Evaluating of Teacher's Acceptance of e-Book: A Case Study

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A R T I C L E   I N F O

A B S T R A C T

The interest of using electronic media in the school for education is growing nowadays. Electronic Book or e-Book had been recently accepted as a tool in education system to facilitate students and teachers in teaching and learning. Government of Malaysia has taken cognizance of the institutional support required for resources in e-Book and formulated the mission on education through Information and Communication Technology (ICT). However, the focus is still largely on study the acceptance of adoption e-Book in Malaysia. It is necessary to consider the individual factors that play an important role in the adoption of e-Book. The purpose of this study is to examine teachers' acceptance of e-Book usage at schools in the States of Terengganu. A questionnaire was distributed to a small group of school teacher and evaluates the acceptance of the e-Book usage using the Technology Acceptance Model (TAM). This study was designed to test the influence of perceived ease of use and perceived usefulness on e-Book usage through student behaviour. Results show that the teachers accept the usage of e-Book in school (95.5%) and understand the goal of government implementation plan for using e-Book in teaching and learning system (100%). Results of a questionnaire carried out that there is a positive effect on perceived ease of use and perceived usefulness through student behaviour. It is hoped that this study has given new insights to understand e-Book acceptance that governed by the teacher, student and institutional factors.

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INTRODUCTION

While traditional learning method remain dominant in education process, government are investing considerable resources in e-learning technology to support traditional methods with access to complementary electronic information and possibilities to communicate. Recognizing technology has potential in education process, e-Book has been adopted in the education system in Malaysia. The e-Book project in Malaysia is sprearheaded by the State of Terengganu with the distribution of e-Book to primary school children aged 10-12 years old. As of 2012, more than 92, 000 students have received e-Book and benefitted from this project.

The e-Book system is installed with *electronics textbook* from Ministry of Education Malaysia, *oxford dictionary*, *digital Quran* and *daily doa*. In the near future, software in the form of *animated science* will be added to the e-book system to speed up the learning process. The purpose of this system is to support learning process and activities in classroom and expose students to Information and Communication Technology (ICT) (Azman, 2011; Fahmy *et al*., 2012). Teachers deliver the main part of the e-Book usage and they are also important initiators behind students' utilization of the e-Book. According to (Mahdizadeh *et al*., 2008), student learning and effective teaching are enhanced with the use of computer technologies. However, the basic nature of technology is that it enables teachers and students with possibilities, not with a "ready to use" resource. The utilization of these possibilities is the key to success, and especially the teachers will to utilize these technology is critical. Therefore, the purpose of this study is to evaluate teachers'acceptance with e-Book utilization for e-Book project in Malaysia.

This paper is organized as follow: background of the study is presented and Technology Acceptance Model   (TAM) is described. Next, the methodology of this study is presented while results and discussiond are carried out in this paper. Finally, conclusion and directions for future research are presented in last section.

2. Literature Review:

The successful use of technology in the classroom depends on the teacher's attitudes towards technology (Yuen *et al*., 2003). Teachers' attitudes have not been emphasized in the implementation of ICT into the

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classroom, though studies stated that teachers' attitudes as well as knowledge and skills in using computers are major affecting their acceptance of computer technology (Serrano *et al*., 2003).

Summers (Summers, 1990) found that the lack of knowledge and experience in the computing area is of one the most common reasons for teachers' negative attitude towards computers. Teachers are often resistant to using computers in the classroom, so the development of teachers' positive attitudes towards computers is considered to be a key factor in fostering computer integration and the enhancement of quality learning and teaching using computers (Yuen *et al*., 1999).

In order to predict and understand teacher's acceptance, the need for a well defined framework is essential. Yuan and Ma (Yuan and Ma, 2002) found that the two independent variables, perceived usefulness and perceived ease of use, directly affect the intention to computer use as stated in TAM. The TAM, a well researched model, has been commonly applied in the development of constructs in computer acceptance or attitudes scales in many studies (Ajzen, 1985; Ajzen, 1991; Davis, 1989; Davis *et al*., 1989). Thus the purpose of this study attempts to apply the TAM to explore the motivators of the knowledge sharing involves in teachers and learning process.

TAM is an adaptation of the *Theory of Reasoned Action* (Taylor and Todd, 1995) and the *Theory of Planned Behaviour* (Ajzen, 1985). Previous studies have proven that 'individual differences' affect the implementation of technological innovation in a wide variety of disciplines including information systems (Harisson and Rainer, 1992). These differences include demographic, situational, cognitive, and personality-related variables (Ajzen and Fishbein, 1980). Empirical research has also found significant relationships between individual differences and information technology acceptance (Zmud, 1979; Harrison and Rainer, 1992; Hong *et al*., 2001; Agarwal and Prasad, 1999).

While individual difference variables such as gender, age, level of education and behavior may have significant influence on the acceptance of e-Book in TAM. It is argued that three indicators can be used to measure user acceptance are *Perceived Usefulness, Perceived Ease-of-Use* and *Student Behaviour.*

a) Perceived Usefulness:

'*Useful*' is understood to mean "capable of being used advantageously." A system that is perceived as useful leads to a positive use-performance relationship. There are extensive research efforts in the information system community proving the positive effect of *perceived usefulness* on usage for example in (Davis *et al*., 1989; Venkatesh and Davis, 1996) .

b) Perceived Ease-of-Use:

Research efforts over the past couple of decades also provide evidence of the positive effects of *perceived ease-of-use* on usage (Agarwal and Prasad, 1999; Davis *et al*., 1989; Venkatesh, 2000). Based on these studies, it can be argued that the e-Book needs to be both easy to learn and use; in order to prevent the '*under-used*' system problem.

c) Student Behaviour:

Behaviour is the manner in which one behaves and pertain to a person's actions as they constitute a means of evaluation by others (Venkatesh, 2000). Student behaviour refer to the personal approach of using e-Book in school. Based on Hu *et al*., (Hu *et al*.,1999) student can develop personal approach to assist students in achieving educational and social goals. Porter also shows how to enhance students' motivation and help students become confident and independent learners. The use of e-Books in the educational context can have a positive effect on the student-teacher relationship, which can lead to positive student outcomes.

3. Methodology:

The sample in this study is a group of teachers at Teluk Kalong Primary School in Terengganu. A set of questionnaire was designed and distributed to get demographics data and evaluate the level of acceptance of the e-Book. Table 1 lists the dependent variables used in this study.

Table 1: List of Dependent Variables

Variables	Type	Values
Perceived Usefulness	ordinal	20 - 100
Perceived Ease-of-Use	ordinal	20 -100
Student Behavior	ordinal	20 -100

The questionnaire is divided into three sections :
- Section 1 : Demographic Profile
- Section 2 : The Use of Computer and Internet
- Section 3 : The Use of Computer and e-Book

The first section of the questionnaire gathers background information such as gender, age, education level and working experience. These data represent the demographic profile of the respondents.

The second sections has seven questions with regards to the state of government goals on the implementation of e-Book in school and focusing on the technology aspects such as ICT facilities. The usage pattern of e-Book is also obtained, such as average usage hours on e-Book software for teaching and learning.

The third section has four major parts for determining the level of user acceptance of the e-Book. The concepts underlying the questionaire in determining the perceived usefulness, perceived easy-to-use and student behaviour. Each part has four and five questions. Each question is measured using a 5-point, *Likert*-type scale, ranging from 1 (strongly disagree) to 5 (strongly agree).

Since there is no objective measure available for measuring the concepts of perceived usefulnes, perceived ease-of-use and student behaviour, a *Likert* scale is used (McIver and Garmines, 1991). Respondents are required to indicate their level of acceptance using a five-point Likert-type scale ranging from the lowest agreement (1 point) to strongest agreement (5 points). A set of statements are given to the respondents and response in the form of degree of agreement or disagreement. Each item measure rates the individual confidence. Score was given according to the following criteria: Strongly Disagree=1, Disagree=2, Neutral=3, Agree=4 and Strongly Agree=5.

Data was processes and analyzed using SPSS (version 12.0) where the instrument was evaluated to test the reliability and validity of the measures used.

RESULTS AND DISCUSSION

A questionnaires was distributed to teachers from Sekolah Kebangsaan Teluk kalong, Kemaman with a return rate of 100%. All teachers involved male and female have used computer or e-Book in/outside school. *Cronbach's Alpha Coefficient* was used to test the reliability of the questionnaire (Table 2). Based on (Garmines and Zeller, 1979), Cronbach's alpha of 0.8 is considered highly reliable. The results shows higher than 0.8, so it can be said that the questionnaire is a reliable measurement instrument.

Table 2: Cronbach's Alpha Coefficient Reliability Test.

Variables	Cases	Items	Alpha
Perceived Usefulness	22	4	0.907
Perceived Ease-of-Use	22	4	0.912
Student Behavior	22	5	0.791

a) Demographic Profile:

The demographic profile of the respondents comprises of 45.5% male and 54.5% female; 22.7% are between the age of 32 to 38; 50% are having degree level; 68% have teaching experience more than 6 years. 90.9% of teacher having computer at home and 86.4% have internet access at home.

b) e-Book Usage:

Result show that respondents spend most time using computer between 1-3 hours daily basis, 18% spend between 4-6 hours and 18% spend more than 6 hours (Fig. 1). Result also show that 86.4% of the respondents spend between 1-3 hours for e-Book applications daily.

The usage of e-Book is generally accepted by all teachers in school. Daily they use 59.1% for teaching in class, 50% for preparing teaching material, 45.5% use for preparing assessment questions, 59.1% for storing student information and 45.5% for personal use like chatting and facebook.
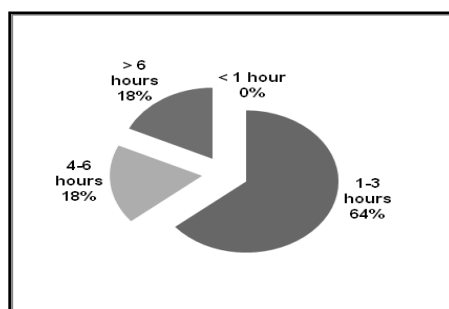

Fig. 1: Daily on e-Book Usage.

c) Perceived Usefulness of e-Book:

Table 3 and Fig. 2 illustrate the percentage and means responses for perceived usefulness of e-Book.   The mean scores are classified into five categories, Strongly Disagree (0.00 – 1.00), Disagree (1.01 – 2.00), Neutral (2.01 – 3.00), Agree (3.01 – 4.00) and Strongly Agree (4.01 – 5.00).

The *usefulness* of e-Book system is recorded high in items S1, S2 and S4 with a mean of 3.86, 3.86 and 4.23 respectively where not only *a good teaching tools* but *help improve academic performance* and *enhanced the effectiveness of learning.*

Table 3: Perceived Usefulness of e-Book.

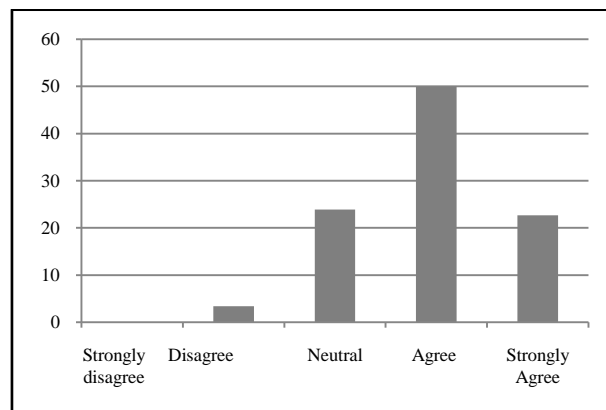|	Responses					Mean
	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	
S1	0	4.5	27.3	45.5	22.7	3.86
S2	0	4.5	22.7	54.5	18.2	3.86
S3	0	4.5	27.3	59.1	9.1	3.73
S4	0	0	18.2	40.9	40.9	4.23
	0	3.4	23.9	50	22.7	

Fig. 2: Perceived Usefulness of e-Book system.

d) Perceived Ease- of-Use of e-Book:

Table 4 and Fig. 3 illustrate the percentage and means responses for perceived ease of use of e-Book.   The perceived *ease-of-use* of the e-Book is recorded high in items S2, S3 and S4 with a mean of 4.09, 4.32 and 4.09 respectively where the students feel e-Book system is *easy to use or user friendly*; *enhance their skills in computer use* and *help teacher deliver lessons effectively.*

Table 4: Perceived Ease-of-Use e-Book

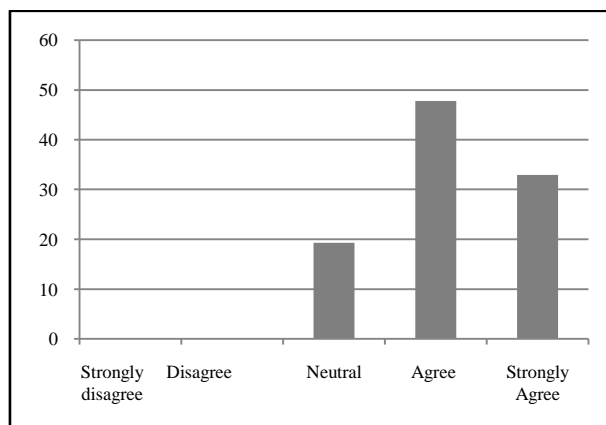|	Responses					Mean
	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	
S1	0	0	22.7	50	27.3	4.05
S2	0	0	22.7	45.5	31.8	4.09
S3	0	0	9.1	50	40.9	4.32
S4	0	0	22.7	45.5	31.8	4.09
	0	0	19.3	47.75	32.95	

Fig. 3: Perceived Ease-of-Use e-Book system.

e) Student Behaviour:

Table 5 and Fig. 4 illustrates the student behaviour of e-Book. The *student behaviour* test reveals that the e-Book system is recorded high in items S1, S2 and S4 *reduce student wasting time/truancy, increase number of students computer literacy* and *enhance the interaction among students.* Result on S3 *Reduce spending time outdoor* also does not affect time using e-Book. This can be attribute from *The Effect of e-Book on Students' Learning Style : A Study in Terengganu, Malaysia (Roslina et al., 2013).*

Table 5: Student Behaviour of e-Book.

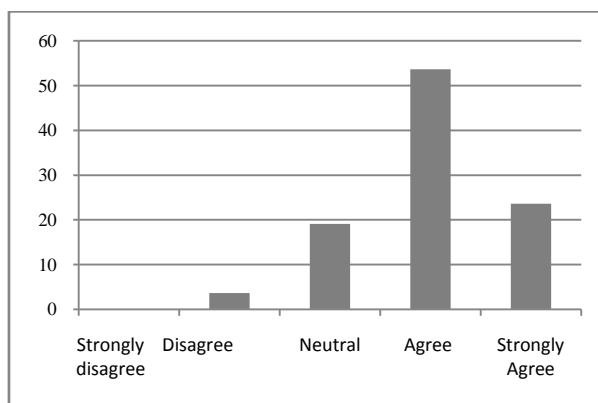|	Responses					Mean
	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	
S1	0	4.5	9.1	68.2	18.2	4.00
S2	0	0	0	50.0	50.0	4.50
S3	0	9.1	27.3	50.0	13.6	3.68
S4	0	0	27.3	54.5	18.2	3.91
S5	0	4.5	31.8	45.5	18.2	3.77
	0	3.62	19.1	53.6	23.6	

Fig. 4: Student Behaviour of e-Book usage.

Table 6 lists the mean scores for each user acceptance level. The mean scores are classified into three categories according to the level of user acceptance, *Negative* (0.00-1.66), *Neutral* (1.67-3.33) and *Positive* (3.34-5.00). The results reveal that the acceptance level of the e-Book system is positive (score between 3.34 and 5.00).

Table 6: Mean Scores for User Acceptance of the e-Book System.

	Variables			Acceptance Level
	Perceived Usefulness	Ease-of-Use	Student Behaviour	
Mean	3.92	4.1375	3.972	4.0098

This study has shed light the evaluating of teacher's acceptance of e-Book. Results of the questionnaire have revealed the level of user acceptance. The analysis indicates positive findings with regards to *perceived usefulness, perceived ease-of-use and student behaviour.* Using TAM as a theoretical framework.

The result shows positively that the teachers accept the usage of e-Book by students in school. The teachers also recorded high in student school attendance since 2009 compare before that. ICT skills for students and teachers also increased. Weak students become skillful when use e-Book in/out school. In term of ICT facilities, 90.9% teachers are satisfied the support from the school management and the state of government as well. Teachers also agreed that e-Book has great potential in primary and secondary school, but its implementation must be fully supported by all or school community (teacher, student, parent & government).

Conclusion:

The main purpose of this study was analyze teachers' acceptance of e-Book usage in school. Results revealed that the teachers strongly agree that the usage of e-Book is accepted as a education tool in teaching and learning.

A survey in the form of questionnaire was carried out to evaluate the perceived usefulness and ease-of-use of the e-Book at primary school. Results of the controlled survey demonstrate that the questionnaire is reliable and distinguishes between usefulness; ease-of-use; and student behaviour concepts.

Respondents consider the e-Book as useful and easy to use; and confidently use it as a tool for teaching and learning in/out school. However, the system has not been fully utilized at school in Malaysia. In order to achieve this, not only education and technology skills are needed, but also involved cost investment. User acceptance of

the e-Book will increase if it is perceived as supporting high level of interactivity. Results show that perceptions of e-Book usefulness and ease-of-use are dependent on students itselfs.

Future research work in this area include the assessing e-Book system based on parent perspective, effect of e-Book according to gender, urban and rural area, ethical issues, academic performance, helping students to be autonomous in their learning and behaviour and uses virtual classroom as a learning tools. The proposed future research hope can improve or facilitate the effective use of e-Book in Malaysia.

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