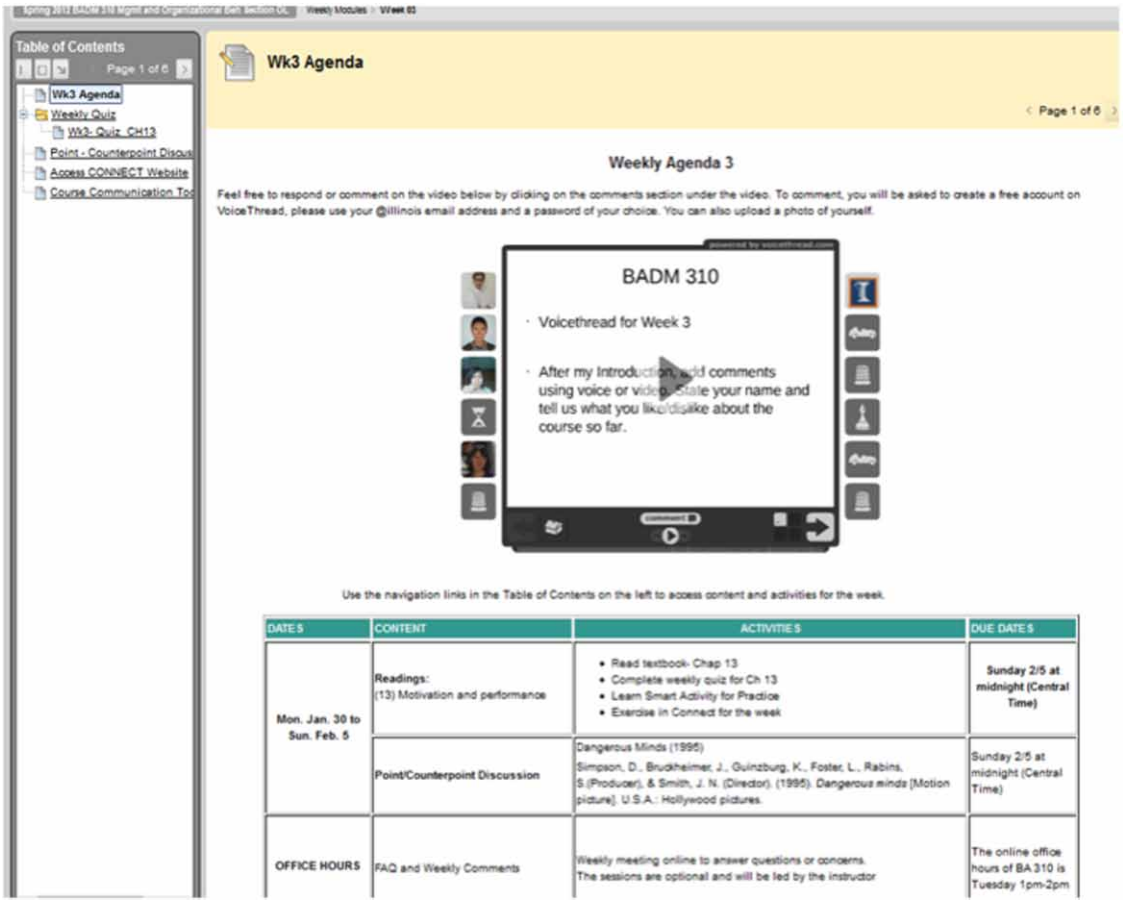


Students' surveys as secondary data and *focus groups* disclosed students' usage of videos, and their attitudes and interests in video lectures. The questions in the survey for graduate and undergraduate students focused on usage, and asked information on:

- The students' assessment of video lectures and how they helped in class preparation
- The frequency that the student watched the video lectures in a week,
- If the videos were watched more then once,
- (Other class) activities that were done while watching the videos,
- Preference regarding the length of videos,
- Technical questions regarding access to the videos, and technical problems

The topic guides prepared for the focus group included the following groups of questions:

Figure 4.



- Are videos a plus or a minus? Do you feel that a class with videos from the instructor works better for you than without videos from the instructor? Why? Do you think having micro lectures helps to understand the topics? Why?
- (You have been part of one online class with plenty of video lectures and one without, or with very few, video lectures). Can you talk about whether you found that these two classes provided a substantively different learning experience for you? Do you have a preference for one or the other? If you had to choose between having video-lectures or not in your online class, what would you choose and why?
- Is quality in video important for you to get the message across? Do you think your learning experience would have been better if the video quality was better?

In the surveys, students in fully online and blended classes differed regarding the relevance of video lectures. Similar to findings by Hibbert (2014), fully online students considered the videos as an element of faculty presence and as a factor related to their engagement and understanding of the topics from videos. All surveyed admitted that they liked the convenience of the video lecture because of the possibility of replaying them if needed and learning at their own pace, but they also indicated they feel they are learning on their

Figure 5.

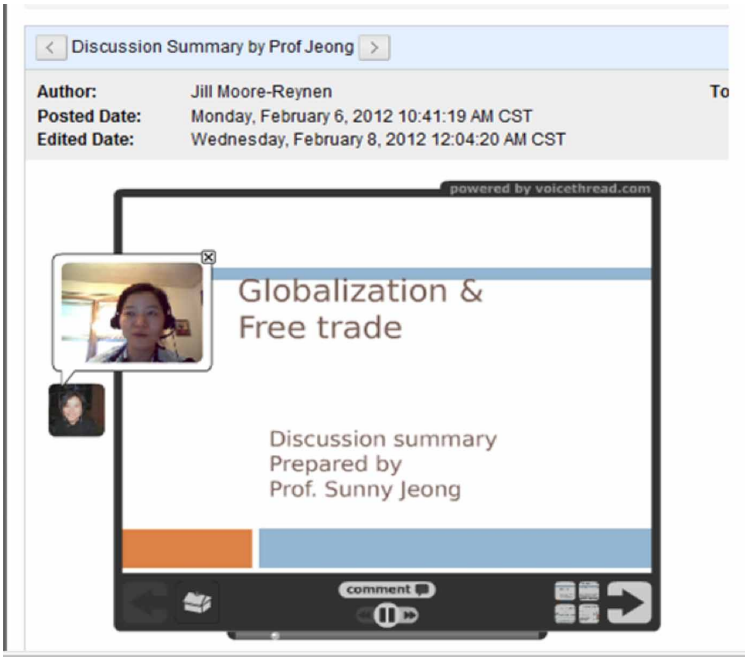


Figure 6.

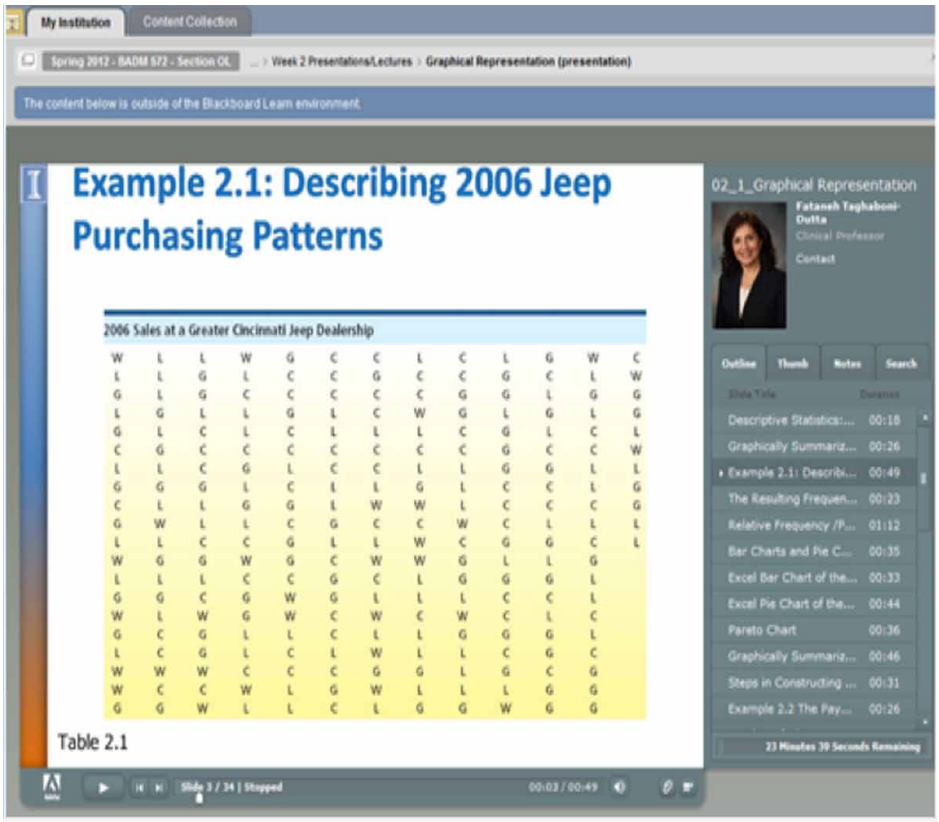
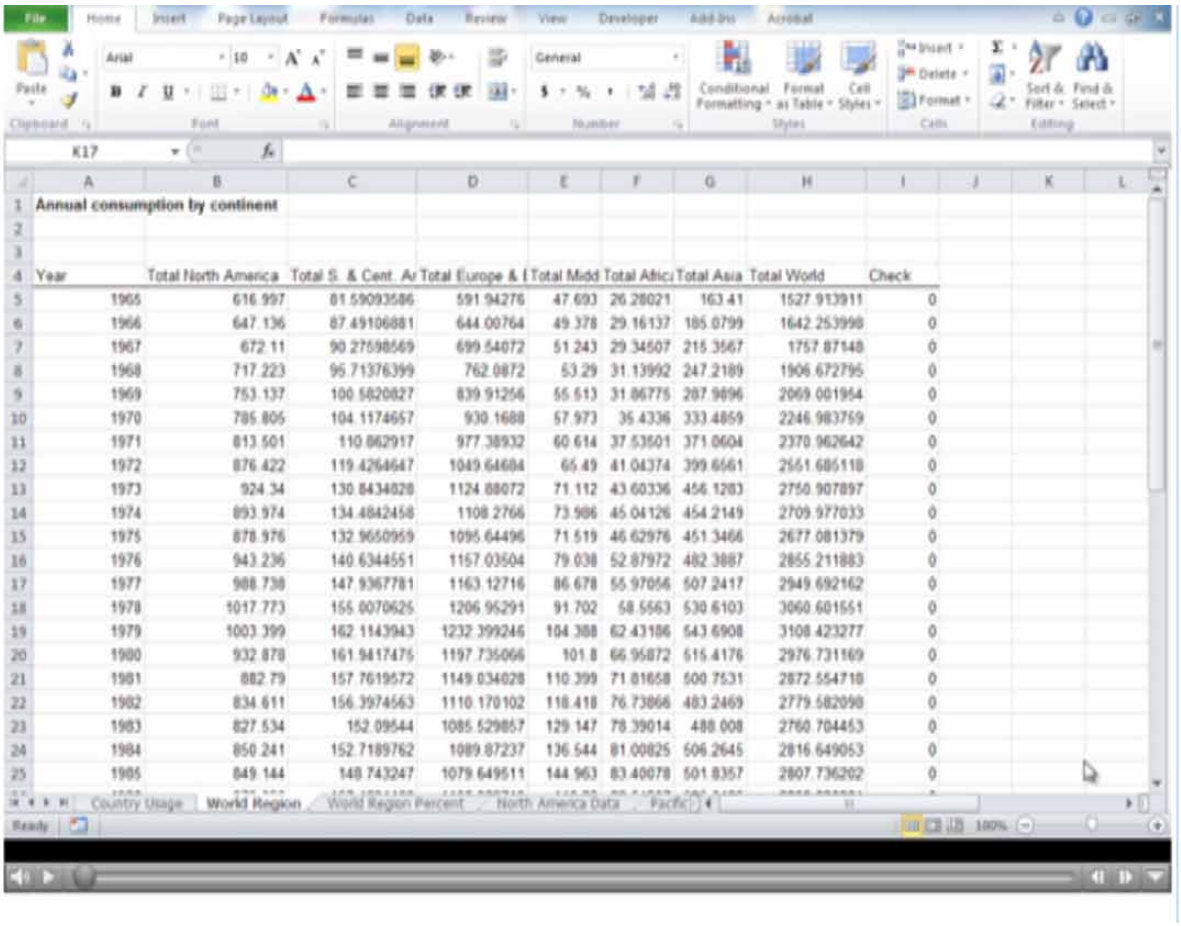


Figure 7.



own if they see the instructor in a video lecture, as opposed to watching the lectures in presence, as "learning from the instructor"(Verbatim, survey response). Students in a fully online class are more positive about the video lectures, and they watch *all* lectures as opposed to students in blended courses that admittedly watch only the required lectures. They also admit that lectures connected to assignments have more views than extra lectures, also similar to Hibber (2014) findings .Fully online undergraduate students were more positive towards the use of video lectures than undergraduates in blended or hybrid courses. Undergraduate students in blended courses perceive that video lectures take longer than actual lectures in face-to-face classes, when in reality the face-to-face lectures are longer (Scagnoli & Packard, 2011). Graduate students, on the other hand, indicated that video lectures helped them to be more prepared for class and recommended the use of video lectures in all graduate courses, however they said that they also wanted the instructor to do lecturing in class, that was their expectation, and that was what they were mostly used to.

Regarding our interest in learning strategies or viewing habits used while watching the videos, the survey respondents indicated that they were using similar strategies from the ones they use when they are present in a lecture in class: note taking, and completing assignments. Hibbert

(2014) also found this a consistent theme across their interviews, the participants in that study had reported that their viewing habits of course media mirrored that of sitting in a class lecture. Also, from students' and instructors' responses, we learned that the use of quizzes or activities tied to the video lecture increases students' readiness for class in blended courses.

DISCUSSION

Relevancy, Strengths and Challenges

Video lectures can be used to prepare, reinforce or confirm new knowledge or emphasize information gap that will motivate learning. In the various interviews and focus groups consulting faculty and students we asked them how relevant video lectures were for their teaching or learning. Faculty said that they find them relevant because "by moving lectures out of the class time, they free up time to do more in-depth work and analysis in class."(Personal communication, November 3, 2012). Another faculty member indicated that since she implemented mini-lectures in her class, the practice has helped students achieve more advanced skills than previous classes, because they get the benefit of being coached by the instructor as they work individually or in class teams. Students said that they found mini-lectures relevant because they can learn concepts at their own time and pace, and come to class to do more fun stuff. However relevant, mini-lectures do not come challenge free, and we have uncovered some weaknesses as revealed by instructors and students. Students' and faculty's comments suggest that if mini-lectures are not properly planned as part of a "grand-scheme" (Personal communication, October 20, 2013); they can become "boring repetition of what the faculty already presents in class" (personal communication, October 20, 2013), or a mere echoing of what is in the textbook. Still, mini-lectures give instructors the opportunity to rethink the design of their course in a way that it incorporates different types of resources or activities available in the online environment.

We observed and reported in our results section above the differences in the types of video lectures but these are not the only differences. Other variances can be observed in their *duration* –if they are mini, micro or simple video lectures; and also considering the *time of creation, and the focus*. We observed video lectures that were developed in two moments: previous and during class time. As we mentioned early there are pre-recorded lectures, or as we call them "studio recorded" that are created before the semester starts. This kind usually concentrates on the main concepts taught in the course. The topics follow the syllabus and they show a good video and audio quality, they also demonstrate special preparation and production. This is the kind of video lectures used in MOOCs, and other online open resources. These videos are also branded with institutional watermarks, logo, and information about the instructor, such as name, title, and course or topic. These videos are created to be watched by students as a substitution of the in-class presentation or lecture formerly done live by the instructor.

The other type of video lectures, usually developed during the semester, are instructor's self recorded and they are recorded as the class progresses. These may have a shorter life span since they are very contextual to that cohort and moment. They are used to provide feedback and focuses on specific topics for the week or class module.

Our SWOT analysis revealed multiple aspects that need to be considered when creating or planning the use of short video lectures in the classroom, they are detailed in the paragraphs below.

Strengths: Focus, Availability, and Presence

Short video lectures pose several advantages from the perspective of the student as well as of the instructor. These advantages involve focus of information, access, availability, interaction with content, and sense of community. Similar to a just-in-time training video and without the delay or distractions of a longer lecture-capture produced video, mini-lectures are created to convey short and focused messages on a specific topic. In addition, the 24/7 availability of instructor's insights or presentation of a topic is another advantage for students. Instructor's explanations are available for them at the tip of their fingers when they are preparing for a test, reviewing materials or simply doing homework.

Students watching a mini-lecture may use more time to interact with the content presented in this short video than the time the have when the lecture is in person. If the instructor poses a question during the video to the trigger new ideas or reinforce the concepts, there is no need or pressure to give a quick, immediate response as there would be in a live lecture, because the interaction between the student and the content of that lecture happens at the student's own time. Then the student has time to think and process the information, check other sources and then react, respond or comment on the content of the lecture.

The use of pre-recorded lectures leaves time for the instructor to use other teaching strategies in his class to reinforce or enhance learning via other activities. Regarding the mini-lectures developed during the semester, these may not have the re-usable value of the pre-recorded lectures, but these videos help to increase instructor's visibility or social presence in the class. Researchers have found that there may be a connection between the use of instructor's videos and student's success (Sheridan & Kelly, 2010); and that instructors' social presence via mini- lectures has the potential to positively impact students sense of community in the online environment, and their satisfaction with online learning (Shea et al, 2005; Wise et al, 2004).

Weaknesses: Lifespan, Expertise, Delayed Interaction

There are good advantages to use mini-lectures, but there are also some downsides especially with regards to their creation and implementation. Different from other online materials, mini-lectures may not be 100% re-usable in upcoming semesters. Although most of them are a short version of a lecture since they are focused on a particular topic, sometimes instructors use the micro or mini-lecture to comment on current events in the class or in the world, and then content may not be useful to other cohorts. From the instructor perspective, mini-lectures require training in addressing a camera, teaching to an un-existing audience, and using the technology to create them (if this is an instructor's self effort).

Mini-lectures compared to traditional (real-life) lectures, however, happen asynchronously, that is to say, students and the instructor are not in the same place at the same time. Therefore, the interaction between the students and instructor, such as questions, clarifications, or comments, can only happen in an asynchronous mode. Students or the instructor will have to interact via a forum or other technology-mediated communication tool, losing the spontaneity of real life interaction. Survey results showed that only a small portion of students admitted to raise their hand in a live lecture in a large enrollment course, some of them said that they would like to have that opportunity of raising their hand and asking right there, but it is not certain that they would do, if they were in the real situation. In the focus groups students said that "It is hard to know where the (data) is coming from in the videos because you can't just raise your hand and ask a question."

Students also acknowledged that they had a place to type questions for the instructor (Aka 'town hall requests' and did not like to post questions there. He said, "I like to have my questions answered when I think about them, instead of having to wait for the instructor's response later in the forum."

Opportunity: Connect, Engage with New Topics, Establish Presence, Empower Students.

Creating videos for a course is about thinking about new ways to present topics that the instructor is an expert on, as well as new ways to connect and communicate with students. Planning and creating the micro or mini-lectures give the instructors the opportunity to rethink the design of the course, as well as to re-establish priorities and ways to present new content. In this exploration of new presentation modes, instructors may discover tools and applications that may enhance or enrich the topics presented. The uses of mini-lectures also become a chance for the instructor to learn new skills in the art of presentation, and new competencies in the area of digital literacy and management of technology tools.

Because the mini-lecture allows time between content and comment, it can be used to trigger new ideas, to provoke reactions to specific topics, and therefore encourage search for information, and then motivate discussion and the upcoming face-to-face class meeting.

Mini-lectures pose the opportunity of "identification with the instructor and general orientation to the course" (Carr-Chellman & Duchastel, 2000). Although more research is needed to determine that instructor's video is a positive indicator of teaching presence, mini- lectures may be an indicator of teacher's' presence regarding instructor's attributes such as personality traits and dispositions (Sheridan & Kelly, 2010). A more recent study by Hibbert (2014) confirms that video reinforces instructor's presence, especially when the instructor uses wit and humor.

Finally, mini-lectures are another opportunity to empower student in novel class participation strategies. Students should also be encouraged to create mini-lectures as a way of "broadening communication opportunities and encouraging learners' expression" (Guardia, Maina & Sangra, 2013).

Threats: Design with Purpose; Enhance and Don't Repeat; Budget for Post-Production.

Mini-lectures are short focused messages on a topic and that is what students expect from the mini-lecture videos. Therefore, these videos look better when they have been created with that purpose. For example, comparing video recordings that have been automatically captured from a face-to-face class (lecture capture) with video especially recorded for the online or blended course, the user perceives the difference between a video that was not meant for this purpose and a video where the instructor and the materials are directed to the viewer. It seems as a one on one connection with the user.

The message in mini-lectures is meant to enhance or reinforce information that student has learned through other sources. Summarizing concepts without going in depth and repeating the textbook is not a good use of the mini lecture time, but something that is frequently seen. "The purpose is not specifically to convey information in the form of content to be learned, but instead to enhance the student's identification with the course, motivation to learn, and sense of instructor personality at a distance. Their usage involves a totally different function than that found in a traditional university lecture, and therefore takes on a different form altogether"(Carr-Chellman & Duchastel, 2000, p.234).

The other challenge when creating the short video lectures is to try to include too much information in a short message or to provide comments that may distract or confuse the viewer. Students have said that shorter videos or videos that focus on one topic are very useful when they are reviewing the material and working on assignments.

Another challenge in post-production is the cost and time demanded to get a good final product. Editing the videos involves as much time or more than recording them, and the more work is put on post-production the better final product. One student said "The videos could easily be condensed into half their time if more effort was put into displaying the information in a clear and concise way and less time was put into jokes and down time." To achieve what the student proposes will demand that editing staff listens and chunks materials not only for the sake of meaningful chunks of content, but also looking for conversational moments that may not be of interest to the users. This is a very tricky situation because sometimes the instructor prefers to leave those conversational moments in the video to add social or emotional presence to the class. Another student added on this topic: "The videos are very informative but way too long because of random side questions and comments meant for entertainment purposes as opposed to relevant information." Faculty is the one that has the final say on the video produced, and keeping them involved as reviewers of the results from editing or post production processes is very relevant to a good final product for the class.

Finally, there is another situation that may become a thread in the production of video lectures in the near future. That thread has to do with finances. The occurrence of good quality (movie quality) video lectures in MOOCs and open source content from top universities creates competition not just in the content of the online courses but also in the quality of the videos. Creating movie like productions is not something that universities or faculty are ready for. The need to outsource or equip themselves to create Hollywood like productions may force departments or colleges to distract funding from other areas to the video lecture production. Clear assessment of needs and resources, as well as ideas to show the value of the investment in video will be really important for the institutions that want to pair the quality of the video with the quality of the content that they certainly produce.

IMPLICATIONS AND CONCLUSION

Short video lectures have the potential of becoming a successful pedagogical practice in higher education. They are especially used in large enrollment courses using flipped or blended learning approaches, as well as in fully online courses, and their use will grow with the expansion of new approaches such as the massive online open courses (MOOCs). Adoption of mini-lectures has implications for the institution, as well as for teaching and learning. Table 1 summarizes the implications detailed in the paragraphs following the table.

Table 1. Summary of implications of use of short video lectures for the institutions, faculty and students

Implications for:	
Administration	• Resources and expertise for creation of visual materials • Expertise and new policies regarding content delivery, distribution, and storage • Provisions for faculty and student training and development of visual content
Faculty	• Class redesign to accommodate new delivery mode • Revisit or learn about and adopt new pedagogical strategies to benefit from new resources available • Consider new metrics or rubrics to measure results in use of visuals by self and students
Students	• Time management strategies • Review old learning habits and acquire new learning strategies • Get trained to be able to produce content in new ways

Extra resources for professional help, or assistance from Colleges' IT departments or elearning units should make it easier to develop mini lectures. Although when no professional help is available, instructors still take the initiative and create videos on their own. Mini-lectures are easily enabled by the multiple technology applications and video software freely available today. Some training and provisions for storage will be the only things that instructors need to know before they embark in the exploration of creating mini lectures for their classes. Staff specialized in media, policies and resources for media storage, and provisions for faculty training, are some of the things that are already being demanded as the development of mini-lectures pick up.

At the same time, redesign of the class structure will have to be seriously considered to avoid repetition or duplication of materials, especially in blended or flipped classes when the face-to-face time will still exist. In our experience, faculty that have taught a course for several years, when they decide to create mini-lectures, they have to carefully plan the activities that will be completed in the face-to-face time, keeping in mind what topics were already presented online in a mini-lecture, or else they tend to repeat the lecture or similar points, out of habit. The use of class time to challenge students with hands-on exercises has proven to be key in engaging students with the topics, as well as a way to motivate class attendance in blended courses (Prober & Keith, 2012).

For students, the use of mini-lectures involves reinforcing some skills and acquiring others. For example, time management and note taking are two things that are frequently mentioned together with uses of mini-lectures in class. Students say that it takes time to get used to scheduling moments out of class to watch the lectures before completing the required pre-class activities. The habit of coming to class without having completed previous assignments is very common many students have said that they were worried when they realized that they were expected to respond or work on topics that were not presented in the face-to-face class. Then they understood the importance of budgeting time to watch videos and come to class prepared. Most cases admit that they need to change habits or learn how to budget their time better.

Another concept that students have mentioned in the interviews is that they need to Figure out how to proceed when they watch the video lectures at home. Some use the same strategy that they use in class: taking notes during lecture. Some students say that they have not decided if taking notes makes sense when you can go back as many times as you want from a video, some say that they are trying to Figure out what to do as they watch. Learning other strategies or changing learning habits may also affect the way students learn.

If instructors consider giving students opportunities to create mini lectures as a student led activity, then training and new metrics for assessment and video storage will be new aspects to be considered when making these decisions.

FUTURE RESEARCH DIRECTIONS

In this chapter, we focused on one of the newest trends in online pedagogies: the extensive use of videos. Video has become more affordable and massively available in the last few years, thanks to hardware sophistication and advanced software development. Future researchers will have to expand and further explore the use, development and production of video lectures from different perspectives, and identify the impact that these new trends are ultimately having in teaching and learning. To what extent is the use of a variety of digital formats and multiple sources of information contribute to better learning, understanding and performance? Or what kind of impact does the creation of pre-recorded and recyclable video lectures have on teaching and on instructors' time? Does movie quality matters in instructional videos, or is 'home-made' quality good enough to students receiving the message? How do fair

use and IP regulations apply to instructors' pre-recorded videos? What is the real cost of video lectures for educational institutions? Is it worth it?

This chapter shows one side of the use of video lectures in higher education, and our focus on strengths and challenges of this practice illustrates the current trends and opens the door to new opportunities for inquiry. These and other research questions will have to be explored in the context of new technologies and their impact in teaching and learning.

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KEY TERMS AND DEFINITIONS

Chunking: A term used in instructional design to refer to cropping or cutting content to meaningful short pieces.

Khan's Academy: The company and online software that produces and hosts publicly available online classes and tutorials on different subjects.

Lecture capture: Refers to the technique used for video recording of complete class in session. The technique consists of using a camera in one end of the classroom that will capture everything that happens in a class, from beginning to end.

Micro-Lecture: A 60 seconds video lecture that focus on key concept/s.

Mini-Lecture: A short video lecture that does not exceed 8 minutes.

Screen-Capture: The technique used to capture a computer screen in image or video, and the software that does that.

Screencasting: The act of capturing action on a computer screen while the action is being narrated. The result is a video recording.

Video Lecture: A video recording of a lecture, conference or presentation by a professor.

YouTube: (a) Online platform publicly available to host video recordings from any source. (b) The company that owns the platform.