School Teachers Acceptance of E-book

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Abstract: E-book project was introduced to pursue the government's call in information and communication technology (ICT). The usage of e-book was still new in Malaysia and Terengganu was the first state to use the e-book. The purpose of this research is to find out the teachers' acceptance level towards the usage of e-book in the Dungun District. E-book is now becoming a hot topic especially in academic world in Terengganu. The sampling method used in this study is stratified random sampling by schools. Self-administered questionnaires will be distributed randomly among respondents in primary schools at 2 selected DUNs in Dungun. The study uses SPSS (Scientific Package for Social Sciences). Overall, this specified into Frequencies Distribution, Descriptive Analysis, Reliability Analysis, Correlation Coefficient (Pearson's) and Regression Analysis. The study found that there was a significant difference between the teachers' demographic profiles with the acceptance of e-book in DUNs Sura and Rantau Abang. There is also a significant relationship between the acceptances and independent variables (IT Knowledgeability, Students' Attitudes, Students' Learning Independent and Ergonomics).

Key words: E-book · Acceptance · IT Knowledgeability · Students' Attitudes · Students' Learning Independent · Ergonomics

INTRODUCTION

In principle, an electronic book (e-book) is quite similar to a printed book: only the medium is different. For the traditional printed book, the medium is paper. Because e-book is a digital representation of the printed material (print book), the medium can vary from a desktop computer to laptop, digital e-book reader, PDA, mobil phone or even traditional paper. This makes the content much more versatile and flexible than the traditional printed book. The use of e-book is still new in Malaysia. Terengganu emerged as a pioneering state to use the e-book in the field of education. E-book was introduced in Terengganu in May 2009. About 10,438 units of e-book mini-laptops were distributed among the standard-five students in 127 schools in Terengganu, which feature a variety of software such as school textbooks, Koran, the prayers and prayer practices that can be use by all the students [1].

E-book is viewed as the medium that helps to boost up students' excellence performance in academic particularly in examinations such as the Primary School Achievement Test (UPSR). The availability of e-book in the school today poses a novel situation in which students can read or listen to the lessons independently and is capable of inculcating more interesting learning culture and the concept of 'self-learning', thus, forms a natural discipline for a high propensity to learn. It is also hoped that e-book will inject massive transformation in education system that will change the lay society into the highly knowledgeable one. This development holds great promise and makes it imperative to determine how much the use of this new technology affects the factors (IT Knowledgeability, Students' Attitudes, Students' Learning Independent, Ergonomics and Teacher's Acceptance Level).

Problem Statement: Comparing with the traditional paper subscription model, books have less availability. In general, people use e-book more than they use books that only exist in printed form due to their usefulness in distributing large volumes of interactive multimedia information. The use of e-book is still new in Malaysia. It was reported that Terengganu was the first state to use

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e-book. E-book is viewed as a medium that will help to boost the educational excellence, particularly in examinations such as the Primary School Achievement Test (UPSR). There are many factors that influence the state of Terengganu in introducing e-book as one of a learning tool among primary school students. Hence, the researchers want to investigate the acceptance level from school teachers' perspective and factors affecting the acceptance of using e-book among them.

Research Objectives: The main purpose of this research is to investigate the relationship among the factors (IT Knowledgeability, Students' Attitudes, Students' Learning Independent and Ergonomics) that plays important roles for the e-book acceptance. It further examined the acceptance pattern towards the use of e-book.

Hypotheses:

H1: There is a significant difference between the demographic profiles with the Acceptance of Using E-book.

H2: There is a significant relationship between IT Knowledgeability and the Acceptance of Using E-book.

H3: There is a significant relationship between Students' Attitudes and the Acceptance of Using E-book.

H4: There is a significant relationship between Students'Learning Independent and Acceptance of Using E-book.

H5: There is a significant relationship between Ergonomics and the Acceptance of Using E-book.

Literature Review

E-book: E-book can be defined as a text that is available in an electronic format such as Word document, txt, html or xml [2, 3]. E-book is a digital object with textual and/or other contents that include certain features such as Search and Cross-Reference Functions, hypertext links, bookmarks, annotations, highlights, multimedia objects and interactive tools [4]. Thus e-books are electronic books that can be read digitally on a computer screen, e-book reader, personal digital assistant (PDA) or mobile phones. In other words, e-book is used on screens.

Acceptance: Studies on whether e-books are readily acceptable by the users are still in its infancy. A study done by University of California Library (UCL) states that the acquisition of e-books has little or no impact on their purchase of printed titles and it is not to replace printed text, but rather serves as a duplicate copy [5]. With the information seeking behaviours and technology preferences relating to e-books and other electronic resources, new generations of users play an important role in the development of e-books. However, the success of the use of e-books also relies on the ability of publishing industry to develop new business models and comprehending that e-books are not simply a substitute for paper-based books [6].

Opportunity to bring something new into the classroom is eagerly anticipated. E-book is viewed as a teaching aid which potentially improves the process of teaching and learning. So far, the acceptance levels of e-book is varied due to many factors. It is reported that some of the students are not comfortable and have difficulties to read on small screens, have problems with browser, slow loading time and difficulties in navigating information [8a]. Moreover, the use of e-book is not suitable to meet the needs of students, researchers and libraries as it involves high costs even though it may give pleasure to casual readers [8].

IT Knowledgeable: The importance of this study is to determine how far the e-book can be used as a teaching aid in schools. It is essential that teachers need to be more creative with the use of technology such as e-book and other instructional technologies in schools. The involvement of teachers in incorporating the use of technology in teaching is still lacking in our education system. Most of teachers can be ranked as beginners or new learners and, therefore, they are required to enhance their knowledge and skills in ICT. However, there is a small number of teachers who do not apply the use of e-book in class due to lack of skills and competency to use e-book.

The use of e-book is also to encourage students to be knowledgeable in IT as well as it can be used to study independently. Besides, e-book design that functionally resembles the actual computer helps students to familiarize themselves with the ICT world. The advantage of dissemination of information through the use of e-book is also hoped to support the usage of e-book at schools.

Students' Attitude : The rate of the use of e-book is varied according to students' discipline. The increasing interest in the use of e-book is mainly due to its availability and ease of use[7b][9][10]. In a study done to measure the acceptance level of students of University Malaya, it was found that e-books were easy to use, thus, many preferred to use e-book for writing assignment or project works [11]

Ironically, some teachers in schools prohibit the use of e-book in class due to the difficulty in controlling and maintaining students' attention in class. Students are more interested to play computer games rather than using it for study [12].

Independent Students: Nowadays, people participate in distance learning programs, they will become more dependent on full-text electronic resources from libraries [13].By using the e-book, students become more independent and are less depending on their teachers as they start to search information or learning autonomously on their own.

Ergonomics: E-book, which the size is relatively smaller than a standard laptop, serves as digital textbooks and is easy to use, lightweight and can thus solve the problem of heavy bags [14].Weighing about 1.2 kg and being capable of running on battery that can last for 8 hours make it easy to carry anywhere and at any time. Among other things, e-book also provides applications such as word-processing, spreadsheet, calendar, chat sites, e-mail and games, as well as it can be used to surf on the Internet.

Methodology and Research Design: Based on the framework (Figure 1) illustrated, there were four variables (IT Knowledgeability, Students' Attitudes, Students' Learning Independent and Ergonomics) that would be used to access the acceptance of e-book among the primary-school teachers.

Independent Variables Dependent Variable
Research Design: Basically, the instrument for this study contained various questions regarding the dimensions that contributed to the acceptance of e-book among teachers. All items were measured on a five-point Likert Scale which ranged from (1) "Strongly Disagree" to (5) "Strongly Agree". The questionnaire was divided into 6 sections as follow: 12 questions related to profiles of respondents, 11 questions related to the Acceptance of
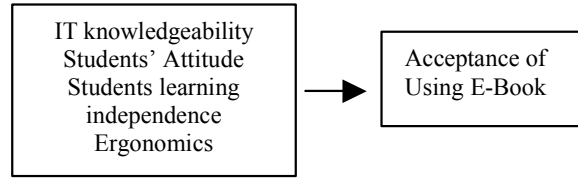

Fig. I: Theoretical Framework

Table 1: Number of Sample

School	No.of teachers	Samples
SK Seberang Dungun	35	15
SK Kuala Abang	18	8
SK Pulau Serai	61	26
SK Delong	12	5
SK padang Pulut	32	14
SK Batu48	64	28
SK Tok Kah	18	8
SK Kg Baru K.Abang	30	13
SK Balai besar	65	28
SK Tanjung Pati	32	14
SK Kompleks Rantau	18	8
SK Kuala Dungun	47	20
SK Pusat Dungun	55	24
SK Sultan Omar	83	36
SJK (C) Kwang Hwa	22	10
SK Serdang	17	7
SK Bandar Dungun	33	14
	642	278

Source: Jabatan Pendidikan Daerah Dungu

Using E-book, 12 questions on IT Knowledgeability, 10 questions for Students' Attitude, 12 questions for Students' Learning Independence and 8 questions for Ergonomics.

Sampling Techniques: The study population consisted of primary school teachers teaching in standards 4, 5 and 6 at Dungun primary schools in DUNs Sura and Rantau Abang, Terengganu. Currently, there are 642 teachers servicing in these two DUNs.A stratified random sampling method would be used to generate a random sample of teachers by schools. DUNs Sura and DUN Rantau Abang would be selected to represent both urban and rural schools in Dungun Parliament. 5 schools in DUN Sura and 11 schools in DUN Rantau Abang would be selected. The sample then would be selected from each school based on the proportion of the population as shown below:

Data Collection: Data were collected by using a well-structured and self-administered questionnaire with questions in pre-arranged order. The questionnaire items were developed by the researchers to suit this

study. The questionnaire was sectioned into 6 main areas. Section A dealt with the demographic profile which included teachers' general information such as gender, race, age, education level and others. Section B represented the dependent variable which was the Acceptance of Using E-book. Section C touched on the first independent variable which was IT Knowledgeability. Meanwhile, Section D focused on the Students' Attitude. On the other hand, Section E highlighted the third independent variable which was Students' Learning Independence. Lastly, Section F emphasized on the Ergonomics as the fourth independent variable. All items in section B untill F were measured on a five-point Likert Scale ranging from 1-Strongly Disagree, 2-Disagree, 3-Moderate, 4-Agree and 5-Strongly Disagree. To ensure sufficient data gathered accordingly, the researchers met with teachers who were in classroom, computer laboratories, teacher's room or canteen. The average time taken by each respondent was almost 30 to 40 minutes. A total of 300 questionnaires were distributed and 280 (93 percent) were returned. However, 26 sets were discarded due to incompete data, resulting in merely 254 usable responses.

RESULTS AND DISCUSSION

All values yields alpha coefficient surpasses the values of 0.70 suggested by [15]. Realiability estimates (Cronbach's Alpha) for the construct's dimension are as follows: Acceptance of Using E-Book among Primary Teachers (0.927) consists of 11 items, IT Knowledgeability (0.912) made up of 11 items, Students' Attitude (0.950) contains 9 items, Students' Learning Independence (0.926) comprises 12 items and Ergonomics (0.908) includes 8 items, which all suggesting a high degree of reliability.

Frequency Distribution: The summary of the demographic compositions of the respondents are shown in Table II. The participants in this study are predominantly females (71.7 percent) and the majority of the respondents were Malays (94.5 percent). The respondents mainly aged between 31-40 years old (47.2 percent). Most of them are degree holders (28.7 percent) and are familiar with the use the e-book for teaching (53.1 percent). A majority the participants are working in DUN Rantau Abang schools (63.8 percent). Full details are shown in Table II.

Table 2: Respondents' Demographic Profile

No	Profile	Description	Responses	Percentage
1	Gender	Male	72	28.3
		Female	182	71.7
2	Marital Status	Single	30	11.8
		Married	224	88.2
3	Age	21-30 years	40	15.7
		31-40	120	47.2
		41-50	77	30.3
		50>	17	6.7
4	Race	Malay	240	94.5
		Chinese	14	5.5
5	Higher Educational Level	SPM	67	26.4
		Diploma	13	44.5
		Bachelor Degree	73	28.7
		Master Degree/PHD	1	4
6	Teaching Using E-Book	Yes	119	46.9
		No	135	53.1
7	DUNs	Sura	92	36.2
		Rantau Abang	162	63.8

Table 3: T-Test for testing diffferences between Demographic Profile and Acceptance

Variable	No.	Mean value	Sig. value
Gende			
Male	72	3.7753	0.173
Female	182	3.6374	
Marital Status			
Single	30	3.4273	0.045
Married	224	3.7098	
DUN (area)			
Sura	92	3.8942	0.022
Rantau Abang	162	3.5982	
Race			
Malay	240	130.85	0.003
Cina	14	70.14	
Education level			
SPM	67	106.90	0.167
Diploma	113	103.07	
Degree	73	113.65	
Master	1	187.50	
Yes	119	3.9290	0.000
No	135	3.4539	

Analysis of Differences: Based on the distribution of samples collected, the analysis of differences is conducted by using several techniques that satisfy the basic statistical requirement. Among the techniques used are: T-test, Mann-Whitney U and Kruskal Wallis.

Table III shows that single teachers are significantly different from the married ones on the acceptance of e-book, (p=0.045).

Inspection of the two groups' means indicates that the acceptance level among married teachers (3.71) is significantly higher than the single ones (3.43). It is noted

Table 4: Corelations among variables

	IT Knowledgebility	Students' Attitude	Learning Independence	Ergonomic
Acceptance of using E-book	0.825*	0.776*	0.804*	0.625*

: *Correlation is significant at the 0.01 level (two-tailed)

Table 5: Summary of regression analysis

Dimensions	β	t	p	Collinearity Statistics Tolerance	VIF
IT Knowledgebility	0.473	9.572	0	0.391	2.557
students' Attitute	0.22	3.487	0.001	0.239	4.176
Students' Learning	0.202	2.622	0.009	0.161	6.193

Adjusted R Square=0.758

Significant F value=0.000

Note: a Predictors (constant) IT Knowledgeability, Student' Attitude, Student' Learning Independence, Ergonomics

that for DUN Sura, there is a statistically significant difference between DUN Kuala Abang (*p*=0.02*)*. It is also noted that male teachers does not differ significantly from the female ones on the acceptance of ebook (*p*=0.173). On the other hand, teaching using e-book (yes) is significantly different from not using the e-book [(no) (*p*=0.000)].

The result further reveals that there is a significant difference when comparing the race with the acceptance of e-book, (*p*=0.003). Analysis on the age group clearly indicates that there is a significant difference between age and the acceptance of e-book, (*p*=0.025). However, the difference between education level and the acceptance of ebook (*p*=0.163) is not statistically significant.

Correlation among Variables: The result of Pearson Correlation shown below supports the notion that there is a significantly positive correlation between acceptance of using e-book and four variables; IT knowledgeability, Students' Attitude, Students' Learning Independence and Ergonomics (r = 0.825, 0.776, 0.804 and 0.625, respectively).

Regression Analysis among Variables: Futher investigation using multiple regression analysis (as shown in Table VII) is also conducted. The results show that all dimensions namely IT knowledgeability, Students' Attitude, Students' Learning Independence and Ergonomics contribute significantly (F= 199.340; *p*= 0.000) predicting 76 percent of the variations in acceptance of using e-book. Therefore, those dimensions predict a significant change in acceptance of using e-book.

The results further show that there is a significant relationship between IT Knowledgeability (*t*= 9.572; *p*= 0.000), Students' Attitude (*t*= 3.487; *p*= 0.000), Students' Learning Independence (*t*= 2.622; *p*= 0.000) and Acceptance of Using E-book at 5 percent at significant level. On the other hand, there is no significant relationship between Ergonomics (p = 0.176) and Acceptance of Using E-book. Of all the four dimensions, IT Knowledgeability possesses the strongest value, followed by Students' Attitude and Students' Learning Independence respectively. Consequently, there is no statistical evidence to support H5. Meanwhile, there is statistically a significant evidence which supports H2, H3 and H4.

The Multiple Correlation Coefficient (*R*), using all the predictors simultaneously, is 87.3 percent and Adjusted R-Square is 75.8 percent of the variance in the Acceptance of Using E-book that can be predicted from the IT knowledgeability, Students' Attitude, Students' Learning Independence and Ergonomics. There is no multicollinearity in this study which is the tolerance value less than 1 and VIF value less than 10 [16].

Conclusion and Recommendation: Paper-based books may not go away in the near future. The touch and feel of a paper-based books, their longevity and history are firmly emblazoned in our soul. However, e-books are rapidly becoming a viable alternative and providing growing advantages over the traditional medium. Thus, understanding the differences on the profiles will povide an interesting database for decision- making. Our analysis clearly demonstrated that there were statistical significant differences on the seven (7) selected profiles to the acceptance of e-book. Only two (2) of the instruments concerning education level and gender revealed no significant differences. Thus, with these evidences, it would be much easier for the education system and school management to lay out the vision and strategies in improving the academic performance. Stimultaneously, this database was also helpful for strengthening teaching and learning process in the formal instructional settings as well as to help business players to identify the changing needs and wants of the market.

The evidence generated from the regression analysis clearly indicated that 75.8% variation in the acceptance of e-book can be explained by variation in overall independent variables (IT knowledgeability, Students' Attitude, Students' Learning Independence and Ergonomics). In addition, several other dimensions such as IT Knowledgeability, Students' Attitude and Students'

Learning Independence were exhibited to be art of the acceptable values in the use of e-book in primary schools. Furthermore, with the strength of correlation value of 0.825 and significant at *p*-value at 0.000, clearly strengthened the importance of IT Knowledgeability in relation to the acceptance of e-book. The relatively significant contribution of IT Knowledgeability was further explained by looking at the Beta score of the analysis. From the result of Beta coefficient, the â value for the first independent variable, that is IT Knowledgeability, was 0.473, at p<0.05 which explained that percentage increased of 47% in IT Knowledgeability will increase the acceptance of e-book. The education ministry should continuosly improve the IT and IS (Information System) in the software available in the e-book. It can enable the teachers and students to explore, learn and understand the academics matters easier. The e-book is good to pupils to increase their ICT knowledge and skills, but, some times the environment causes pupils to deflect when using the e-book. Therefore, the government should hold more often monitoring and controlling programmes on the use of e-book. Teachers also require exposure on IT and IS so that they would potentially facilitate them in implementing teaching and learning process more easily.

On top of that, there was a significant relationship between the acceptance of using e-book among primary students notably the independent ones. Students were found to be more independent after they used e-book. This happened because they did not depend totally on their parents and teachers. Today, e-book is one of the additional medium for them in doing exercises and revision. There was also a statistically significant relationship between the acceptance of using e-book among primary students with positive attitude. It can be concluded that the students became more discipline and were more committed to their academic with the use of e-book. However, the ergonomic factor did not influence the teachers to accept the e-book. It might seem that they did not border about the burden of bringing the bag full-packed with textbooks but the most important was the input the students will get from the e-book.

Direction for Future Investigation: It is acknowledged that e-book is still new in Malaysian education system, hence, that explains precisely why the study in the education field particularly in the use of e-book as teaching-and-learning tool is relatively low. It could be more interesting if more attempts are considered to include the impact of other variables such as government policy/roles, schools, teachers and parents roles and facilities and technology provided which are potentially capable to influence the usage of e-book.

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