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## Students' perception towards lecture capture based on the Technology Acceptance Model

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### Abstract

Lecture capture has become a key feature of the e-Learning implementation plan of institutions aspiring to enhance accessibility and flexibility in teaching and learning. For any institution that is launching an e-Learning programme, it is essential to find out whether the target beneficiaries are as enthusiastic about this tool as they are made out to be. This study explored the perception of students using lecture capture in a Malaysian university. The research questions were guided by the Technology Acceptance Model (TAM) which was also used in the designing of the research instrument. The researchers sought insights into student usage, and students' perception of the usefulness and ease of use of lecture capture. The sample comprised Foundation of Science students whose Mathematics class was selected to participate in the trial run of the university's new lecture capture system. Quantitative data was collected to fulfill the objectives of this investigation. The results reveal that this pioneer group have a positive perception of the usefulness of lecture capture. In the aspect of perceived ease of use, it was found that technical limitations had a negative impact on the students' perception. The study's findings on the students' attitudes towards the use of lecture capture provide fundamental information for educators and institutions of higher learning planning or just beginning to embark on using lecture capture technology.

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*Keywords:* Lecture capture; Technology Acceptance Model (TAM); e-Learning

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## 1. Introduction

The wave of new technology sweeping over the global educational landscape today has impacted all aspects of teaching and learning in institutions of higher learning (IHLs). Technology in education is currently one of the most important topics for discussion and debate among academicians and scholars. Blended learning which combines face-to-face instruction with Internet-based education technologies is being integrated into curriculum design in universities. The wide array of application software and virtual learning tools and spaces, all of which appear to have potential for enhancing teaching and learning, has created a fertile and vibrant environment for exploratory activity among academics and researchers.

### 1.1. Background

In Malaysia, e-Learning is one of the Critical Agenda Projects developed by the Ministry of Higher Education giving impetus to both public and private IHLs to harness technology to enhance flexibility and mobility in teaching and learning. One key area of focus in the migration of learning to virtual spaces is delivery of content.

The traditional lecture which academics use to provide students with essential background knowledge and to introduce them to key concepts is incongruous with the dynamic student-centred teaching and learning environment so essential to engaging the digital native learner. IHLs in Malaysia have begun to explore the use of podcasting technology to support flexibility and mobility in subject content delivery. Substantial investment of resources and finances is required for installation and maintenance of a lecture capture system. Nevertheless, the positive results of research on this technology in other parts of the world are sufficiently convincing for a private Malaysian university to embark on using lecture capture technology. However, not enough is known about the learners' perception of the use of this technology in the Malaysian context.

### 1.2. Objective

The main objective of this study is to confirm whether the intended beneficiaries of this move by a private institution in Malaysia regard the adoption of the lecture capture positively. This study focused on investigating how students used lecture capture, and how they perceived the usefulness and the ease of use of lecture capture. The research questions were guided by the Technology Acceptance Model (TAM) which was also used in the designing of the research instrument. The findings of this study will be of interest to institutions starting on or planning to adopt this technology.

The next section of this report presents a review of the literature on the background of lecture capture technology and some significant findings on its use. The validity of the Technology Acceptance Model (TAM) will be supported with evidence from the literature. Following that is a brief explanation of the data collection methodology employed in this study. The preliminary findings of this investigation are presented followed by discussion and the conclusion.

## 2. Literature Review

### 2.1. Lecture Capture

In the past, recording lectures meant taking down notes or transcribing the content. With advances in technology, digital recording of lectures for the masses became possible with the release of the Apple iPod in 2001. It soon gained attention as a means of storing and listening to audiobooks and audio lectures. People started to release audio lecture content on the Internet, to be made freely available for everyone (Heffernan, 2005).

Universities began to see the potential of the iPod as an educational tool to be used along with the traditional course. In one case, in the fall of 2004, Duke University began to give away iPods to freshmen enrolling in the institution in a bid to foster an increased use of technology within its classroom. With this came along the option to

download audio files of lectures that are recorded as well as foreign language courses to help them along (Dean, 2004).

Eventually, the idea of using RSS (Really Simple Syndication), a technology that enables publishers to easily update and push out content, caught on and these audio recordings began to gain more popularity in the mainstream. The term “podcast” was coined for this new type of content publishing, with the word being a portmanteau of “iPod” and broadcasting, even though these files can be played on other players. Now, anyone with an Internet connection is able to download recorded lectures easily and efficiently, using the same RSS technology used in podcasting.

Various studies have been conducted to investigate the usage and acceptance of podcasts as an educational tool. Evans (2008) explored the effectiveness of using podcasts for mobile learning among a group of business management students. It was found that students regarded revision using podcasts as being more effective than using their textbooks. Using podcasts when doing revision reduced their anxiety as it was quicker compared to revising using notes. Students value the flexibility of podcasts and find it efficient, engaging and easy to access materials for revision. The study conducted by Hew (2008) also showed that students used podcasts as supplementary materials. They enjoyed listening to podcasts at home using desktop computers rather than mobile devices. Podcasts allowed students to listen to specific materials that they had missed or did not understand.

With the common usage of video recording, lecture capture (LC) was introduced. Lecture capture is a technology that permits lecturers to video capture their lectures and then to upload them to the web to be shared with students. The required infrastructures for lecture capture are connectivity, storage and processing. There are various types of lecture capture system in the market such as Camtasia Relay, Panopto, Qumu, Echo360 and Tegrity. The idea of lecture capture is simple. It utilizes both an audio and a video recording device to capture a lecture as it is being given by the lecturer. The lecturer would conduct the lecture in the lecture hall as normal using a microphone to capture the speech. A video recorder nearby, usually at the back of the room, captures the video image of the lecturer and the slides and whiteboard notes that are being presented. In some cases, software is used to record the lecturer’s presentation slides if they are being presented on a computer. All of the collected data may or may not be edited. In some cases, they may be released raw with no editing. In others, they may be edited for quality and consistency. In the case of the edited versions, software may be used to display the captured presentation slides at the same time or at different intervals.

There are two main ways in which the video would be posted, which includes it as a streaming option, either through their own dedicated website or being posted through a third party video hosting site such as YouTube. While it may be released as a stand-alone video, some lecturers and institutions may release it along with additional course materials to help the student (Cann, 2007).

The roles of lecture capture are to allow students to review lecture capture materials and to provide supplementary materials for the students. Lecture capture can also assist in the retention of verbal information (Kadirire, 2011). Students can view the contents as many times as they like. According to Kadirire (2011), the main purpose of viewing lecture capture is to pick up contents that students have missed in the class, revise for examinations, revisit complex ideas and concepts and to work at their own pace. Ehlers (2010) and Zhu & Bergom (2010) also agree that the most popular uses of this technology are to prepare for examination and review course materials for a better understanding of the subject.

The lecture capture recording system has been used in various disciplines in the university. For example, Gibson & Miller (2012) implemented lecture capture for clinical training using the Panopto system. Students expressed a high degree of satisfaction with the lecture capture system because the technology helped improve their skills and made access to learning activities more convenient. Wilbur & Jewesson (2010) employed Echo360 media to capture the lecture which was posted on Blackboard for students to revisit the lectures and clarify concepts that they had doubts about. The results showed that students tend to select specific content for review purposes. Newland, Dickson & Galling (2012) utilized Echo360 to enhance student learning experiences. The majority of the students used recordings to catch up on a missed lecture, review complex concepts, do revision and make comprehension

notes. Students preferred to view the lectures on a PC at home. Brogan (2009) used Echo360 to assist students with disabilities. These students have an overwhelming need to gain access to lecture recording online because they are not able to physically attend some classes. The lecture capture system allows students with cognitive disabilities to playback the part they would like to watch again. Audio recording and screen readers in the lecture capture system enable vision-impaired students to learn from the lectures easily.

Dey, Burn & Gerdes (2009) explored the educational implications of the use of lecture capture to the student and discovered that students had a positive experience in using the system. They could focus on important concepts presented during class because they could access the lectures at any time to build a more extensive set of notes. Some students mentioned that they used the system to revisit only certain parts of the lecture that they felt needed clarification. The results showed that the LC system served as an effective learning tool as a study supplement and students used it as an examination study tool and reference tool when working on weekly class assignments.

The video capture environment has created an impression of intimacy among the students (Simpson, 2006). Other benefits of lecture capture are the ability to improve learning retention, reach more learners, create content libraries for future semesters and prevent student attrition (Greenberg & Nilssen, 2009). Lecture capture has potential benefits for students' learning and grades (Zhu & Bergom, 2010). LC has created a deeper engagement with course materials. Students report that they appreciate the flexibility of LC because they can access it anywhere and anytime. It provides convenience to students especially to those who miss the class or want to catch up on the course content.

Students perceive that they have control over their learning and that LC enhances their performance (Euzent et al., 2011). However, LC courses may require more self-discipline.

Herder et al. (2002) used video-taped lectures and web-based communication to teach a course at two places in the world simultaneously. Students prefer short clips over full lecture-length clips. Their preference with regard to access is that video clips be available either through downloads, streaming or CD-ROM. Patterson (2009) also employed the lecture capture system for a distance learning programme. Panopto was chosen for the study because it allows students to search for the key contents that they would like to watch and it is easier to be added to Learning Management Systems such as Moodle.

Some lecturers are concerned about the attendance and privacy issues after the implementation of lecture capture. However, faculty did not report a noticeable drop in lecture attendance. Zhu & Bergom (2010) also reported that there was no noticeable impact on class attendance after the implementation of lecture capture. Bollmeier, Wenger & Forinash (2010) found that the use of lecture capture did not affect students' grades or attendance of the class.

## 2.2. TAM

The Technology Acceptance Model (TAM) is a model devised by Fred Davis on how users of a technology will come to accept and use it (Davis 1989). The model states that there are many contributing factors that will influence a user on how they use a new kind of technology. Perceived usefulness (PU) and perceived ease of use (PEOU) are hypothesized to be the fundamental determinants of user acceptance.

- **Perceived usefulness (PU)** is defined as "the degree to which a person believes that using a particular system would enhance his or her job performance" (Davis, 1989).
- **Perceived ease of Use (PEOU)** is defined as "the degree to which a person believes that using a particular system would be free from effort" (Davis, 1989).

In the context of recorded lectures, these two factors are important to finding out how the students perceive the lecture capture.

TAM was specifically designed to predict computer usage behavior and is commonly applied in the examination of users' attitude and behavioral intentions towards the acceptance of technology. Since it was developed in 1989, the TAM has been widely used in technology acceptance research in educational settings (Ke, Sun & Yang, 2012; El-Gayar et al, 2011; Teo et al., 2009; Masrom, 2007; Lee, Cheung & Chen, 2005).

Masrom (2007) used TAM in his investigation of Greek university students' perceptions and attitude towards blended learning. He discovered that perceived usefulness is more important in determining intention to use than attitude toward using an e-learning tool. The results showed that students perceived the relation of ease of use and usefulness as a key factor for adopting Moodle.

El-Gayar et al. (2011) explored the influence of various factors that drive students to accept tablet PCs and the implications for educational institutions. The result showed that students' attitude had the most direct influence on tablet PC acceptance.

According to Teo et al. (2009), TAM is a valid model to assess future intention to use technology among pre-service teachers. Lee, Cheung & Chen (2005) examined students' acceptance of an Internet-based learning medium (ILM). The result showed that both PU and PEOU impact the students' intention to use a technology significantly and directly.

TAM was adopted to explain the computer usage and behavior intentions of Ghana students in using computer based technologies for study (Kumah & Achampong, 2010). Saade, Nabebe & Tan (2007) utilized TAM to reassess student satisfaction with a multimedia learning system. The findings have validated TAM as a solid theoretical model where its validity can extend to multimedia and e-learning context.

TAM was used by Torres, Lustria & Randeree (2010) to explore how consumers engaged in personal health information management (PHIM). The focus was on whether computer anxiety had an impact on consumers' perceived ease of use to engage in PHIM.

Besides the educational setting, TAM has been applied in studies on other areas such as mobile ticketing services (Mallat et al., 2006), airlines industry (Bukhari et al., 2011), and online shopping (Lim & Ting, 2012). Lim & Ting (2012) employed TAM to analyse how consumers form their attitudes and online shopping intentions. The results show that PEOU has a positive effect on attitude towards online shopping where technological interfaces and tools on the online websites play an important role to predict online shoppers' attitude.

### *2.3. Studies on lecture capture using TAM*

Little research has been conducted that applied the TAM to explore the acceptance of lecture capture technologies in higher education. Shum, Land & Dick (2010) investigated students' potential acceptance of podcasting as an educational tool using TAM. Students expressed a strong intention to use a desktop computer to access podcasts made available by their instructors. Podcasts deliver the audio content in a timely manner and at low cost. Perceived usefulness was found to have significant relationships with predicting intention to use podcasts.

Lust, Elen & Clarebout (2012) investigated the change of expectation and attitudes of students in using web lectures in an undergraduate course in Belgium. The results showed that students accepted web-lectures but only a few continued to use it. Perception of usefulness of web lectures is the main influence on the students' initial adoption of the technology. They only used the web lectures after they acknowledged the functionality of the tool for supporting the learning process.

There is no similar research using TAM to explore the usage of lecture capture, in terms of PU and PEOU in the Malaysian context. Hence, TAM is adopted as a conceptual framework in this study to understand the perception of students in adopting lecture capture in their learning process.

### 3. Research Methodology

#### 3.1. Data Collection

The quantitative approach is adopted in this study to examine students’ adoption of lecture capture based on the two main factors described in TAM – perceived usefulness and perceived ease of use. The main mode of data collection was through the use of an online questionnaire. The questionnaire was administered to 100 students who were taking the Foundation in Science programme in a Malaysian private university. Out of the 100, only 33 respondents completed and submitted the questionnaire. Even though the sample size is small, it is enough to gain some insights into the student’s perception and usage of lecture capture.

The online questionnaire was created using Google Docs. The main reason for choosing Google Docs is because it is easier to analyze the data once collected as it has built-in tools in which all the data will be organized and converted into graphs. Demographic information, questions related to perceived usefulness and perceived ease of use were asked in the questionnaire. All the questions were rated on a five-point Likert scale ranging from “strongly disagree” to “strongly agree”. The questions were designed based on previous literature review and the existing Technology Acceptance Model theory. The respondents took no more than 10 minutes to answer the questionnaire.

The data from the questionnaire was analyzed after Google Docs generated a summary of the data in the form of graphs.

#### 3.2. Results

##### 3.2.1. General

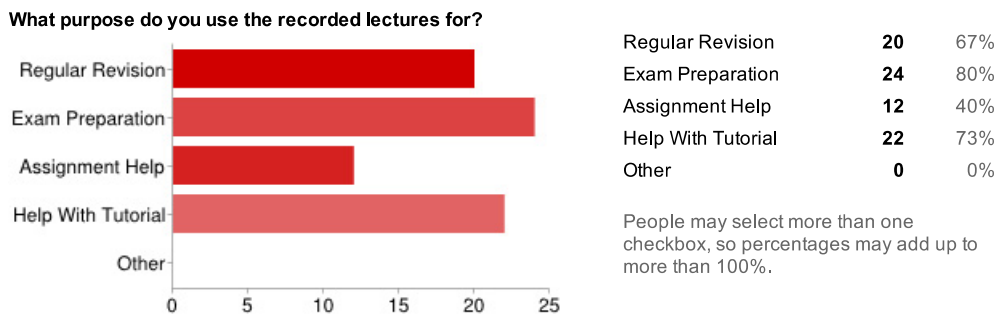


Fig. 1. Student usage of lecture capture

The data reveals that the respondents use recorded lectures when preparing for examinations, for tutorial tasks and for revision (see Figure 1).

The majority of the respondents (66 per cent) prefer to watch the lectures in part, 15 percent of whom would watch it once before re-watching parts of it. This indicates that students prefer to cut straight to the relevant content and filter out irrelevant material. More than half (58 percent) of the participants prefer to watch the recorded lectures without interruption for less than 10 minutes. The students who claimed that they would not intentionally skip classes if given the option to watch the recorded lecture formed 68 per cent of the sample. This suggests that the students do not view the recorded lectures as a replacement for the actual live lectures.

##### 3.2.2. Perceived Usefulness

The majority of the students find that the recorded lectures are very helpful in their studies, with 78 percent providing positive feedback (see Figure 2). A significant 69 percent of the respondents agree that lecture capture is a good tool to be used if they missed a lecture. In terms of exam preparation, 78 percent of the respondents agree that

recorded lectures helped them in their examination preparation. This indicates that the students perceive recorded lectures as a useful tool in helping them learn and do their revision.

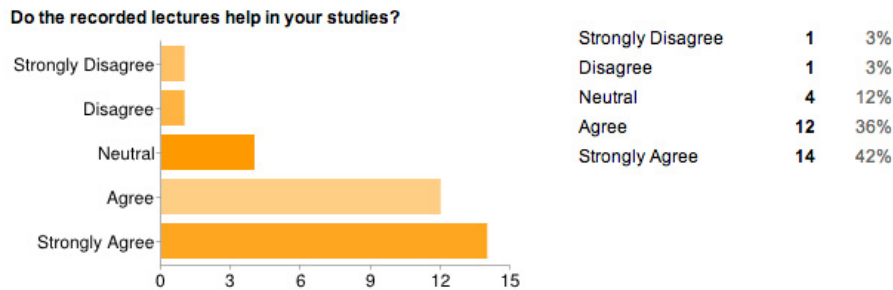


Fig. 2. Students’ view of the usefulness of lecture captures

### 3.2.3. Perceived ease of use

Eight-four percent of the students prefer to be able to view the recorded lectures outside the campus. Three quarters of the respondents like to save the recorded lecture offline for later viewing. This result is a clear indication that students like it that lectures are available anywhere anytime thereby confirming ease of use and convenience.

When asked whether they prefer to watch the recorded lectures on a learning management system or Youtube, 48 percent of the respondents said they did not mind watching the recorded lecture on any site. However, 52 percent of the students preferred to watch the lectures on Youtube. This may be due to their familiarity with this video-sharing website or a lack of familiarity with the institution’s learning management system and the resulting effort needed to use it.

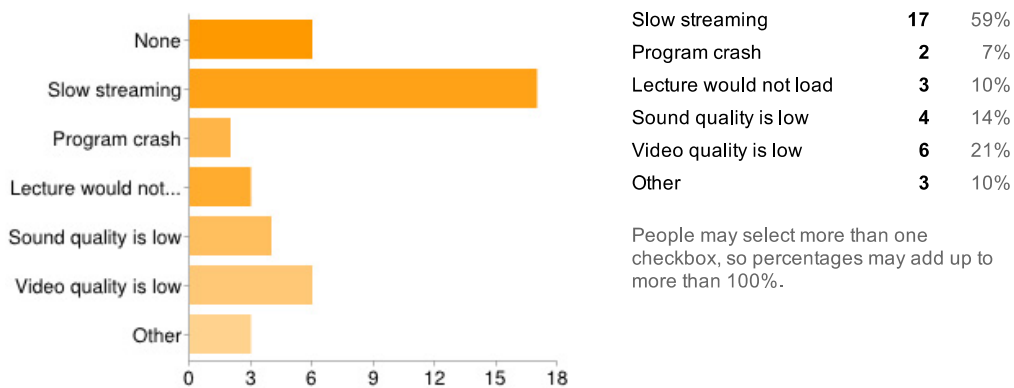


Fig. 3. Issues affecting ease of use

The major issue affecting ease of use faced by the students in using lecture capture is the slow internet speed (see Figure 3) which causes delays and interruptions in streaming and downloading of the recorded lectures. This problem needs to be rectified in order to ensure that the students can download the recorded lectures easily.

In the aspect of technological support, it was found that the majority of students prefer to either consult the lecturer or their friends whenever they face any problem accessing lecture captures. Only 2 of the respondents said that they would seek advice or support from the ICT helpdesk. It appears that familiarity with the person consulted is a key factor in this aspect.



#### 4. Discussion and analysis

In summary, the students' overall attitude towards lecture capture is encouraging. The perceived usefulness of the technology is evidenced in their regard for lecture capture as a valuable tool for their studies which they find useful for their revision and preparation for examinations. This is consistent with previous research findings (Evans, 2008; Ehlers, 2010; Zhu & Bergom, 2010; Kadirire, 2011; Gibson & Miller, 2012).

Students view the recorded lectures as a supplement to normal lectures and do not skip classes even though they are basically listening to what is already recorded. This is confirmation of the findings of previous studies on the impact of using recorded lectures on attendance (Zhu & Bergom, 2010 and Bollmeier, Wenger & Forinash, 2010).

In terms of ease of use, it is noted that the students prefer to watch parts of the recorded lecture instead of watching it all the way through which echoes the findings of the study carried out by Dey, Burn & Gerdes (2009). They also stated that they prefer to have the lectures available to be downloaded, probably due to convenience and to avoid the negative effects of an inadequate bandwidth. In addition, the majority of students prefer recorded lectures to be available outside campus so that they are able to access them from wherever they are.

#### 5. Conclusion and recommendation

Based on the results of this study, it is evident that user acceptance of lecture capture technology among the students of this private institution is positive. However, there is room for improvement in order to motivate students to embrace the technology and harvest its benefits.

It is recommended that the recorded lectures be made easier to access and to use through the use of current technology. Many universities now allow their students to access their recorded lectures through the use of RSS, in which all the latest downloads are automated. It would be wise to implement this feature as it cuts down on the hassle of finding and downloading each individual lecture. Furthermore, the university can follow iTunes U where all the materials for the course such as lecture slides and tutorials are bundled together with the recorded lecture.

Improving the infrastructure such as increasing the bandwidth of the internet so as to support increased internet downloading speed would greatly enhance the ease of use of recorded lectures. Uploading the recorded lecture to Youtube and the use of mobile technology would encourage more students to use the recorded lectures. Furthermore, students would be more likely to use the technology if it is implemented in a platform that is familiar to them.

The limitation of this study is that the sample size is too small for the findings to be generalized. Therefore, future studies should cover larger sample sizes and focus on different schools and disciplines in the university.

In conclusion, the preliminary findings of this study endorse the use of lecture capture technology as the target beneficiaries are ready and willing to use it to their advantage.

#### References

- Bollmeier, S. G., Wenger, P. J., & Forinash, A. B. (2010). Impact of online lecture-capture on student outcomes in a therapeutics course. *American journal of pharmaceutical education*, 74(7), 127. Retrieved from <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=2972522&tool=pmcentrez&rendertype=abstract>
- Brogan, B. P., (2009). Echo360 : Lecture Capture Solutions for Students with Disabilities, 1–13.
- Bukhari, S., Ghoneim, A. & Dennis, C. (2012). Understanding The Factors That Attract Travellers To Buy Airline Tickets Online in Saudi Arabia. *European, Mediterranean & Middle Eastern Conference on Information System*, vol. 2012, pp. 619–628.
- Cann, A. J. (2007). Podcasting is Dead. Long Live Video! Department of Biology, University of Leicester.
- Davis, F. D. (1989), "Perceived usefulness, perceived ease of use, and user acceptance of information technology", *MIS Quarterly*
- Dean, K. (2004). Duke Gives iPods to Freshmen. *wired.com*. Retrieved from <http://www.wired.com/entertainment/music/news/2004/07/64282>
- Dey, E. L., Burn, H. E., & Gerdes, D. (2009). Bringing the Classroom to the Web: Effects of Using New Technologies to Capture and Deliver Lectures. *Research in Higher Education*, 50(4), 377–393. doi:10.1007/s11162-009-9124-0
- Ehlers, K. (2010). Lecture Capturing utilising Enhanced Podcasts, 1–11.
- El-gayar, O., Moran, M., & Hawkes, M. (2011). Students' Acceptance of Tablet PCs and Implications for Educational Institutions, 14, 58–70.



- Euzent, P., Martin, T., Moskal, P., Moskal, P., & Florida, C. (2011). Assessing Student Performance and Perceptions in Lecture Capture vs . Face-to-Face Course Delivery, 10.
- Evans, C. (2008). The effectiveness of m-learning in the form of podcast revision lectures in higher education. *Computers & Education*, 50(2), 491–498. doi:10.1016/j.compedu.2007.09.016
- Gibson, R., & Miller, A. M. (2012). Perceptions of Presentation Capture in Counselor Education Perceptions of Presentation Capture in Counselor Education.
- Greenberg, A. D., & Nilssen, A. (2009). The New Imperative for Lecture Capture Systems in Higher Education Business Benefits are Driving Adoption October 2009, (October), 1–18.
- Heffernan, V. (2005). The Podcast as a New Podium - New York Times. *The New York Times - Breaking News, World News & Multimedia*. Retrieved from [http://www.nytimes.com/2005/07/22/arts/22heff.html?\\_r=0](http://www.nytimes.com/2005/07/22/arts/22heff.html?_r=0)
- Herder, P. M., Subrahmanian, E., Talukdar, S., Turk, A. L. & Westerberg, A. W. (2002). The use of video-taped lectures and web-based communications in teaching. Vol 27. No. 1. 39–48.
- Hew, K. F. (2008). Use of audio podcast in K-12 and higher education: a review of research topics and methodologies. *Educational Technology Research and Development*, 57(3), 333–357. doi:10.1007/s11423-008-9108-3
1. Kadirire, J. (2011). The Pedagogy of Lecture Capture. *Network Issue*, 14(14), 1–8.
- Ke, C., Sun, H., & Yang, Y. (2012). Effects of user and system characteristics on perceived usefulness and perceived ease of use for the web-based, 11(3), 128–143.
- Kumah, A. & Achampong, K., (2010). Modeling computer usage intentions of tertiary students in a developing country through the Technology Acceptance Model Methodist University College , Ghana, 6(1), 102–116.
- Lee, M. K. O., Cheung, C. M. K., & Chen, Z. (2005). Acceptance of Internet-based learning medium: the role of extrinsic and intrinsic motivation. *Information & Management*, 42(8), 1095–1104. doi:10.1016/j.im.2003.10.007
- Lim, W. M., & Ting, D. H. (2012). E-shopping: an Analysis of the Technology Acceptance Model. *Modern Applied Science*, 6(4), 49–62. doi:10.5539/mas.v6n4p49
- Lust, G., Elen, J., Clarebout, G. (2012). Adopting web-casts over time: The influence of perceptions and attitudes. *Journal of Computing in Higher Education*, 24 (1), 40-57.
- Masrom, M., (2007). Technology Acceptance Model and E-learning, (May), 1–10.
- Mallat, N., Rossi, M., Tuunainen, V. K. & Oorni, A., (2006). The Impact of Use Situation and Mobility on the Acceptance of Mobile Ticketing Services. [Online] Available at :< [http://pdf.aminer.org/000/246/564/the\\_impact\\_of\\_use\\_situation\\_and\\_mobility\\_on\\_the\\_acceptance.pdf](http://pdf.aminer.org/000/246/564/the_impact_of_use_situation_and_mobility_on_the_acceptance.pdf) > [Accessed 21st April 2013]
- Newland, B., Dickson, C. & Galling, T. (2012). Enhancing Student Learning Experience with Captured Lectures.
- Patterson, J. (2009). Using lecture capture technologies for distance learning : A case study using Panopto, 746–748.
- Saadé, R. G., Nebebe, F., & Tan, W. (2007). Viability of the “ Technology Acceptance Model ” in Multimedia Learning Environments : A Comparative Study Research Model and Hypotheses, 3.
- Shum, P. S., Land, L. & Dick, G. (2010). Online Lecturing: Suitable For All Courses. Proceedings of the Southern Association For Information Systems Conference, Atlanta, GA, USA.
- Simpson, N. (2006). Asynchronous Access to Conventional Course Delivery: A Pilot Project. *British Journal of Educational Technology*. Vol 37 No 4
- Teo, T., Lee, C. B., Chai, C. S., & Wong, S. L. (2009). Assessing the intention to use technology among pre-service teachers in Singapore and Malaysia: A multigroup invariance analysis of the Technology Acceptance Model (TAM). *Computers & Education*, 53(3), 1000–1009. doi:10.1016/j.compedu.2009.05.017
- Torres, C. Randeree, E. & Lustria, M. (2010). Going Beyond Paper and Computer Anxiety. Proceedings of the Southern Association For Information Systems Conference, Atlanta, GA, USA.
- Wilbur, K. & Jewesson, P. (2010). Lecture Capture: The Early Qatar Experience. *Am J Pharm Edu*. 74(10).
- Zhu, E. & Bergom, I. (2010). Lecture Capture: A Guide For Effective Use. *CRLT Occasional Papers*. No. 27.