eBOOK READER: A COMPARISON ON PERCEIVED USEFULNESS AND EASE OF USE

A dissertation submitted in partial fulfilment of the requirements for the award of the degree of Master of Science (Information Technology) in the Faculty of Information Technology, Universiti Utara Malaysia.

MOHD FAKHRULZAMAN CHE HAMZAH

Faculty of Information Technology Universiti Utara Malaysia 06010 UUM Sintok Kedah Darul Aman

Copyright © Mohd Fakhrulzaman bin Che Hamzah, 2005. All rights reserved.



JABATAN HAL EHWAL AKADEMIK (Department of Academic Affairs) Universiti Utara Malaysia

PERAKUAN KERJA KERTAS PROJEK (Certificate of Project Paper)

Saya, yang bertandatangan, memperakukan bahawa (I, the undersigned, certify that)

MOHD. FAKHRULZAMAN CHE HAMZAH

calon untuk Ijazah (candidate for the degree of) MSc. (Information Technology)

telah mengemukakan kertas projek yang bertajuk (has presented his/her project paper of the following title)

eBOOK READER: A COMPARISON ON PERCEIVED USEFULNESS AND EASE OF USE

seperti yang tercatat di muka surat tajuk dan kulit kertas projek (as it appears on the title page and front cover of project paper)

bahawa kertas projek tersebut boleh diterima dari segi bentuk serta kandungan dan meliputi bidang ilmu dengan memuaskan.

(that the project paper acceptable in form and content, and that a satisfactory knowledge of the filed is covered by the project paper).

Nama Penyelia Utama (Name of Main Supervisor):	MR. ARIFFIN ABDUL MUTALIB
Tandatangan (Signature) :	and,
Tarikh (Date) :	17/7/05

PERMISSION TO USE

In presenting this thesis in partial fulfilment of the requirements for a postgraduate degree from Universiti Utara Malaysia, I agree that the University Library may make it freely available for inspection. I further agree that permission for copying of this thesis in any manner, in whole or in part, for scholarly purposes may be granted by my supervisor, in her absence, by the Dean of the Faculty of Information Technology. It is understood that any copying or publication or use of this thesis or parts thereof for financial gain should not be allowed without my written permission. It is also understood that due recognition shall be given to me and to Universiti Utara Malaysia for any scholarly use which may be made of any material from my thesis.

Request for permission to copy or to make use of material in this thesis, in whole or in part should be addressed to:

Dean of the Faculty of Information Technology
Universiti Utara Malaysia
06010 UUM Sintok
Kedah Darul Aman

ABSTRAK

Kajian ini adalah berkaitan dengan pengukuran persepsi kanak-kanak Malaysia terhadap jenis-jenis pembaca buku elektronik Perpustakaan Digital Kanak-Kanak Antarabangsa (ICDL). ICDL telah beroperasi menggunakan lima jenis pembaca buku elektronik iaitu standard, comic strip, spiral, plus dan Adobe. Teori Penerimaan Teknologi oleh Davis (1989) telah pun digunakan dalam kajian ini untuk mengenalpasti persepsi kanak-kanak Malaysia terhadap pembaca buku eletronik jenis standard dan comic strip. Davis (1989) berpendapat bahawa sesuatu teknologi itu akan diterima atau ditolak berdasarkan dua faktor, kebergunaan dan kemudahgunaan. Oleh kerana kajian ini menjurus kepada pembaca buku elektronik ICDL, maka kerjasama di antara penyelidik dengan ICDL adalah amat perlu dan sebuah buku elektronik berbahasa melayu telah pun diterbitkan untuk tatapan umum di ICDL. Dalam proses mendapatkan data, borang soal selidik telah diedarkan untuk mendapatkan maklum balas kanak-kanak. Kajian yang melibatkan 35 orang kanakkanak mendapati kedua-dua skala jangkaan kebergunaan dan jangkaan kebolehgunaan ini mempunyai nilai kebolehpercayaan yang tinggi (Cronbach's Alpha >0.7). Kajian dijalankan melibatkan 35 pelajar sekolah rendah di negeri Terengganu. Analisa jawapan soal selidik dibentang dan hasil kajian menunjukkan bahawa kanak-kanak berpendapat pembaca buku elektronik jenis comic strip adalah lebih berguna daripada jenis standard tetapi mereka berpendapat bahawa pembaca buku elektronik jenis standard adalah lebih mudah untuk digunakan berbanding jenis comic strip. Hasil kajian juga mendapati tiada perbezaan yang signifikan dalam pesepsi pengguna antara jantina, kumpulan umur, dan pengalaman komputer terhadap jangkaan kebergunaan dan jangkaan kemudahgunaan pembaca buku elektronik ICDL.

ABSTRACT

This report discusses a study that related with measuring Malaysian children perception towards International Children Digital Library eBook reader types. ICDL operates using five types of eBook reader; standard, comic strip, spiral, plus and Adobe. Davis' Technology Acceptance Model (TAM) (1989) is used in this study to identify Malaysian children perception towards standard and comic strip eBook reader types. Davis believes whether that particular technology is accepted or rejected based on two factors; usefulness and ease of use. Since this research is focuses on ICDL eBook reader, thus collaboration with ICDL is required and one Malay eBook has been published and ready for viewing in ICDL. For data gathering process, questionnaire had been distributed to get children response. Results from a pilot test involving 35 children reveal that both usefulness and ease of use scales are highly reliable (Cronbach's Alpha > 0.7). An experiment has been conducted with a sample of 35 primary school student in the state of Terengganu. Results from the analysis show that children perceived comic strip reader as more useful compared to with standard reader but they perceive standard reader as easier to use compared with comic strip reader. Test results also show that gender, age group, and computer experience have no significant influence on users' perceptions on usefulness and ease of use on ICDL eBook readers.

ACKNOWLEDGEMENTS

All praise is due to Allah, Most Gracious, and Most Merciful. Without whose help and mercy, I would not have reached this far.

It would not have been possible for me to complete the program and this study without the support of my family. My first expression of gratitude goes to both my loving parent whose love and prayers gave me the strength to complete this course. To all my siblings, Ainal, Akmal, Khairul, Nurul, Rosydan and Suhaila, thank you for all the spiritual and financial support and financial. Last but not least, my brother in law, Rahman and his children, Ahmad Daniel, Fitriah and Bashirah.

I must convey my gratitude to my supervisor, En. Ariffin Abdul Mutalib for his support, guidance, critical remarks, adherence to correct usage of language, and above all I thank his both for finding time and patience reading my drafts repetitively. His discussions and help are very much appreciated.

I thank to ICDL teams especially Mary Ramos for all the guidance on publishing Malysian-made storybooks on ICDL. Apart from that, I also thank the Ministry of Education, Terengganu Education Department and Sekolah Kebangsaan Ladang Headmaster for the permission to conduct this survey. Without it, all my effort is worthless.

I would like to thank Mr. Mustafa Ali and Miss Zeety Kartini as being my supporter, without it I will not able to further my studies. Last but not least all my colleagues and friends especially Adri, Abang Ishak, Abang Mad, Abang Rashid, Fadhil, Farhan, Hassidy, Hisham, Irwan, Jamil, Kamarudin, Lim, Nadia, Nik, Norazlan and Shah for their contributions to many moments of insight, inspiration, laughter, and support throughout my completion of this thesis.

Above all, 'Syukor to Allah' for granting me the time and knowledge to complete my program and this study.

DEDICATION	
To both my loving parent and siblings.	
	

TABLE OF CONTENTS

CERTIFICAT	ION OF	THES	S WORK	
PERMISSION	I TO US	SE		
ABSTRACT (BAHASA MALAYSIA)			i	
ABSTRACT (ENGLISH)			ii	
ACKNOWLEDGEMENT			iii	
DEDICATION	i			iv
LIST OF TAB	LES			viii
LIST OF FIG	URES			x
LIST OF ABB	REVIA	TIONS		xi
CHAPTER 1:	BACK	GROUN	D OF THE STUDY	
	1.1	Introdu	uction	1
		1.1.1	eBook	3
		1.1.2	International Children Digital Library (ICDL)	4
	1.2	Probler	n Statement	6
	1.3	Resear	ch Objective	7
	1.4	Significance of the Research		7
	1.5	Assum	ptions, Scopes and Limitations of the Research	8
	1.6	Report	Structure	9
CHAPTER 2:	LITER	ATURE	REVIEW	
	2.1	Introdu	uction	10
	2.2	eBook		11
		2.2.1	Definition of eBook	11
		2.2.2	Types of eBook	12
		2.2.3	ICDL eBook Reader Types	16

	2.3	Technology Acceptance Model (TAM)	20
	2.4	Chapter Summary	24
CHAPTER 3:	RESE	ARCH METHODOLOGY	
	3.1	Introduction	25
	3.2	Phases of the Study	26
	3.3	Phase 1: Literature Study	27
	3.4	Phase 2: eBook Publishing	27
	3.5	Phase 3: Data Collection	30
		3.5.1 Data Collection Preparation	31
		3.5.2 Pilot Test	33
		3.5.3 Questionnaire	33
	3.6	Phase 4: Data Analysis	34
	3.7	Phase 5: Conclusion, Discussion and Recommendation	35
	3.8	Chapter Summary	36
CHAPTER 4:	RESU	LTS AND FINDINGS	
	4.1	Usefulness of Standard and Comic Strip reader types	37
		4.1.1 Usefulness and Gender	38
		4.1.2 Usefulness and Computer Experience	40
		4.1.3 Usefulness and eBook Reading Experience	41
	4.2	Ease of Use of Standard and Comic Strip reader types	43
		4.2.1 Ease of Use and Gender	44
		4.2.2 Ease of Use and Computer Experience	45
		4.2.3 Ease of Use and eBook Reading Experience	47
	4.3	Chapter Summary	48

CHAPTER !	5: CON	CLUSIO	N AND RECOMMENDATION	
	5.1	Conclu	usion	49
		5.1.1	Perceived Usefulness	50
		5.1.2	Perceived Ease of Use	53
	5.2	Recon	nmendation	56
REFERENC	ES			58
ADDENDIC	EC			
APPENDIC				
	Appe	ndix A:	Email From ICDL Group Members	
	Appendix B:		ICDL Metadata Form	
	Appendix C:		Permission to Conduct the Research from	
			Malaysian Ministry of Education	

LIST OF TABLES

TABLE 2.1:	Summary for the ICDL eBook Reader Types	20
TABLE 2.2:	Summary of Previous TAM Studies	22
TABLE 3.1:	ICDL Scanning Requirement	29
TABLE 3.2:	ICDL Naming Convention	29
TABLE 3.3:	Pilot Study Reliability Analysis -Scale (Alpha)	34
TABLE 3.4:	Respondents Profile - Gender	35
TABLE 3.5:	Respondents Profile – Computer Experience	35
TABLE 3.6:	Respondents Profile – eBook Reading Experience	35
TABLE 4.1:	Frequencies Statistics for Perceived Usefulness for	
	Standard and Comic Strip Reader Types	38
TABLE 4.2:	Perceived Usefulness of Standard Reader for Gender	38
TABLE 4.3:	Perceived Usefulness of Comic Strip Reader for Gender	39
TABLE 4.4:	Perceived Usefulness of Standard Reader for Computer	
	Experience Group	40
TABLE 4.5:	Perceived Usefulness of Comic Strip Reader for Computer	
	Experience Group	40
TABLE 4.6:	Perceived Usefulness of Standard Reader for eBook	
	Reading Experience Group	41
TABLE 4.7:	Perceived Usefulness of Standard Reader for eBook	
	Reading Experience Group	42
TABLE 4.8:	Frequencies Statistics for Perceived Ease of Use for	
	Standard and Comic Strip Reader Types	43
TABLE 4.9:	Perceived Ease of Use of Standard Reader for Gender	44
TABLE 4.10:	Perceived Ease of Use of Comic Strip Reader for Gender	44
TABLE 4.11:	Perceived Ease of Use of Comic Strip Reader for	
	Computer Experience Group	45

TABLE 4.12:	Perceived Ease of Use of Comic Strip Reader for	
	Computer Experience Group	46
TABLE 4.13:	Perceived Ease of Use of Standard Reader for eBook	
	Reading Experience Group	47
TABLE 4.14:	Perceived Ease of Use of Comic Strip Reader for eBook	
	Reading Experience Group	47
TABLE 5.1:	Frequencies Statistics for Perceived Usefulness	
	and Ease of Use for Standard and Comic Strip Reader	49
TABLE 5.2:	Frequencies Statistics for Perceived Usefulness for	
	Standard and Comic Strip Reader for Gender	50
TABLE 5.3:	Perceived Usefulness for Standard and Comic Strip	
	Reader for Computer Experience	51
TABLE 5.4:	Perceived Usefulness for Standard and Comic Strip	
	Reader for eBook Reading Experience	52
TABLE 5.5:	Frequencies Statistics for Perceived Ease of Use for	
	Standard and Comic Strip Reader for Gender	53
TABLE 5.6:	Perceived Usefulness for Standard and Comic Strip	
	Reader for Computer Experience	54
TABLE 5.7:	Perceived Usefulness for Standard and Comic Strip	
	Reader for eBook Reading Experience	55

LIST OF FIGURES

FIGURE 2.1:	Standard Reader Types	17
FIGURE 2.2:	Comic Strip Reader Types	18
FIGURE 2.3:	Spiral Reader Types	19
FIGURE 2.4:	Technology Acceptance Model (TAM)	21
FIGURE 3.1.	Summary of the Methodology	26

LIST OF ABBREVIATION

CD Compact Disc

CD ROM Compact Disc Read Only Memory

DVD Digital Video Disc

eBook Electronic Book

eLearning Electronic Learning

eStorybook Electronic Storybook

EPRD Education Planning and Research Division

HTML Hyper Text Markup Language

ICDL International Children Digital Library

ICT Information and Communication Technology

IT Information Technology

PDA Personal Digital Assistant

PDF Portable Document Format

PEOU Perceived Ease of Use

PU Perceived Usefulness

SED State Education Department

SK Sekolah Kebangsaan

SPSS Statistical Package for Social Science

TAM Technology Acceptance Model

URL Uniform Resource Locator

USIMLS United States Institute for Mesuem and Library Services

USNSF United States National Science Foundation

CHAPTER 1

BACKGROUND OF THE STUDY

In this chapter, the researcher begins with the introduction of several important players that included in this research. It begins with a briefing of eBook, the most important stakeholder in the whole research. Later on, the researcher will go more deeply about eBook in the next chapters. An introduction on International Children Digital Library (ICDL) also included in this chapter as one of the important player apart from eBook. After introduce the big players, the researcher continues with problem statement, research objective, significance of the research and last but not least assumptions, scope and limitations of the research.

1.1 Introduction

A few years ago, many parents were shocked with the schooling environment in Malaysia. Local newspaper reports mentioned that schooling environment in Malaysia was burdening our students. As the time goes by, the requirement to produce an excellent student become a challenging task for the teachers. In order to produce an excellent student, they have to prepare themselves and their student with plenty of knowledge. In order to achieve this target, the use of textbooks alone was

The contents of the thesis is for internal user only

REFERENCES

- Chan, F-M. (2002). ICT In Malaysian Schools: Policy and Strategies.

 Seminar/Workshop on the Promotion of ICT Education to Narrow the

 Digital Divide, October 15-22. Retrieved April 7, 2005, from

 http://www.apdip.net/projects/2003/asian-forum/resources/my-ict-edu.pdf.
- Chiam.(n.d). The Advantages of E-Learning In School. Retrieved April 11, 2005, from http://www.cikgu.net.my/english/expert.php3?page=expert1.
- Chim, C.S. (2002). EBooks Saviour For Harassed Teachers, Pupils. Retrieved April 11, 2005, from http://www.cikgu.net.my/english/gossip.php3?page=hotnews34.
- Davis, F. D. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly*, September 1989, 318-340. Retrieved December, 2004, from http://www.cba.hawaii.edu/chismar/ITM704/Davis-TAM1989.pdf.
- eBookstand, Inc. (2004). Electronic Books. Retrived May 18, 2005, from http://www.ebookstand.com/ebooks.htm
- eBookMall, Inc. (2005). About eBooks. Retrived May 18, 2005, from http://www.ebookmall.com/aboutebooks.htm.
- Gefen, D., & Keil, M. (1998). The Impact of Developer Responsiveness on Perceptions of Usefulness and Ease of Use. An Extension of the Technology Acceptance Model. *The Data Base for Advances in Information System, Vol.* 29 (No. 2). Retrieved June 12, 2005, from http://delivery.acm.org/10.1145/300000/298757/p35-gefen.pdf.

- Gurak, L. J. & Lannon, J. M. (2004). A Consicise Guide to Technical Communication, Second Edition, Pearson Education, New York.
- Heijden, H. (2004). User Acceptance of Hedonic Information Systems. MIS

 Quarterly, Vol. 28 (No. 4). Retrieved June 12, 2005, from

 http://content.epnet.com.eservice.uum.edu.my/pdf14_16/pdf/2004/MIS/01De

 c04/15494033.pdf?T=P&P=AN&K=15494033&EbscoContent=dGJyMNLr4

 0SeqLY4yOvsOLCmrk2ep7FSr6i4S66WxWXSAAAA&ContentCustomer=

 dGJyMPPq34rfset55%2BS5febl8YwA&S=R&D=buh.
- Hourcade, J., Bederson, B., Druin, A., Rose, A., Farber, A., & Takayama, Y. (2003).
 The International Children's Digital Library: Viewing Digital Books Online.

 Interacting with Computers. Retrieved May 28, 2005, from ftp://

 ftp.cs.umd.edu/pub/hcil/Reports-Abstracts-Bibliography/2003-17html/200317.htm
- ICDL. (2005). Scanning Instructions. Retrived May 18, 2005, from http://www.icdlbooks.org
- Jones, A., B., & Hubona, G., S. (2005). Individual Differences and Usage Behavior: Revisiting a Technology Acceptance Model Assumption. *The Data Base for Advances in Information System, Vol. 36 (No. 2)*. Retrieved June 12, 2005, from http://delivery.acm.org/10.1145/1070000/1066155/p58-burton-jones.pdf.
- Kukanesan, P.M. (2004). *EBooks Scenario In Malaysia*. Workshop/Meeting on E Books, September 16-17. Retrieved April 14, 2005, from http://www.viyanidhi.org.in/ebook/ html/primalini.pdf..
- Liaw, S. (2002). Understanding User Perceptions of World-Wide Web Environments. *Journal of Computer Assisted Learning, Vol. 18.* Retrieved June 12, 2005 from

- http://content.epnet.com.eservice.uum.edu.my/pdf13_15/pdf/2002/6M1/01Ju n02/6871925.pdf?T=P&P=AN&K=6871925&EbscoContent=dGJyMNLr40 SeqLY4yOvsOLCmrk2ep7FSsKa4SrKWxWXSAAAA&ContentCustomer=dGJyMPPq34rfset55%2BS5febl8YwA&S=R&D=aph
- Mohammad, M. I. (2005). Self-Predicted Future Usage of Malaysian Schools Student Information System. Unpublished Thesis: MSc. (IT). Universiti Utara Malaysia, Sintok, Kedah.
- Resta, P.E. (2002). *Glossary*. Retrieved April 11, 2005, from http://www.edb.utexas.edu/ resta/itesm2002/glossary/glossary_c.html.
- Sekaran, U. (1992). Research Methods For Business. A Skill Building Approach, Second Edition, John Wiley & Sons, Inc, Canada.
- Seyal, A. H., & Pijpers, G. M. (2004). Senior Government Executives' Use of the Internet: A Bruneian Scenario. *Behaviour & Information Technology, Vol.* 23 (No 3). Retrieved June 12, 2005, from http://content.epnet.com.eservice.uum.edu.my/pdf13_15/pdf/2004/B6Q/01M ay04/12881406.pdf?T=P&P=AN&K=12881406&EbscoContent=dGJyMNLr 40SeqLY4yOvsOLCmrk2ep7FSr6m4SLGWxWXSAAAA&ContentCustom er=dGJyMPPq34rfset55%2BS5febl8YwA&S=R&D=aph
- Shiratuddin, N., Landoni, M., Gibb, F., & Hassan, S. (2003). E-Book Technology and Its Potential Applications in Distance Education. *Journal of Digital Information, volume 3 (issue 4)*. Retrieved May 18, 2005, from http://ojfpc.ecs.soton.ac.uk/Articles/v03/i04/Shiratuddin/.
- Suh, K., Kim, S., & Lee, J. (1994). End-User Computing Abilities and the Use of Information Systems. *Computer Personnel*. Retrieved June 12, 2005, from http://delivery.acm.org/10.1145/190000/181884/p3-suh.pdf.

- Webopedia. (2005). Courseware. Retrieved April 15. 2005, from http://www.webopedia.com/TERM/c/courseware.html.
- Wikipedia. (2005). *EBook*. Retrieved April 15, 2005, from http://en.wikipedia.org/wiki/ Ebook.
- Wilson, R. (2000). *The Problem of Defining Electronic Book*. Retrieved May 15, 2005, from http://ebooks.strath.ac.uk/eboni/documents/definition.html.