# IMPROVING EFFICACY OF PRE-RECORDED VIDEOS IN ELEARNING COURSES

Kuldeep Nagi

Assistant professor

Fulbright Fellow (USA)

Assumption University

Bangkok, Thailand

Email: DrKuldeep.nagi@gmail.com; knagi@au.edU

**Abstract**: Since the beginning of this new century eLearning has come a long way. A decade ago, it was perfectly acceptable to just record a Power Point presentation and upload it in the Learning Management System (LM). In 2016, this approach is not viable. It is no longer necessary to force the students to stare at sterile static text. One of biggest influence in eLearning comes from videos. Use of videos has become essential for teaching and learning in online programs and courses. You-Tube receives about 60 hours of uploaded video content every minute. The TED series post their lectures on videos, and now have 500 million views. Proliferation of 3G/4G networks and exponential growth in the use of mobile devices is driving the use of videos not only for entertainment but also for teaching. This paper provides insight into the correct use of videos in eLearning. It also provides a list of strategies to increase the video usage, such as, instead of presenting two 20 minutes videos on a subject, breaking it into 4 separate videos, each 5 minutes in length. A 5 minute video can be internalized more easily than a long 20 minute video. Follow up questions in the form of a questionnaire, audio or video recorded responses by students will make them much more engaging. This paper is based on a study of a small sample of students in eLearning courses and attempts to provide new framework to create videos that will increase engagement in the eLearning courses.

*Index words: Content, Efficacy, eLearning, Engagement, Quality, TED, You-Tube, Videos*

## I. INTRODUCTION

From the huge shoulder mounted camcorders of 1980s; from mega tape-to-tape editing hardware to simple computer based application for editing; from VHS distribution on TV channels to the Internet; from streaming videos to instant You-Tube uploading, videos has come a long way in becoming a key technology with a huge impact on our daily life [1].

Today with so many smart mobile devices equipped with powerful cameras one can shoot incredible video and upload it on You-Tube or on any other social media services and instantly get noticed and become famous. All of this is quite possible within few minutes. However, the current practice of inserting videos in eLearning courses is making students to avoid them all together. This small case study discussed in this paper provides enough evidence that if done incorrectly, videos can actually have the opposite of desired effect: no one will watch them. Some may wonder though, why use videos to begin with? There are varieties of reasons, but the most one is that it is a great visual medium.

Since the invention of television and camcorders in mid twentieth century, videos have changed the way we entertain ourselves, as well as the way we learn about new things. A video can provide better demonstration of procedural task; it is more effective for showing case studies, expert interviews, building rapport with students, and to trigger discussions. If the Learning Management System (LMS) provides a robust quizzing engine, an instructor can easily insert videos into the questions and answer choices. There are many other ways in which videos can be used to engage students and enhance interactivity.



Fig.1. Video as powerful delivery medium

### A. Using videos in eLearning- Current practices

Have you enrolled into an eLearning course recently that did not include a video? To most students, sitting through and listening to a long Power Point based sterile and long presentation is a waste if time. We do need videos to capture their attention, but what is more problematic is that the instructors do not make use of a variety of rich and high quality digital content available freely on the Internet to make the courses more appealing and exciting. As a result most students are put off by long online videos provided in traditional eLearning courses. Typically, a eLearning course being offered in a college or a university consists of many chapters and will have pre-recorded video lessons, usually 50-60 minutes in length. Fig. 4 depicts the typical 4 step process of video production prevalent today. Almost in all cases, the instructors use Power Point slides to record videos.

As shown in Fig. 3 a wide variety of resources are provided to master the concepts in a unit of a eLearning course hosted in the LMS. Typical resources include- *pre-recorded videos, audio recordings, a set of Power Point slides in black and white (B&W) and in color*. In a nutshell, the same content is provided in 4 different formats. As shown in Fig 4 all the videos are recorded using the Power Point slides and are hosted in a LMS. A typical process of video production consists of four phases.

Fig. 2. Power Point & Powerless Bullets

(Source: http://blogs.articulate.com/).

One of interesting finding of this case study is that most students take the easiest route to learn about the content included in an online course. What route is usually taken in discussed under results and discussion section of this paper? Based on this brief case study the author provides some useful insight and tips on how to increase the efficacy of videos for eLearning courses.
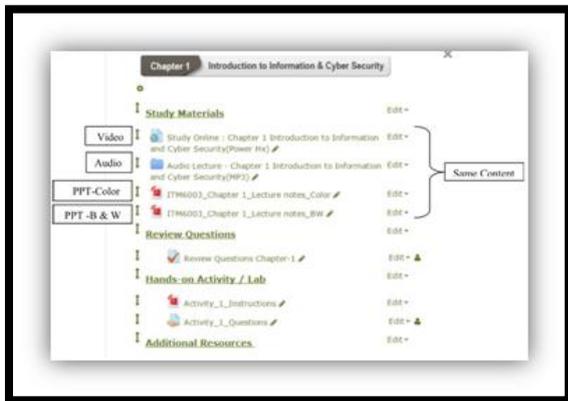


Fig. 3. Typical Learning Content in a eLearning Course



Fig 4. Traditional video production process

## II. LIERATURE REVIEW

Many researchers have found that if students watch videos and complete tasks that are solely based on them, they show a better understanding of the concepts. Most students want to learn and if videos are used in short dozes they can be very effective in enhancing learning. It is evident from various studies that effective use of videos and audios simply increases the overall learning outcomes. As early as 2002, Young and Asensio wrote a paper titled as "Looking through 3 'I's". They proposed a practical guide to help instructors and practitioners to include videos with rich "Images, Interactivity and Integration" in online courses [2]. Willmot et al.

(2012) showed that there is strong evidence that digital videos can inspire and motivate when incorporated into student centered learning activities [3]. Work done by Kearney (2011) sheds some light on the benefits of using videos to create authentic learning opportunities for students as well as in enhancing academic rigor [4]. In an interesting experiment in teaching and learning initiated by Liberatore et al. (2013), students enrolled in their chemical engineering courses created impressive homework problems based on YouTube videos [5].

## III. MATERIALS AND PROCEDURES

It is quite disheartening to note that enrollment in eLearning programs in many Thai universities remains very low. Majority of Thai students still prefer Face-to Face (F2F) teaching and learning and commute to various colleges and university campuses on daily basis. This paper is based on a brief study conducted using students enrolled in a Master Degree eLearning program at a local university. For this study two M.S. eLearning courses were selected.

This study was conducted in the last 2 semesters of the year 2015-16. The Course-1 had 3 students and the Course-2 had 4 students. These two courses were hosted on LMS called Moodle, one of the most popular open-source LMS created in Australia. Moodle is used by educational institutions around the world as a platform of choice for hosting online courses. For managing students it provides a series of tools are made available. One of the most important tools for gauging engagement in a course is "Reports" which consists of 5 different components-*Logs, Live logs, Activity report, Course participation, Statistics*. For this study the data captured in *logs* was analyzed.

For the purposes of this study two data sets were used. The first set consists of data about the use of videos provided for each unit or chapter. These pre-recorded videos are usually provided with intent that students will watch them to master basic concepts of the unit. The second data set consists of "View & Post". It provides a gross picture of the pattern of student's activities during the whole semester. Both data sets combined together provide an overall picture of how students used the videos and also shows the pattern of engagement with the course materials. Although the sample size is quite small but the insight into how video and other components of an eLearning courses were used by student is quite significant.

## IV. RESULTS AND DISCUSSION

With the advent of 3G/4G mobile networks and services the streaming media is superseding all other forms of digital content. And anyone who has been following the growth of Social Media in the last 5 years knows that the trend of using web-based videos has exponentially increased. These days what students want and need is exactly what colleges and universities also want and need: powerful and efficient cross-platform digital content delivery systems. In 2016 the universities are not only in the business of selling access to academic content, but also have to be smart in organizing and integrating

existing content available on You-Tube, MOOCs, EdX and many other portals, thereby making over-the-top videos a viable source of learning for students. The availability of high quality content on various Internet portals makes in-house production of videos based on power points almost unnecessary.

*A.  Why academic videos are underused?*

In this new century students are not interested in sitting through 50-60 minutes listening to talking heads. Instead they should be engaged to watch a case study video, work as team and present their findings or write it out as an assignment. All of this could be done online. Above all, there has to be a built in incentive for students to watch the videos and learn about the topic and complete all tasks as a part of their grade in the course. Let us first examine the outcomes derived from the data analysis of two courses.

The Course-1 which was offered from August 2015- December 2015 had 4 students. The contents of the course were spread or covered in 13 chapters. The Course-2 was offered from January 2016 to May 2016 and had 3 students enrolled and contents of the course were covered in 13 distinct chapters. During the two semesters extending from August 2015 to May 2016 the data about "Views & Posts" for the enrolled students was also captured and analyzed. The graph for Course-1 as shown in Fig. 5 indicates that the 4 students enrolled in the programs initially showed some interest in watching VDOs of the units but as the semester progressed they lost interest in watching VDOs beginning with Unit 2. There were only 7 instances of video being accessed during the whole semester by 4 students enrolled in the Course-1.
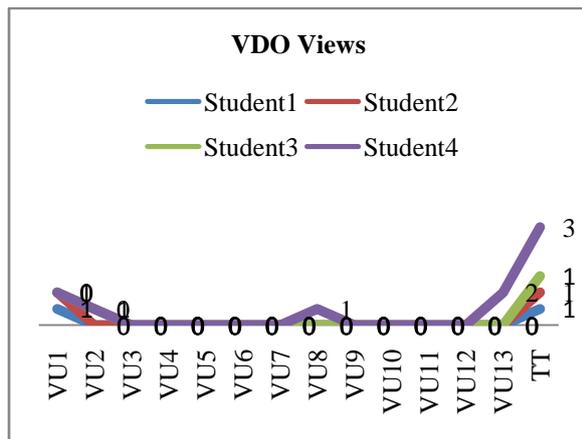


Fig.5. Course-1 VDO views during the semester

"Views & Posts" data for the enrolled students was also captured and analyzed. The graph for Course-1 as shown in Fig. 6 indicates that the 4 students enrolled in the programs showed engagement for the first 2 months but as the semester progressed they lost interest. The graph indicates a gradual decline heading towards the end of semester in December. Total number of Views was 1772 and the total numbers of Posts were 355. Posts counts usually include uploading assignments files and other tasks assigned in a course. They also include quizzes and other online activity requiring submission.
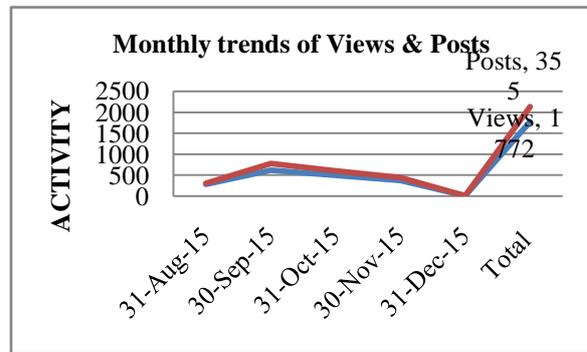


Fig. 6. Couse-1: View & Posts during the semester

The Course-2 which was offered from January 2016 to May 2016 had only 3 students and contents of the course were spread or covered in 14 chapters. The overall picture for Course-2 as shown in Fig. 7 indicates that the 3 students enrolled in the programs initially showed some interest in watching VDOs but as the semester progressed they lost interest in watching VDOs beginning with Unit-7. There were only 18 instances of video being accessed during the whole semester by 3 students enrolled in the Course-2.
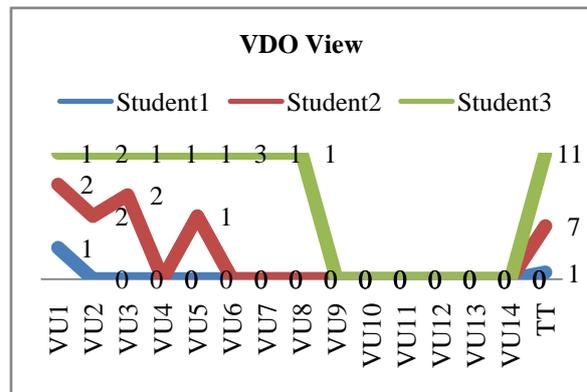


Fig.7. Course-2 VDO views during the semester

"Views & Posts" data for the enrolled students in Course-2 was also captured and analyzed. The overall picture as shown in Fig. 8 indicates that 3 students enrolled in the programs showed some engagement in the first 3 months but as the semester progressed they gradually lost interest. The "Views & Posts" graph indicates a gradual decline starting in the mid semester heading to the end of semester in May 2016. Total numbers of Views were 291 and the total numbers of Posts were 87.
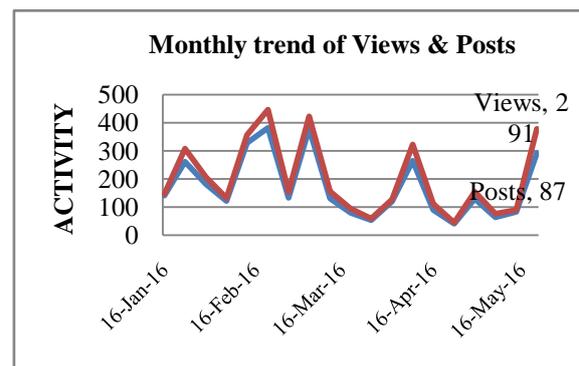


Fig. 8. Course-2: View & Posts during the semester

Over all, the use of VDOs for Course-2 was a bit better but "Views & Posts" activity was quite low when compared to Course-1. The overall picture for both courses indicate a very low engagement with videos provided with the main purpose of mastering concepts in the two eLearning courses.

### B. How to improve efficacy of videos in eLearning?

It is quite evident that reading through text books prescribed for an academic course at times becomes a very tedious task. This is when videos and other digital media available online become attractive alternatives. It has been proved that visuals are more engaging than reading through hundreds of pages. If anything we can learn from the success of You-Tube and TED is that well prepared short videos can keep students engaged in an online course. Videos are also very colorful, exciting and demonstration-friendly.

In the age of mobile phones with powerful cameras and the availability of 3G/4G networks, the streaming videos and graphics are becoming more mainstream and useful. However, there are also serious limitations to producing high quality videos for eLearning programs. Producing effective videos is costly and a time consuming process. Playing streaming video also requires lot of hardware and bandwidth. If the videos do meet high quality standards, then they can easily turn into a unnecessary distraction. Although most LMSs being used today allow embedding videos but matching them closely to the concepts being covered in a unit or topic is not very easy. Also there is a lack of efforts in training instructors for eLearning. The video production cycle shown in Fig.9 has been in use for a while [6]. But one important step that has been traditionally missing in this cycle is the incentive or reward for watching videos. The use of videos in eLearning can be enhancing by taking few steps outlined below. Clearly, the incentive for watching videos should be treated as a part of overall grading scheme. A few common sense approaches that could be considered are listed below.
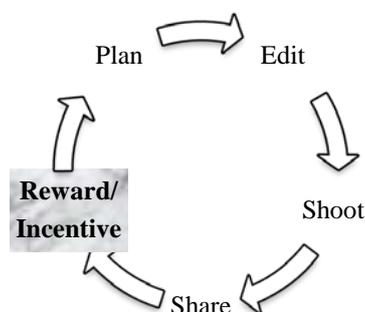


Fig. 9 Video production cycle-Missing link

- Make the videos smaller. In other words, break down the larger lecture into small segments of 5-10 minutes
- Videos should be produced with high quality digital cameras and should be made available in all possible formats to be viewed in all sorts smart and portable devices

- Provide follow up questions after every segment. Follow up questions should be in the form of short online review questions, quizzes or audio/video responses that students can upload into the LMS
- Answers to the questions based on videos should be assessed and be used as a part of the grade
- As and when possible, the videos available on public channels such You-Tube, TED, MOOCs and other portals should be utilized
- Analytic tools within the LMS should be used to examine the efficacies of videos

### V. CONCLUSIONS

In the last 5 years or so using videos to enhance online teaching and learning has become incredibly easy. Video sharing sites make it painless to embed them into a webpage. In cases where a institution is using WrordPress or any other cloud based services to host their website, it becomes even easier! With increasing use of SMAC (Social-Mobile-Analytics-Cloud) use of videos for online learning is becoming much more effective. Inserting videos from You-Tube, Vimeo, Wistia, TED and similar platforms eliminate the technical barriers and high costs associated with video productions. Even if a college or university is already using videos in their online programs and courses, the success or failures of such endeavors needs constant revaluation. This paper provides a fresh insight into how to make proper use of video technology for better engagement and learning outcomes. It is clear from this small case study that adding a critical element of "Reward or Incentive" to the overall strategy can maximize the use of videos. In other words, there has to a clear consideration of providing incentives for watching videos, more so, in an academic setting.

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