

## STUDENT ACCEPTANCE ON DOCUMENT SHARING: LEARNING MANAGEMENT SYSTEM VS ONLINE STORAGE

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### ABSTRACT

*E-learning is one of the methods for teaching and learning in higher education. E-learning allow instructors to interact with their students through internet facilities. This interaction reduces the constraint of classroom face-to-face method and promotes paperless document sharing. Learning Management System (LMS) is one of the popular tools that have been used to support and manage courses in e-learning environment. LMS enables instructors to manage students' record, course materials, grading, and communication. Through LMS instructor can upload course materials and share them with the students. Some instructors also utilized other tools such as Dropbox for the ease of document backup and sharing. Dropbox allows document synchronization, thus keep the document up to date without direct uploading. Since, both LMS and Dropbox have their own strength and weakness, this paper investigates students' acceptance and continuous usage of the LMS and Dropbox for document sharing to support teaching and learning. This study utilized the Unified theory of acceptance and use of technology (UTAUT) model to assess students' acceptance. The findings show that students are positive towards using Dropbox for document sharing as compare to the LMS.*

Key words: Learning Management System, Online Storage, Dropbox, Unified theory of acceptance and use of technology.

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### Introduction

Education in this century is moving rapidly due to the advancement of technology and new knowledge creation. The internet and World Wide Web (WWW) has revolutionized the education landscape worldwide by creating an open and a borderless environment for education. The internet connects every individual in the world by leaving behind the geographical, races and religions boundaries. The WWW allows documents and web resources to be interlinked by hypertext links to create a huge worldwide information space. Each document and web resources are identified by URLs and can be accessed through the internet. Thus, in education the internet can be utilized as a platform for networking, communication and knowledge repository.

On the internet, educators and students can post and share information worldwide free from physical boundary and restriction. It was known that internet is one of the main sources of knowledge to students, where they can search and retrieve any information and materials related to their course (Sian et al., 2013). Whilst the educators can utilize the internet and recent advancement in information communication technology (ICT) to support and manage their classroom (Simons, 2016; Ishak et al., 2015; Yamin and Ishak, 2015). E-learning is a term that was coined after the deployment of internet and ICT in education. E-learning has become one of the alternative methods for education, where it deployed electronic media and ICT facilities and tools to support innovative teaching and learning. The use of up to date ICT tools and gadgets such as smart phone and tablet make the teaching and learning more interactive and mobile (Kochattil, 2016; Yamin and Ishak, 2015).

Learning Management System (LMS) is one of the most popular and vital administrative tools for e-learning (Rubin et al., 2013; Chee et al., 2010). Through this software, the instructor can deliver, track and manage the teaching session. On the other part, the students can access to the class materials, lecture notes, online quiz, view forum and etc. Through these activities LMS can be seen as online learning platforms that connect both instructors and students to create new knowledge (Ahmad et al., 2012), share their knowledge (Martín-Blas & Serrano-Fernández, 2008). Studies have shown that students are utilizing and actively using an LMS to access the course materials and communicate with their instructor (Yamin and Ishak, 2016; Nor and Yamin, 2015; Min et al., 2012).

However, due to certain limitation of the computer and internet facility the access to LMS has become difficulties to certain instructors and students. Therefore, updating the content especially uploading the course materials had become a tedious task for the instructor. Uploading the files into LMS might take several minutes up to hours depending on the internet connection and the bandwidth. Failure of uploading the document may result incomplete course content, thus influence students' satisfaction and perception towards the course and the instructor. This problem may influence students' acceptance of LMS as one of the tools that

support teaching and learning. Moreover, a study has shown that some has stop using e-learning after experience it due to unsatisfaction (Sun et al., 2008). The advancement in ICT has led to the invention of new tools that can be used to support e-learning application. Online storage for example, can be used to store and backup documents, automatically synchronized the content, and content management facility to manage the content online. Using this application, educators can upload the course materials easily while the students can download the materials once it completely synchronized.

Various online storage has been introduced such as Google Drive, Mankayia, JustCloud., OpenDrive, MyDrive, Dropbox, and many more. A review by Stevens (2014) shows that each online storage offers a different set of features with a storage space up to 10TB. Stevens suggests four important features when choosing online storage: backup & restore feature, security, mobile access, and help & support. These features are considered vital to secure, protect and easy access to the documents from any location. Online storage has potential to be used in conjunction to the traditional storage method that relies on the storage devices. Storage devices are traditionally prone to virus, damage, missing, limited space, high cost and etc.

In this paper, we assess and compare the students' acceptance of documents sharing through LMS and online storage. Formally, we are using the document sharing feature in LMS to upload and share documents with students (Min et al., 2012). Online storage is an alternative and supporting tools that can be used in conjunction with the existing LMS (Yamin & Ishak, 2015). This initiative is a part of our effort to utilize the internet to support e-learning initiative in conjunction with traditional classrooms. In the next section the technology acceptance model is discussed and the model employed in this study is highlighted. The methodology is discussed in the following section followed by findings and discussion.

### Technology Acceptance Model

Satisfaction is a subjective state of satisfaction (Botelho, 2004). It is a state where people feel pleased with their achievement due to some effort. Satisfaction is one of the precedents of the intention to continue using the e-learning system and individual performance (Lin, 2012). The student acceptance to LMS and online storage are crucial as it reflects the student's behaviour, attitude and belief towards LMS and online storage. Furthermore, as a new technology the security of documents stored in online storage is what most concern (Angeles, 2013). According to Wixom and Todd (2005) technology acceptance model can be used to predict technology usage better compare to satisfaction model. This can be achieved by linking behaviours to attitudes and beliefs.

Masrom and Hussein (2008) review several well-known technology acceptance models, namely Theory of Reasoned Action (TRA), Theory of Planned Behaviour (TPB), Technology Acceptance Model (TAM), Unified Theory of Acceptance and Use of Technology (UTAUT), and Innovation Diffusion Theory (IDT). The models are summarized in Table 1.

Table 1: Summary of the technology acceptance models

Model	Pioneer	Year	Description
Theory of Reasoned Action (TRA)	Martin Fishbein and Icek Ajzen	1975	An individual behaviours such as use or rejection of technology is determined by one's intention to perform the behaviour that is influenced jointly by the individual attitude and subjective norm.
Theory of Planned Behaviour (TPB)	Icek Ajzen	1985	Actual behaviour is preceded by behavioural intention which is influenced by either attitude, subjective norm, or perceived behavioural control or all of the factors.
Technology Acceptance Model (TAM)	Fred Davis and Richard Bagozzi	1989	Individual's adoption of a technology is dependent on their perceived ease of use and perceived usefulness of the technology
Innovation Diffusion Theory (IDT)	Everett Rogers	1962	Explain how, why, and at what rate new ideas and technology spread through cultures
Unified Theory of Acceptance and Use of Technology (UTAUT)	Viswanath Venkatesh, Michael G. Morris, Gordon B. Davis, Fred D. Davis	2003	Explain user intentions to use an information system and subsequent usage behavior

In this study UTAUT model (Venkatesh et al., 2003) is adapted as it can be used to access students' intentions to use the LMS and online storage for document sharing and their subsequent usage. The model holds four key constructs: 1) performance expectancy, 2) effort expectancy, 3) social influence, and 4) facilitating conditions; the first three are direct determinants of usage intention and behavior, and the fourth is a direct determinant of use behavior. Table 2 explains the four UTAUT variables in context of this study.

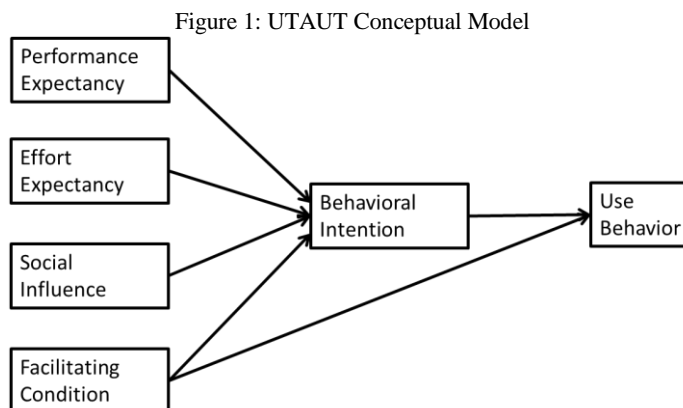


Table 2 UTAUT Variables

Variable	Explanation
Performance Expectancy	Students' perception that using the Dropbox will enhance their productivity, enable them to accomplish tasks more quickly, and improve quality of care
Effort Expectancy	Students' perception that it is easy to learn, become skillful, and use the Dropbox.
Social Influence	Students' perception of the degree to which important other persons in the work environment approve (or do not approve) of acceptance and use of the Dropbox.
Facilitating Conditions	Students' perception of the factors in the university that impede or facilitate the acceptance and use of the Dropbox.
Behavioural Intention	Students' overall affective reaction to using a Dropbox.
Use behaviour	Students' evaluation of the use of the Dropbox to support their study.

**Methodology**

This study employed purposive sampling method, where the questionnaire with 7 point likert scale (1=Totally unacceptable to 7=Perfectly acceptable) was distributed to the students that enrolled in three classes that are database, introduction to Artificial Intelligence and logic programming. In these classes the students are provided with the notes and handouts in both PowerPoint and pdf formats. These materials are uploaded into the LMS and online storage based on a certain schedule. The LMS use in this study is LearningZone while the online storage used in this study is called Dropbox. Dropbox is a cloud-based, automatic, file-synchronization service that's ideal for accessing and sharing data from nearly anywhere. Dropbox has been reviewed and listed as the top seven best cloud storage services in 2014 by Casserly (2014) and was recognized as one of the best cloud storage solutions by Duffy (2014).

The total numbers of students from the three classes are 100 students, however the return and usable questionnaire is 80. Descriptive analyses that are frequencies and percentages were conducted in order to provide a richer understanding of the students' perceptions with respect to the four constructs of UTAUT model.

**Findings & Discussion**

The findings of this study show that 70% of the respondents are female and the rest are male (30%) (Figure 2). Descriptive analysis was conducted on the students' feedback. The 7-likert scale has been aggregated into three groups that are unacceptable (combine 1st to 3rd scale point), neutral (4th scale point) and acceptable (combine 5th to 7th scale point). Table 3 summarizes the results of the descriptive statistics analysis.

Figure 2: Students' Gender

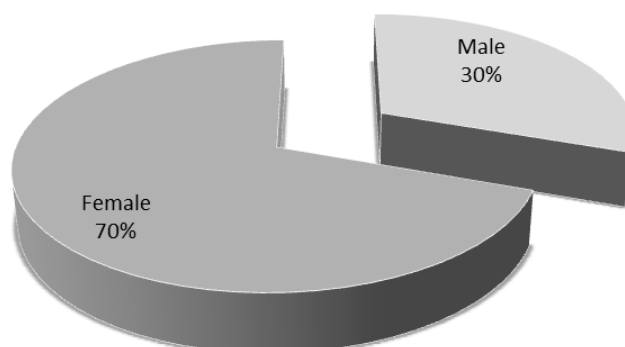


Table 3: Descriptive Statistics (n=80)

Construct	Measurement	LMS			Dropbox		
		U(%)	N(%)	A(%)	U(%)	N(%)	A(%)
Performance expectancy (PE)	Usefulness	3.75	12.5	83.75	11.3	13.8	75
	Task accomplishment	6.25	15	78.75	12.6	7.5	80.1
	Increase productivity	2.5	15	82.5	12.6	8.8	78.9
	Better grade	3.75	17.5	78.75	12.6	7.5	78.9
Effort Expectancy (EE)	Clear and understandable	3.75	8.75	87.5	11.3	10	78.8
	Skilful	3.75	10	86.25	12.6	8.8	78.8
	Easy to use	8.75	10	81.25	12.6	3.8	83.8
	Easy to learn	6.25	10	83.75	13.9	7.5	78.8
Attitude toward using application	Good application	3.75	11.25	85	10.1	2.5	86.3
	Bad application	62.5	6.25	31.25	56.3	10	22.6
	Fun	10	18.75	71.25	17.5	8.8	71.4
	Like working	7.5	15	77.5	11.4	12.5	73.8
Social Influence	Influence people	6.25	15	78.75	12.6	12.5	82.3
	Important people	7.5	18.75	73.75	15.1	10	75.1
	University administration	6.25	13.75	80	13.9	12.5	73.8
	University (General)	7.5	12.5	80	12.5	10	77.6
	Lecturer	7.5	8.75	83.75	8.8	3.8	87.5
Facilitating condition	Enough resources	5	16.25	78.75	10.1	12.5	77.5
	Enough knowledge	7.5	11.25	81.25	12.6	12.5	75.1
	Compatibility	25	17.5	57.5	36.3	12.5	51.3
	Assistive support	7.5	30	62.5	16.3	22.5	61.3
Behavioural intention	Intend to use...	3.75	13.75	82.5	8.8	11.3	80.1
	Predict to use...	7.5	16.25	76.25	8.9	15	76.3
	Plan to use...	3.75	17.5	78.75	7.6	12.5	80.1

\* U = Unacceptable, N = Neutral, A = Acceptable

This study shows that students have positive expectancy on LMS and Dropbox towards increasing their academic performance. The finding shows that overall acceptable percentage for performance expectancy is more than 75%. However, students tend to believe that LMS is more useful compare to Dropbox. This is probably due to the multi functionality of LMS compared to Dropbox that influence students' evaluation.

The students also have very strong expectancy that both LMS and Dropbox are easy to use tools for document sharing. They strongly agree that the LMS is easier to understand (87.5%), easier to learn (83.75%) and easier to become skillful (86.25%) when compare to Dropbox (less than 80%). This shows that LMS has a good interface design that makes it easy to learn and explore. However, in terms of easy to use, students seem to prefer Dropbox compare to the LMS. This indeed true as Dropbox has a synchronizing ability where students can install Dropbox into their computer and the synchronizer will automatically upload documents to the cloud storage.

The results also reveal that students have a similar positive attitude towards LMS and Dropbox. They are strongly agreed that having documents shared through LMS (85%) and Dropbox (86.3%) are a good idea. They also indicate that they like working with LMS (77.5%) and Dropbox (73.8%) and working with LMS (71.25%) and Dropbox (71.4%) are fun.

In terms of social influence, most of the students (more than 80%) agree that they get influence to use the LMS and Dropbox from their lecturer. Besides the lecturer, peoples that are important and have an influence on the students also support them to use the LMS and Dropbox. The university, however, tends to encourage students to use LMS compared to Dropbox. This is probably due to the university policy to fully utilize LMS in teaching and learning process.

The students also belief and aware that the university and technical infrastructure does exist to support them when using LMS and Dropbox. However, in line with the university policy, the existing technical, infrastructure and resources are more on to support LMS compare to Dropbox. Therefore, students were found to have better knowledge on how to use the LMS (81.25%) compare to Dropbox (75.1%).

The results also reveal that the students have strong intention to continue using the LMS and Dropbox for their learning purposes especially for document sharing. Students have high intention and planning to use the LMS and Dropbox in pursuing their study (overall more than 78%). Furthermore, students predicted that they will keep on using the LMS (76.25%) and Dropbox (76.3%) in their study.

### Conclusion

This study has shown that both LMS and Dropbox are useful in term of document sharing. Though, both have strength and weaknesses, they are wonderful tools that support teaching and learning process. LMS provides various functionalities that make classroom become borderless and paperless. However, as many information and document uploaded and published into LMS, the

network infrastructure need to be adequate to ensure that LMS achieve its objective. This is due to the fact that uploading and downloading documents consume huge volumes of bandwidth.

Dropbox is one of the online storage applications provide excellent support in term of document sharing and management. Dropbox is easy to install and use by the students. The free version of the software provides services and benefits that are adequately required by the students. Students find it convenient to use Dropbox as document shared through Dropbox will be automatically downloaded and synchronized into their computer. Students were notified when the task has completed.

This study proves that students were positively accepting the document sharing through Dropbox, while maintaining the same activity on LMS. This is evident by the students' positive perception towards the construct measured in this study. The findings can be a motivation for the instructor to continue using Dropbox in their teaching in conjunction with existing LMS. The lecturer should consider some of the technical problems such as internet speed and coverage that might affect the use and perception towards LMS and Dropbox.

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