Characteristics of instructional videos

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Abstract

Nowadays, video plays a significant role in education in terms of its integration into traditional classes, and is the principal delivery system of information in classes particularly in online courses as well as serving as a foundation for many blended classes. Hence, education is adopting a modern approach of instruction with the target of moving away from the traditional instructional approach to video-based learning (VBL). VBL is a powerful approach used in education in order to enhance learning results as well as the learners' satisfaction. The aim of this study is to explain advantages, disadvantages and design tips of instructional videos according to new trends in education. This paper would be useful for anyone interested in designing, preparing and implementing instructional videos.

Keywords: Video-based learning, technology boosted education, VBL pros and cons, review of study, instructional video.

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1. Introduction

Active learning theory suggests that students have better learning outcomes when they actively join the learning process (Weeks & Horan, 2013). Learning activities supported by instructional videos allow active learning. While it is known that technology supports learning, in some research it is stated that the videos can be used as an effective tool in education (Allen & Smith, 2012; Hsin & Cigas, 2013; Kanbul & Uzunboylu, 2017; Kay, 2012; Lloyd & Robertson, 2012; Rackaway, 2012; Uzunboylu & Karagozlu, 2017).

Today, video plays a significant role in education in terms of its integration into traditional classes, and be the principal delivery system of information in classes particularly in online courses as well as serving as a foundation for many blended classes. Hitherto, many research analyses have presented that technology is a vital tool that can improve the learning skills of learners (Allen & Smith, 2012; El-Senousy & Alquda, 2017; Hsin & Cigas, 2013; Kay, 2012; Lloyd & Robertson, 2012; Rackaway, 2012; Schmid et al., 2014; Uzunboylu, Baglama, Ozer, Kucuktamer & Kuimova, 2017; Uzunboylu, Hursen, Ozuturk & Demirok, 2015). Therefore, the use of instructional videos has increased in recent years (Gold & Holodynski, 2017).

The term 'video-based learning' (VBL) refers to the technology that is electronically taking and distributing sequences of educational image displaying scenes in motion. The videos are a rich and powerful tool for computer-assisted learning (El-Sayed Hassan El-Sayed & El-Hoseiny Abd El-Raouf El-Sayed, 2013). These videos are utilised in the science of cognition and education to title knowledge or skills which is being taught through video. The significant characteristic of the video is the use of visual symbols along with the auditory systems, because using only auditory or visual symbol systems results in less recall than using the combination of both in order to present learning and teaching activities. Furthermore, the audio symbol systems are utilised to elaborate information but visual symbol systems are served as the main source of information (Nipan, 2012).

Nowadays, education is adopting a modern approach of instruction with the target of moving away from the traditional instructional approach to VBL. VBL is described as the instructional process of obtaining information, knowledge and skills along with the principled support of video resources (Albo, Hernandez-Leo, Barcelo & Sanabria, 2015).

Furthermore, VBL is a powerful approach used in education in order to enhance learning results as well as the learners' satisfaction. Besides, there have been many studies that carried out the research regarding VBL approach; as a consequence, this method of teaching has been growing outside and inside of the classrooms and throughout it gains popularities. Therefore, many instructional organisations are providing classrooms with video lectures as an instructional tool or as a main self-study in order to improve the process of learning. During the last decades, studies show that VBL has been showing its benefits in education. The videos can be used in various ways in order to impact teaching and learning. For example, it can encourage educators to consider this for flipped classroom approach, where students can study the instructional material at their own pace and afterward learn the details more deeply in the class time (Ozdamli & Ozdal, 2018; Yousef, Chatti & Schroeder, 2014).

Furthermore, instructional videos can facilitate problem solving and thinking by providing students with creative using of images along with sound in order to communicate the topic truly, and so it enables learners to obtain the skills in research and organisation and knowledge for problem solving and cooperative working. In addition, instructional videos can be helpful to the mastery of studying. In some cases, video can be useful as instructor in representing the procedure or interactive facts in order to help in mastery of studying, where learners can see complicated mechanical or clinical procedures many times when they are needed. Besides, the modern web-based media players by having interactive features can be utilised in order to enhance 'active learning' methods with learners. Moreover, VBL can engage and inspire students when combined into learners-centre educating activities via improving experience in study, raise learners motivation, better marks, students

autonomy enhancement, improve communication skills and team working, learning cohorts for future use, staff opportunity development, and expand potential for deeper understanding of the subject concepts. Besides, VBL provides learners with producing opportunity of authentic learning and also how academics from the research-based view and advocacy can be encouraged by 'instructional videos'? (Galbraith, 2004). Hence, the aim of this study is to explain advantages, disadvantages and design tips of instructional videos according to new trends in education.

2. Advantages of instructional videos

Study offers individuals to learn novel ideas more conveniently and quickly while information delivers in visual and verbal forms simultaneously (Salomon, 1979). Another pilot study presented that visual media are more accessible for users rather than text media; hence, it assists them to later recall (Cowen, 1984). Furthermore, another scientist in his study stated a query regarding 'why do learners remember everything that is shown on TV but they cannot remember their lecture?'. So, the result of his study shown that visual media assist learners to remember the ideas and concepts more easily than the text media (Willingham, 2009). Besides, according to many researchers that have been conducted in several decades, it is shown that VBL provides many advantages particularly in education (Akdemir, Bicer & Parmaksiz, 2015; Arnavut & Ozdamli, 2016; Galbraith, 2004; Lehmann, Seits, Bosse, Lutz & Huwendiek, 2016; Mohamed, Yousef, Chatti & Schroeder, 2014; Tugun, 2016). These advantages comprise the following:

Increase social interaction: The social interaction has influenced in many classrooms, particularly today's, from kindergarten to colleges. Researchers believe that it is easier to solve social interaction problems through visual media rather than the text media. Therefore, the educational videos shared through YouTube and other platforms increase social interaction among individuals. Interaction between students is growing with interpretations that are made for uploaded videos. In addition, social interaction is increasing by discussions after the videos that are watched on the classroom environment or online education platform (Galbraith, 2004).

Unlimited accessibility: VBL is user-friendly. Learners are able to access by any kind of mobile devices such as smartphone, tablet, laptop and desktop. Besides, easy accessibility allows videos to be retrieved on demand. Furthermore, videos can be designed in different formats based on the type of the platforms; hence, they are accessible for all, particularly for remote work-forces and employees who use their personal devices. However, some devices like iPad or any other type of mobile devices may not support some format to be played; therefore, there are some applications such as iSpring Pro that provides solution to this issue. This application makes video lectures in the format of both HTML5 and Flash; consequently, you are able to play your video lecture in all browsers and mobile devices (Distasio, 2016).

Provide individual learning environment: With the instructional videos, learners gain information about the course whenever they want. So, it offers students the opportunity to learn by themselves. Furthermore, VBL provides student with an individual pace which greatly enhances the result of learning. Hence, learners will enjoy the process of innovative learning which encourages them to be engaged (Stanic, 2014).

Simple deliver: Learners can be provided with unlimited access to all the instructional materials by simply uploading video lectures through the learning management systems (LMS) or websites. Besides, instructional materials can be delivered by CD or send via an email (iSpring Support Team, 2015).

Improves motivation and concentration levels: Lately, a scientist presented that there is strong evidence that instructional video can engage and inspire learners when integrated into learner-centred classroom activities. As a consequence:

· Learner's motivation, mark and learning experience will be increased.
· Learner's autonomy as well as staff opportunity will be developed.
· Learner's communication and team working skills will be improved.
· Instructional videos will be remained as a resource for learner's future cohort to use (Willmot, Bramhall & Radley, 2012).

Moreover, El-Sayed Hassan El-Sayed and El-Hoseiny Abd El-Raouf Al-Sayed (2013) gave video-aided anatomy training to students during a period. And the results of the study showed that the students' understanding of the subject facilitated their motivation and their concentration levels increased positively.

Constant messaging: Utilisation of the instructional video lectures ensures that your employees are getting the same message. For instance, if you share a video but periodically you ask different instructors to teach the same lecture, the videos verify that the same message with the same content is presented in spite of the distinct style of the instructor (Distasio, 2016).

Self-testing chance: Video lectures can also be useful for teachers, by recording his/her own lectures in order to take a look and improving the presentation skills (iSpring Support Team, 2015).

Portability of video: *By developing technology along with the availability of broadband Internet, video lectures can be watched anywhere and at any place on the planet. Hence, this allows learners not to be isolated at a particular place in order to learn a subject, and eliminate the need of learners to be available in their class or university that may be located far away (Giannakos, Jaccheri & Krogstie, 2014).*

Rewinding and pausing videos: The most significant benefits of instructional videos are that learners can stop, rewind, pause and then manipulate the timeline of studying. Moreover, learners who study by VBL will not miss their lecture, as they have time to watch and recheck the videos when they need at anytime against the traditional classroom approach (Brainscape Team, 2015).

Period of training: Instructional videos can make a considerable impact in a short period. Short video lectures involve a shorter amount of attention; hence, there is fewer load of cognitive on students, and the information can be recalled, retained and absorbed more conveniently. This is more appropriate for youth workers. Based on Software Advice research, 50% of 385 participants who were full-time employee specified that they would be more interested to study via online video lecture if the video would be split into shorter periods (Distasio, 2016).

More effective education: If learners miss a lecture, he/she can either get the video via link or LMS system in order to keep up with the curriculum (Stanic, 2014).

Video-based learning is powerful: The instructional videos are basically visual. The combination of educational audio and images allow users to obtain information easily particularly, the knowledge that is fundamentally visual. So, if the subject cannot be presented graphically, the video is greater than a podcast or an audio as it can get fine distinction of body language, meaning and context that can't be carried in another way (Kelly, 2015).

3. Disadvantages of instructional videos

However, in the last decades, TV, computers and then mobile devices have grown rapidly around the world and learning via video has become one of the easiest and fastest instructional approaches in education, this method is not commonly acclaimed. There are some learners who still prefer traditional learning in terms of some issues such as technical problems, and hence, it can be considered as a complex method (Brainscape Team, 2015). There are some disadvantages of VBL as follow:

Necessity of having equipment: The most significant problem with VBL is the need of computer or mobile devices in order to watch videos. Hence, many people around the world don't have access to these video due to this simple reason (Galbraith, 2004).

Difficulty with editing videos: The considerable issue with VBL is that it is static mostly and so once it is created, it will be hard to edit it in case of corrections. Nevertheless, there are some options to be used such as using some video platforms in order to solve the problem rather than reissuing it (Brainscape Team, 2015).

Lack of control over learners: There are always some learners with less motivation, so by using this instructional method they may fall behind as there is no specific time to arrange in order to study and also they are to organise everything with regard to studying themselves. While there is no routine or fixed schedule, it may become complex when there are different deadlineS for class activities (Michael, 2015).

Videos are individualistic: The other cons of studying via video are that it boosts individualism that can make education more difficult. Team work or group learning enables learners to share their skills and solve the problem easier. However, the pros of VBL are learners can study in their pace, and it can also be considered as its cons (Galbraith, 2004).

The approach of instruction: Instructional videos utilisation may not attract some learners due to lack of experience, particularly when learners are required to do some strong activities or be pragmatists. Learners may prefer reading words and having discussion in order to do any task rather than watching instructional videos (Michael, 2015).

Isolation issue: There are learners who are more comfortable to ask their problems face-to-face and get instant response while learning a new subject. Instructional videos don't provide students with instant response, and so learners may feel isolated as they are not supported and reassured without existence of their teacher (Donoghue, 2004).

4. Tips to create video-based learning

The VBL approach is superior to the present text-based learning while teaching certain practical skills. Hence, if educational designers wants to engage students to learn in an effective way that provide a great amount of interest, the video supported approach is the method to do it, particularly when teaching hand-on or practical lectures. Videos can be obtained from Youtube, Teachertube, etc., to be shown in the lectures (Jandan, Farooq & Khan, 2015). Or, videos can be designed by teachers to match the course content. Brame (2015) points out that three elements are important for improving the learning experience of the videos to be developed. These three factors are cognitive load, non-cognitive factors affecting interaction (engagement affective domain) and features that encourage active learning. Educational videos developed keeping this in mind can be used as an effective educational tool (Brame, 2015).
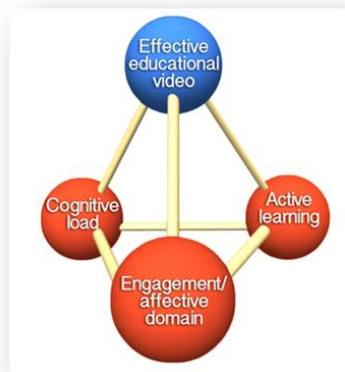

Figure 1. Three Significant elements for video making (Brame, 2015)

Besides, here are some tips that should be followed in order to create an instructional video:

Explicit aims: In order to produce a video, you need to have clear aims and objectives. Therefore, spend some period of time in conceiving what learners will obtain at the end of the video. Having a clear aim is helpful to create your video more effective, will make the learning process more convenient, and so the learners can finish the lecture quickly (Kapoor, 2015).

Simple and short: The video length should be short to avoid students' boredom, keep them engaged by videos. In order to make cognitive load, you can create mini videos, ranging from 1 to 2 minutes for complicated topics. You should be sure about the digestibility of the video contents by using equivalent balance of visuals and plain text (Sood, 2016).

Text: Majority of videos comprise text that may not lose the learners interest. However, there are some effective methods of using text in videos. For example, you want to explain some special content of your lecture; the text illustration can cater added worth (Ruffell, 2016).

Graphic: Video can be involved with pictures in order to make a proper visual background for your character. For example, if you want to demonstrate the timely action and quick time response of an employee, the picture of increasing the duration of sun which is used to illustrate that he is at work on time and doesn't waste time at work. As an instructional approach, there are many developers who avoid utilising graphics in instructional videos (Lloyd & Robertson, 2012).

Caption: Caption utilisation is helpful for learners, particularly when they have hearing issue and not able to watch the video with ease; they can finish the lecture by just looking at the captions. Furthermore, if there is a language barrier issue for learners who live in a different area, caption works perfect. Previous studies show that the caption can enhance the video completion rate twice (40%–80%). Furthermore, caption is useful for learners who do not have their first language as English and having issue in comprehending what is being spoken (Brann, 2011).

Voice: This is the significant factor that should be considered when you are making an instructional video, as it improves the engagement by guiding them via voice scripts. The visuals and texts in videos should be supported by voice, so learners can listen to the audio along in case they become boredom. In addition, voice helps blind learners to study and finish their courses well. In some cases, you can use audio script with different languages that satisfy your learners' need (Hebb, 2015).

Screen recording: Having simulation about some application is the other way to promote your instructional videos. Screen recording approach can be helpful while you are not able to show by a plain text or an audio. For instance, if you want to illustrate about saving a document in excel to your students, therefore, the record of your screen would be more helpful. There are various types of applications that you make record of your screen such as Screenr, Ezvid or Camtasia (Mischook, 2007).

Animated character: Instructional videos may make learners boredom if the actual people were used in the whole period of the video. Hence, in order to make an effective video, we can get the animated character of the involved people. The advantage of this approach is the instant engagement of learners with the learning content, along with having fun while learning (Kapoor, 2015).

Figure 2. Animated character of people in video

5. Conclusion

In the past, using video in class solely meant to show a movie by using DVD or VHS player to learners. However, nowadays instructional videos take a more prominent place in the instructional process. The VBL approach is superior to the present text-based learning while teaching certain practical skills. Instructional videos can be combined in online learning systems such as LMS, flipped classroom environments, portal and E-class.

The pros of using VBL teaching approach are that it can engage and inspire students when combined into learners-centre educating activities via improving experience in study, raise learners' motivation, better marks, students autonomy enhancement, improve communication skills and team working, learning cohorts for future use, staff opportunity development and expand potential for deeper understanding of the subject concepts (Galbraith, 2004).

VBL utilisation not only converge teaching approaches such as flipped classroom, e-learning, Moocs, distance learning but also made possible to use videos in hands-on learning as a support tool that provides a significant, flexible and autonomous education. The application of teaching approaches are based on different aspects comprising the course nature, students behaviour (based on their needs) and the activity design offered by instructors.

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