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...
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