

EVALUATING USER
ACCEPTANCE OF *SISTEM*
KESELAMATAN IN UUM PORTAL

A thesis submitted to Faculty of
Information Technology in partial
Fulfillment of the requirement for the
degree Master of Science (Information
Technology) Universiti Utara Malaysia

By
Siti Nurul Azwani Abdul Rahman

Submitted on October 2005



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)

SITI NURUL AZWANI BINTI ABDUL RAHMAN

calon untuk Ijazah
(candidate for the degree of) **MSc. (IT)**

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

**EVALUATING USER ACCEPTANCE OF 'SISTEM KESELAMATAN'
IN UUM PORTAL**

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): **MRS. NORAZIAH BINTI CHE PA**

Tandatangan
(Signature)

:

Tarikh
(Date)

:

October 30 '05

PERMISSION TO USE

In presenting this thesis in partial fulfillment 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 purpose may be granted by my supervisor(s) or, in their absence by the Dean of the Graduate School. It is understood that any copying or publication or use of this thesis or parts thereof for financial gain shall 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.

Requests for permission to copy or to make other use of materials in this thesis, in whole or in part, should be addressed to

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

ABSTRACT (BAHASA MALAYSIA)

Penyelidikan dalam topik penerimaan pengguna telah diterima sebagai satu isu yang penting sejak beberapa tahun lepas. Penyelidikan ini boleh dilakukan sama ada semasa pembangunan sistem atau selepas sistem dibangunkan. Model penyelidikan yang paling banyak digunakan di dalam penyelidikan yang berkaitan dengan topik ini ialah Model Penerimaan Teknologi (Technology Acceptance Model). Model ini mempunyai dua komponen iaitu Kebergunaan (Perceived Usefulness) dan Kemudahan (Perceived Ease of Use). Dengan menggunakan dua komponen ini, penilaian mengenai tahap penerimaan pengguna terhadap *Sistem Keselamatan* di dalam Portal UUM dilakukan. Penyelidik mendapati bahawa pengguna yang telah menggunakan *Sistem Keselamatan* bersetuju dengan komponen Kebergunaan dan Kemudahan *Sistem Keselamatan*. Bilangan responden yang tidak menggunakan *Sistem Keselamatan* juga turut diperolehi. Alasan kenapa mereka tidak menggunakan *Sistem Keselamatan* juga turut diberikan. Berdasarkan penemuan daripada penyelidikan ini, penyelidik dapat memberikan cadangan agar tahap penggunaan pengguna *Sistem Keselamatan* dapat ditingkatkan. Idea ini adalah berdasarkan kepada faktor-faktor responden tidak menggunakan *Sistem Keselamatan* tersebut.

ABSTRACT (ENGLISH)

User acceptance study has been accepted as one of the important issue in system development since the last few years. This study can be conducted during system development process or after the system has been developed. The most known model for user acceptance is Technology Acceptance Model (TAM). This model has two features; perceived usefulness and perceived ease of use. By using these two features, user acceptance level of *Sistem Keselamatan* in UUM Portal has been evaluated during this research process. The researcher found that most of the users who have been using *Sistem Keselamatan* accept *Sistem Keselamatan* in UUM Portal because of its usefulness and ease of use features. Number of respondents who do not use *Sistem Keselamatan* is also observed. The reasons why they do not use *Sistem Keselamatan* is also obtained. From the findings of this study, the researcher is able to give suggestions on how to increase the acceptance level of *Sistem Keselamatan*. This idea is generated based on the respondents answer on why they do not use *Sistem Keselamatan*.

ACKNOWLEDGEMENT

Special thanks to my thesis supervisor, Mrs. Noraziah bt Che Pa for guiding and helping me throughout the process of producing this thesis, since June 2005 until October 2005. I will not be able to complete this thesis without my supervisor's guidance. Special thanks to my evaluators, Mrs. Nurul Huda bt Ibrahim, Mr. Sharuddin b Awang Nor and Mr. Ariffin b Abd. Mutalib for giving me constructive comments and suggestions during my presentation. I appreciate all the comments and have made a few amendments to my thesis content regarding all the ideas given. Special thanks to Associate Professor Fadzilah bt Siraj who have been helping me in finding my supervisor. I might not be able to find my supervisor without Professor's help. Special thanks to all my Master's, Bachelor's and Matriculation's lecturers who have been teaching and guiding me all this while until I finally produce this thesis. Special thanks to all my kindergarten's, primary school's and secondary school's teachers who have been teaching me since the last two decades. Special thanks to my parents who have been supporting me since I was born until now. I will not reach this stage if it is not for both my parents' support and motivation. Special thanks to all my friends who have been helping and supporting me in completing this thesis especially to Nurul Azura Che Hashim, Roznim Mohammad Rasli and Tengku Suriana Tengku Mansur. Special thanks are also dedicated to all parties that involved in this project directly or indirectly. Thank you.

TABLE OF CONTENTS

	Page
PERMISSION TO USE	I
ABSTRACT (BAHASA MALAYSIA)	II
ABSTRACT (ENGLISH)	III
ACKNOWLEDGMENTS	IV
LIST OF TABLES	VII
LIST OF FIGURES	VIII
CHAPTER ONE: INTRODUCTION	1
1.1 Problem statement	4
1.2 Project objective	4
1.3 Scope of the research	5
1.4 Significance of the study	6
CHAPTER TWO: LITERATURE REVIEW	7
2.1 User acceptance	7
2.2 Technology Acceptance Model (TAM)	9
2.3 Previous user acceptance study using Technology Acceptance Model (TAM)	12
CHAPTER THREE: RESEARCH METHODOLOGY	17
3.1 Identify research question	17
3.2 Data collection	18
3.2.1 Cluster sampling	19
3.2.2 Stratified sampling	21
3.2.3 Census sampling	23
3.3 Data analysis	25
3.4 Result summary	25

	Page
CHAPTER FOUR: FINDINGS	26
4.1 User acceptance level	26
4.1.1 Students	26
4.1.2 Staffs	31
4.1.3 Security department's staffs	38
4.2 User rejection factors	43
4.2.1 Students	43
4.2.2 Staffs	45
4.2.3 Security department's staffs	45
4.3 Summary	46
CHAPTER FIVE: DISCUSSION	48
5.1 Limitations	48
5.2 Suggestions	49
CHAPTER SIX: CONCLUSION	50
LIST OF REFERENCES	51
APPENDICES	59
A Raw Data for Analysis	61
B Questionnaires	66

LIST OF TABLES

	Page
Table 4.1: Students' Gender Profile	26
Table 4.2: Duration of Computer Usage for Students	27
Table 4.3: Duration Of Internet Usage for Students	28
Table 4.4: Duration of <i>Sistem Keselamatan</i> Usage for Students	29
Table 4.5: Result Analysis of Perceived Usefulness Factors for Students	30
Table 4.6: Result Analysis of Perceived Ease of Use Factors for Students	31
Table 4.7: Staffs' Gender Profile	32
Table 4.8: Duration of Computer Usage for Staffs	33
Table 4.9: Duration of Internet Usage for Staffs	33
Table 4.10: Duration of <i>Sistem Keselamatan</i> Usage for Staffs	34
Table 4.11: Result Analysis of Perceived Usefulness Factors for Staffs	36
Table 4.12: Result Analysis of Perceived Ease of Use Factors for Staffs	37
Table 4.13: Security Department's Staffs Gender Profile	38
Table 4.14: Duration of Computer Usage for Security Department's Staffs	39
Table 4.15: Duration of Internet Usage for Security Department's Staffs	39
Table 4.16: Duration of <i>Sistem Keselamatan</i> Usage for Security Department's Staffs	40
Table 4.17: Result Analysis of Perceived Usefulness Factors for Security Department's Staffs	41
Table 4.18: Result Analysis of Perceived Ease of Use Factors for Security Department's Staffs	42
Table 4.19: Result Analysis of System Rejection Factors for Students	44
Table 4.20: Response Rate for All Types of Users	46

LIST OF FIGURES

	Page
Figure 2.1: Original TAM model	9
Figure 3.1: Process to Narrow Down Subjects into Topics	17

1.0 INTRODUCTION

Measuring user acceptance is an issue that gains continuous attention from the researchers and practitioners in the last few years. User acceptance study can be conducted in diverse type of user populations and technologies. This study is always supported by a research model or a few research models. Several models that have been used to support this study are Theory of Planned Behavior (TPB), Innovation Diffusion Theory (IDT) and Technology Acceptance Model (TAM). These models have been suggested to understand why users accept or do not accept certain technology.

It is difficult to incorporate a new information technology (IT) into an organization and the effort is normally ended in frustration (Nelson, Kattan & Cheney, 1991). Users belief towards the system will be the determinant factor to classify the system as excellent or terrible (Pikkarainen, Pikkarainen, Karjaluoto & Pahnla, 2004). It is a generally accepted idea that if the system is not easy to use, then the potential users will not use the system (Maryam & Macredie, 2005).

The contents of
the thesis is for
internal user
only

REFERENCES

- Ahn, T., Ryu, S., & Han, I. (2004). The impact of the online and offline features on the user acceptance of Internet shopping malls. *Electronic Commerce Research and Applications*, 3, 405-420.
- Alshare, K., Grandon, E., & Miller, D. (2004). Antecedents of computer technology usage: Considerations of the technology acceptance model in the academic environment. *JCSC*, 19, 164-180.
- Alter, S. (1999). A general, yet useful theory of information systems. *Communications of AIS*, 1, 1-71.
- Barnett, V. (1991). *Sample Survey: Principles and Method*, Arnold, Bristol.
- Behrens, S., Jamieson, K., Jones, D., & Cranston, M. (2005). Predicting system success using the technology acceptance model: A case study. *16th Australasian Conference on Information Systems*, 1-10.
- Benamati, J. S., & Rajkumar, T. M. (2002). A design of an empirical study of the applicability of the technology acceptance model to outsourcing decisions. *ACM*, 52-57.

- Campbell, J. A. (2000). User acceptance of videoconferencing: Perceptions of task characteristics and media traits. *Proceedings of the 33rd Hawaii International Conference on System Sciences*, 1-7.
- Cochran W. G. (1977). *Sampling Techniques*, 3rd Ed., Wiley, New York.
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, September, 319-340.
- Eikebrokk, T. R., & Sorebo, O. (1998). Technology acceptance in situations with alternative technologies, *NOKOBIT*, 89-97.
- Gefen, D., Karahanna, E., & Straub, D. W. (2003). Inexperience and experience with online stores: The importance of TAM and trust. *IEEE Transactions On Engineering Management*, 50, 307-321.
- Hardgrave, B. C., & Johnson, R. A. (2003). Toward an information systems development acceptance model: The case of object-oriented systems development. *IEEE Transactions On Engineering Management*, 50, 322-336.
- Hassan M. Selim. (2003). An empirical investigation of student acceptance of course websites. *Computers & Education*, 40, 343-360.

- Henderson, R., & Divett, M. J. (2003). Perceived usefulness, ease of use and electronic supermarket use. *International Journal of Human-Computer Studies*, 59, 383 – 395.
- Hendrickson, A. R., & Collins, M. R. (1996). An assessment of structure and causation of IS usage. *The DATA BASE for Advances in Information Systems*, 27, 61-67.
- Hubona, G. S., & Jones, A. B. (2002). Modeling the user acceptance of e-mail. *Proceedings of the 36th Hawaii International Conference on System Sciences (HICSS'03)*, 1-10.
- Hung, S. Y., & Chang, C. M. (2005). User acceptance of WAP services: Test of competing theories. *Computer Standards & Interfaces*, 27, 359-370.
- 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 Systems*, 36, 58-77.
- Lai, M. C. L., Ho, S. S. Y., & Hui, W. W. Y. (2003). Adoption process of upgrading software: An empirical study of Windows XP. *Proceedings of the 36th Hawaii International Conference on System Sciences (HICSS'03)*, 1-9.

- Laitenberger, O., & Dreyer, H. M. (1998). Evaluating the usefulness and the ease of use of a web-based inspection data collection tool. *Software Metrics Symposium Proceedings, Fifth*, 122-132.
- Lederer, A. L., Maupin, D. J., Sena, M. P., & Zhuang, Y. (1998). The role of ease of use, usefulness and attitude in the prediction of World Wide Web usage. *Proceedings of The 1998 ACM SIGCPR Conference on Computer Personnel Research*, 195-204.
- Lederer, A. L., Maupin, D. J., Sena, M. P., & Zhuang, Y. (2000). The technology acceptance model and the World Wide Web. *Decision Support Systems*, 29, 269-282.
- Legris, P., Ingham, J., & Collette, P. (2003). Why do people use information technology? A critical review of the technology acceptance model. *Information & Management*, 40, 191-204.
- Leong, L. Y. S., & Dastoor, B. (2001). A test of the technology acceptance model in database application: MS Access use. *ACM*, 1-117.
- Liao, Z., & Landry, R. J. (2000). An empirical study on organizational acceptance of new information systems in a commercial bank environment. *Proceedings of the 33rd Hawaii International Conference on System Sciences*, 1-7.

- Liaw, S. S. (2002). Understanding user perceptions of world-wide web environments. *Journal of Computer Assisted Learning*, 18, 137-148.
- Liegle, J. O., & Meso, P. N. (2004). A user acceptance evaluation of two web-based computer programming teaching tools. Proc ISECON, 1-15.
- Little, L. (2003). Attitudes towards technology use in public zones: The influence of external factors on ATM use. *CHI*, 990-991.
- Maryam Aziz & Macredie, R. D. (2005). Proposing a perceived ease of use factors taxonomy for information system use. *IEEE*, 468-476.
- Mathieson, K., Peacock, E., & Chin, W. W. (2001). Extending the technology acceptance model: The influence of perceived user resources. *The DATA BASE for Advances in Information Systems – Summer*, 32, 86-112.
- Milchrahm, E. (2003). Modelling the acceptance of information technology: System trust, ease of use and usefulness. *Proceedings 9th Annual Conference on Professional Information Resources*, 1-11.

- Money, W. (2004). Application of the technology acceptance model to a knowledge management system. *Proceedings of the 37th Hawaii International Conference on System Sciences*, 1-9.
- Morris, M. G., & Dillon, A. (1997a). How user perceptions influence software use. *IEEE Software*, 58-65.
- Morris, M. G., & Dillon, A. (1997b). The influence of user perceptions on software utilization: Application and evaluation of a theoretical model of technology acceptance. *IEEE Software*, 14, 1-17.
- Muduganti, R. R., Sogani, S. K., & Hexmoor, H. (2005). Comparison of information technology adoption rates across laggards, innovators and others. *Proceedings of the International Conference on Information Technology: Coding and Computing (ITCC '05)* 1-6.
- Nelson, R. R., Kattan, M. W., & Cheney, P. H. (1991). Training, ability, and the acceptance of information technology: An empirical study of is personnel and end users. *ACM SIGCPR Computer Personnel*, 13, 20-32.

- Page, K., & Uncles, M. (2000). Perceived ease of web use and perceived usefulness of the web: Multi-item scale development. *Visionary Marketing for the 21st Century: Facing the Challenge*, 916-920.
- Phang, C. W., Sutanto, J., Li, Y., & Kankanhalli, A. (2005). Senior citizens' adoption of e-government: in quest of the antecedents of perceived usefulness. *Proceedings of the 38th Hawaii International Conference on System Sciences*, 1-8.
- Pikkarainen, T., Pikkarainen, K., Karjaluoto, H. & Pahnla, S. (2004). Consumer acceptance of online banking: An extension of the technology acceptance model. *Internet Research*, 14, 224-235.
- Saade, R. G., & Galloway, I. (2005). Understanding intention to use multimedia information systems for learning. *Issues in Informing Science and Information Technology*, 287-296.
- Shih, H. P. (2004). An empirical study on predicting user acceptance of e-shopping on the Web. *Information & Management*, 41, 351-368.
- Succi, M. J., & Walter, Z. D. (1999). Theory of user acceptance of information technologies: An examination of health care professionals. *Proceedings of the 32nd Hawaii International Conference on System Sciences*, 1-7.

Suh, K., Kim, S., & Lee, J. (1994). End-user computing abilities and the use of information systems. *Computer Personnel*, 3-14.

Zhang, P., & Li, N. (2005). The importance of affective quality. *Communications of the ACM*, 1-9.