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College of Informatics
Graduate School of Information Management

Master

An Empirical Study on Factors Affecting the Acceptance
of Applying E-Learning System in University of Labor
and Social Affairs

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Advisor : Dr. Gow-Ming Dong

July, 2011

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Thesis Title: An Empirical Study on Factors Affecting the Acceptance of Applying E-Learning System in University of Labor and Social Affairs

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An Empirical Study on Factors Affecting the Acceptance of
Applying E-Learning System in University of Labor and Social
Affairs

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Advisor : Dr. Gow-Ming Dong Co-adviser : Dr. Ton Quang Cuong

Abstract

Information technology and the Internet have had a dramatic effect on business operations. Companies are making large investments in e-commerce applications but are hard pressed to evaluate the success of their e-commerce systems. The DeLone & McLean Information Systems Success Model can be adapted to the measurement challenges of the new e-commerce world. The six dimensions of the updated model are a parsimonious framework for organizing the e-commerce success metrics identified in the literature. Two case examples demonstrate how the model can be used to guide the identification and specification of e-commerce success metrics.

Information technology and the Internet have reshaped the mind and life of many people around the globe. By taking advantages of these technologies, educations around the world are introducing new technology services to better serve their customers – the learners. One of the primary goals in building MIS system for a key school in Hanoi, Vietnam is to provide a way of technology acceptance in training management environment. This study is to examine factors influencing users' adoption of IT in ULSA for training administrators. Based on literature review, we propose a research model founded on the well-known technology acceptance model (TAM). Our model theorizes that original variables including perceived supporting, attitude and behavioral intention can affect users' perceived ease of use and perceived usefulness in TAM. An empirical study was conducted to validate the proposed model.

Questionnaires based on validated items from previous studies were distributed to several work places in training department affairs. A total of 120 complete responses were collected for statistical analysis. Our results show that each hypothesis in the research model is supported with a high significance level. Managerial implications for IT in training service tasks will be discussed.

Keywords: ULSA, TAM, Perceived usefulness, Perceive ease of use, Behavioral intention use, e-Learning, Moodle.

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Chapter 1 Introduction

The growth of Internet-based technology have brought new opportunities and methodologies in many fields including education and teaching represent in e-learning, online learning, distance learning, and open learning. These approaches are typically use in place of traditional methods and mean that students deliver their knowledge though the web rather than face-to-face tutoring.

1.1. Background of the study

University of Labor and Social Affairs (ULSA) is a public university established on January 31, 2005, Decision of the Government of 26/2005/QD-TTg. It was upgraded from College of Labor and Social. ULSA is a unit under the Ministry of Labor - Invalids and Social Affairs (MOLISA) which is training manpower function in undergraduate, bachelor and diploma degree of labors, social, scientific research; headquarters placed at 43 Tran Duy Hung street, Cau Giay district, Hanoi. In the following

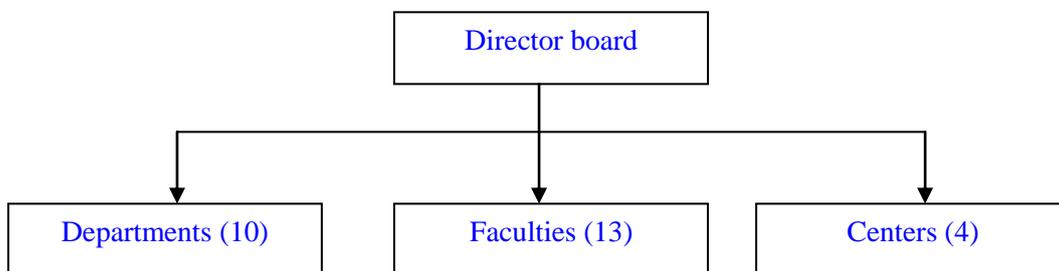


Figure 1. Organizational Chart of ULSA

Director board includes General Director and 3 vice directors. The general director is the person responsible for operating and the entire operation of the university before higher management level. There are 3 vice directors who are the assistances for general director and implement the mission which are allocated by general director.

There are 10 departments in ULSA which monitored by director board such as: Administration department, Personnel department, Academic affair department,

Scientific department, Exam and education evaluation department, Equipment department, Financing department, In-service training department, Building department and Health care department. Each department has a manager, 1 to 2 vice managers and officers. Each department assists director boards some of activities in their filed in the ULSA.

There are 13 faculties which doing academic research and training activities in the ULSA which are labors management, accounting, insurance, social activities, foreign language, political theory, business management, technical, informatics, statistical, mathematics, and military and physical faculty.

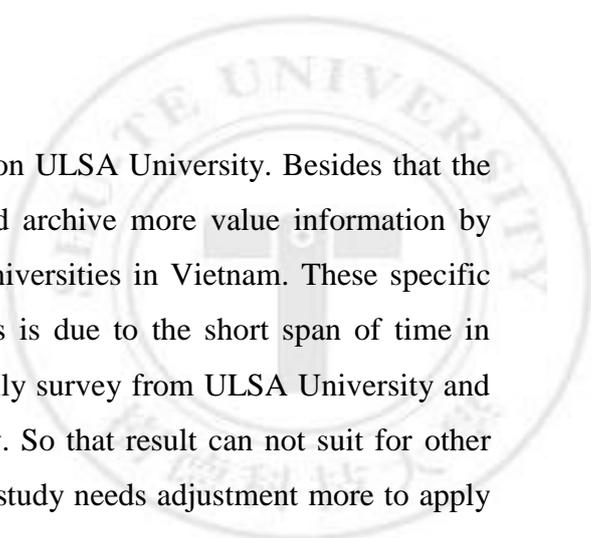
There are 4 centers which doing the scientific research and technology transfer including center for research and human development, center for training employee, center for information and library, and center for international cooperation in training.

Table 1. Some ULSA's statistics

<i>#</i>	<i>Items</i>	<i>Unit</i>	<i>Total</i>
1	Number of teachers	Teachers	245
2	Number of students	Students	9.021
3	Number of Officer and Educators	People	105

Source: ULSA's Administration Office, 2011

The University has applied an e-learning system since 2006 which was based on Moodle e-learning's standards, after 5 years of applying this system the ULSA has gained some significant benefits for both learners and teachers as well as management area, however there are also some disadvantages from this current system such as: slow, not easy to upgrade, security issue and user's satisfaction. Thus, the school should promote quality and efficiency of management, teaching, studying by taking a research on this current e-learning system in order to figure out factors influencing the system.



In this thesis, author has chosen to focus on ULSA University. Besides that the author believes that the research will collect and archive more value information by carrying out this study widely in the different universities in Vietnam. These specific issues have been excluded from this thesis. This is due to the short span of time in which to complete the study, and author could only survey from ULSA University and gathering data to analysis result from that survey. So that result can not suit for other universities context, that means the result of this study needs adjustment more to apply in these universities to gain success.

With the hope of ULSA for the acceptance of information technology (IT) in applying e-learning system, I would like to select the theme:

*An Empirical Study on Factors Affecting the Acceptance of Applying E-Learning System
in University of Labor and Social Affairs, Vietnam*

1.2. Research motivation

Main motivation of this research is to find important factors which have direct impacts to perform the user acceptance of applying e-learning system in ULSA in particular and in Viet Nam universities in general, where there are many students who demand to study but they do not have time, space and finance to study direct at university so they would like to study through e-learning system.

Besides, author would like to build success research model of e-learning performance based on previous research to apply into real situation of Vietnam higher education. Thereby, this study will bring to educational opportunities for people to contribute to building a learning society in the integration of knowledge economy in global. The second motivation of this research is through surveys from users (IT professionals, teachers, educational administrators and students), author will identify weaknesses in implementing the application of e-learning system in universities. From these points, this study will propose appropriate solutions when conducting e-learning application in teaching in Vietnam, thereby bringing benefits to learners, universities and society.

1.3. Research Purposes

The purpose of this study was to identify highlight factors influencing the user acceptance of applying e-learning system in University of Labor and Social, Vietnam and to examine how factors are influencing the user acceptance of applying e-learning system?

The result of this study could show more the user acceptance on the e-learning system in the universities and universities in Vietnam. Otherwise, the result could help the leaders in the universities of Vietnam see more on the status of e-learning system using in Vietnam and how to build and deploy it more successfully?

1.4. Assumptions

This study built a success model in implementing e-learning system at a university in Vietnam. The main objective of study is survey on educational manager, lecturers, IT experts, and students in university to determine the important factors in the study model of e-learning system, which has a direct impact to the implementation of effective e-learning systems in higher education. The survey was conducted honestly at the ULSA University, where the author is working. Therefore, results of this study can be applied in practice. Besides, author also pointed out the success research model, including important factors determining the acceptance of e-learning system when applying at the university, thereby paving the way for the widely deployed e-learning systems at universities in Vietnam.

1.5. Research Procedures

To conduct this research, the author has been working as following procedures:

1. Determine research purpose
2. Literature review
3. Design framework & hypotheses
4. Design questionnaires and pilot test
5. Distribute questions to participants
6. Gather data from participants
7. Data Analysis

8. Definition success factors and model
9. Finding, conclusions and suggestions



Chapter 2 Literature Reviews

In this chapter, the study will be review the theoretical framework on ICT & ICT for education management, e-learning, the status of e-learning use in ULSA as well as the Technology Acceptance Model (TAM) which is based model for developing the research model.

2.1. ICT, IT and education management

In many nations in the world the introduction of Information and Communication Technology (ICT) into schools and education has been praised as the necessary course of action for the qualitative improvement of teaching, learning methodology, and learning organization management. The introduction ICT into school play an important role and a necessity promised on social, economic, and education. Many countries and governments have launched major programs and invested financial sources to support for ICT/IT in training and education programs (Sinko, M., & Lehtinen, E., 1999; Pedretti, E., Mayer-Smith, J., & Woodrow, J., 1999; Pelgrum, W. J., 2001). The implies of educators' self-efficiency in their ICT/IT competence as a main factors for combining computer technology in teaching and training is introduced in other researches as well as social-economy development studies. Zhao and Cziko (2001) referred the ICT competence factor as "Control Principle".

The impact of information technology (IT) on business, labor market, commercial activities, and education science have been one of the most talked about issues over the recent years. Governments, organizations, and institutions spending a huge of budget on information technology face the critical issue of assessing the impact of this technology on work (W.J. Doll and G. Torkzadeh., 1999). Computer technologies (CT) applying in management for schools are increasingly required to justify technology investment in terms of its impact on the training and education systems or on the individual affecting his/her work directly. The author uses a broader concept that is based on the impact of technology on the nature of training and education environment. In the Report to Congress from the Secretary of Commerce,

emphasized that the workforce in the IT field are varied, complex, and specialized, as are the knowledge, skills, and experience required to perform them. There is no single path to prepare a worker for a professional IT job. There is no “one size fits all” IT education and training solution, nor is there a simple answer to the question “what works?” Instead, there is a vast array of education and training opportunities, with different types of programs and curricula serving different purposes, such as: training workforce for preparing a specialized field of IT; training highly technical skills; and training prepare IT professional for advancement to management.

The internet and World Wide Web (WWW) bloomed up offering educational and training makers a great chance to provide trainees with innovative virtual environments that can promise stimulating and encouraging the learning process as Mioduser et. al., (2000) define the web and internet technology is being suited to the education and training process to provide a complex manipulated information process is at the heart of education transactions. Helmi et.al., (2000) proposed the IT is important that from learners perspective, they are not observed as being sophisticated overly if these learning around is to be of much benefit to them. Moreover, educators and schools are combining interactive technology and active ways of learning and management of learning process, which require both students and training managers to develop or improve their computing skills and to take more responsibility for their own learning, teaching, and managing. Consequently, the future of IT for learning management and learning purposes are fully perspectives, especially considering young people’s increased use of computer technology for further and broader other purposes are global integration and social communication (Gaston, 2006; Qureshi, 2006). This is similar to Santilli and Beck (2005), their research focused on the use of IT and course management system by faculties and training department to deliver learning content, room facilities, teachers’ responses, curriculums and communicate with students to reflect on the paper document load of traditional education and training management. Furthermore, Khandelwal and Gottschalk.(2003) suggested that the support of knowledge and learning management system apparently influences the results of learning collaboration within the institution is the use IT applications for, as Sher and

Lee., (2004) more implied the learning and training management process are effectively manageable through the application of IT in both endogenous and exogenous knowledge and are being able to increase dynamic competence to learners in the labor market as well.

2.2. The Definition of e-Learning

E-learning is a new trend of education system, where students deliver their materials through the web. E-learning is the "use of internet technology for the creation, management, making available, security, selection and use of educational content to store information about those who learn and to monitor those who learn, and to make communication and cooperation possible." (Mikic., 2006). The benefits of e-learning for both parties: organization and learners. Advantages of organizers are reducing the cost in terms of money and time. The money cost is reduced by saving the instructor salaries, and meeting room rentals. The reduction of time spent away from the job by employees may be most positive shot. Learning time reduced as well, the retention is increased, and the contents are delivered consistently. On another hand, learners are able to find the materials online regardless of the time and the place; it reduces the stress for slow or quick learners and increases users' satisfaction; increases learners' confidence; and more encourages students' participations.

2.3. Status of applying e-Learning in Viet Nam

On October, 06th 2005, the Prime Minister issued Decision No. 246/2005/QĐ-TTg promulgating the Strategy for Vietnam Information and Communications Technology towards 2010 and direction towards 2020, in which one of the specific goals is providing effective distance learning services. The Decision emphasizes the development and improvement of the distance learning quality to enable people to continually study and improve their knowledge and professional skills and to develop the human resource for the industrialization and modernization.

According Ministry of Industrial and Trading (MOIT, 2009), on the result of a survey on e-learning at 200 organizations, including state administrative agencies and enterprises is presented below:

Many enterprises are now fully aware of the great benefits of e-learning and looking to apply it.

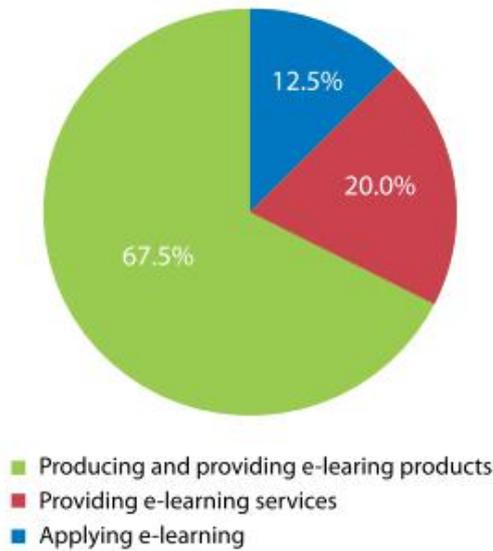


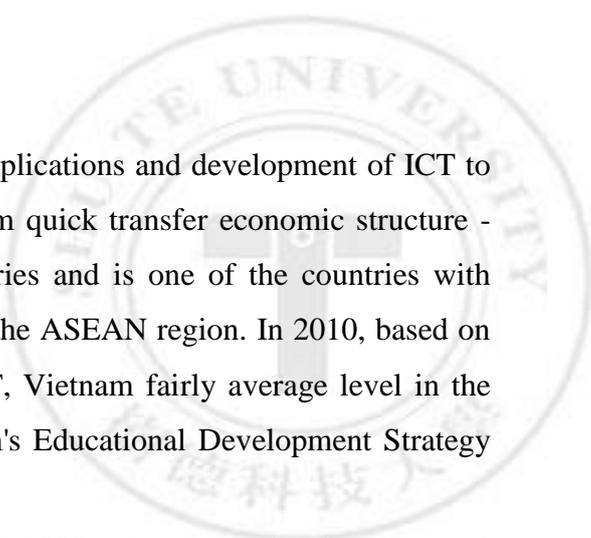
Figure 2. E-learning application at enterprises and administrative agencies

According to the survey results, 89% of enterprises responded that their training costs were decreased, 80% found a professional skill improvement of staff taking online courses. Thus, 90% of the enterprises using e-learning told that they will increase spending for it while 10% will maintain the current budget and none is going to cut the current level of investment.

No.	Effects	Number	Percentage
1	Saving training cost	35	89%
2	Improvement in staff's skills	32	80%

Figure 3. Effects of e-learning application at enterprises and administrative agencies

The survey also showed that e-learning has proven its deciding role in training activities of businesses. In the coming time, it has the potential for further development in companies, especially small and medium ones in different business areas.



In Vietnam, under the plans, strategies, applications and development of ICT to the country in 2020, with ICT as a core, Vietnam quick transfer economic structure - social, basically become an industrialized countries and is one of the countries with advanced development of information society in the ASEAN region. In 2010, based on the development and application of a strong ICT, Vietnam fairly average level in the ASEAN region on Information Society (Vietnam's Educational Development Strategy and Vision through 2020).

In education sector, at the beginning of 1990s, Ministry of Education and Training (MOET) used its own budget to supply computers and other IT equipment to universities, schools. In this direction, many local authorities and communities also used their own budget to set up computer rooms in schools. On September 2008, MOET has issued the Instruction No. 55/2008/CT-BGDĐT on enhancing teaching, training and application of information technology in education in the period 2008-2012. Therefore, e-learning has an importance role for promoting ICT in teaching and learning as well as education in general. Now, there are about 70% universities has e-learning system and there are about 55% of them use Moodle system as a learning management system (LMS) (MOET, 2010). From 2009-2010 school years, MOET has been organizing the Contest for e-learning for teachers in whole country. The purpose of this contest is to promote applying e-learning technology into teaching and learning in education and forwarding to build up a national database on education resources for innovating teaching and learning method and making a rich media environment for learning any where, any times and learn any thing.

At present, about 80% secondary schools have computers. Many primary schools have set up computer rooms. As Tokyo (2000) defined that Vietnam IT for education will make big changes in teaching and learning method, in educational management. These, in turn, will strengthen quality of education, create better human resources development for the country in general, and for software industry in particular and it emphasized as (Master plan for Information Technology in Education for the period 2001-2005) in Vietnam, an educational information system with sharing databases and resources has not been fully developed. There are some databases such as

database for personnel management, for postgraduate training management but they are just for office use only. IT training for educational management officials is carried out routinely to improve knowledge and skills in IT application to educational management. According to Decision 698/QĐ-TTg on 01/6/2009 by the Prime Minister, the department of education and training management should guide the directing, organizing specific guidance for teachers of subjects self-deployment integration, incorporating the use of information technology in the process teaches his subjects to enhance teaching acceptance through the audiovisual media, stimulating creativity and independent thinking, enhance self-learning ability, self-research of the learners.

2.4. Moodle and the situation of e-learning use in ULSA

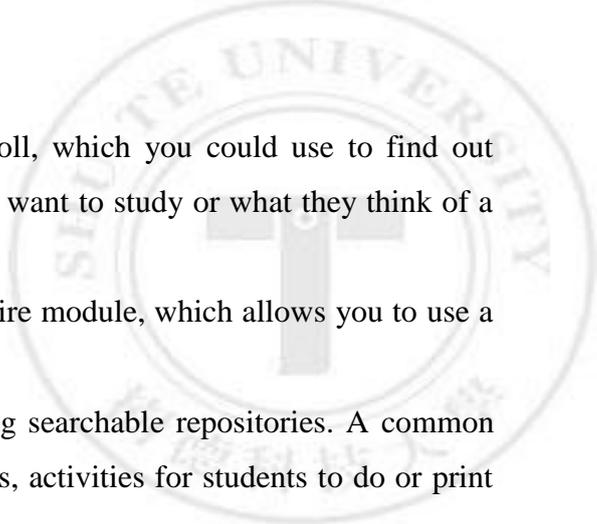
The ULSA was established on January 31, 2005 by the Decision No 26/2005/QĐ-TTg of the Prime minister. After that, the leader of ULSA had made plan for education and training developing in ULSA, in there apply ICT into innovating teaching and learning was a one of the most importance priority for us. And one of the most popular educational technologies we had chosen was e-learning.

June 2006, ULSA established the e-learning system by Moodle.

Moodle is a Course Management System (CMS), also known as a Learning Management System (LMS) or a Virtual Learning Environment (VLE). It is a free web application that educators can use to create effective online learning sites. Otherwise, Moodle is the open source system with thousands developer participated to contribute it better every day. The newest version of Moodle is Moodle 2.0. There are some of key feature and usage of Moodle such as Assignments; Chatroom; Choice/Questionnaire; Database; Forum; Glossary; Lesson; Journal; Quiz; Webquests; Wiki.

Students can upload Assignments for teachers to mark. Teachers get an automatic alert when a new assignment arrives. All marks can be stored in the Moodle gradebook. You no longer have to worry about losing scoresheets!

The built-in Chat module is a handy teaching tool for groups of students working with or without the teacher to discuss an issue, or answering questions set by the teacher. The chats are saved and can be reviewed by the teacher at any time.



The Choice module provides a simple poll, which you could use to find out students' opinions: for example, what topics they want to study or what they think of a course.

There is also a more elaborate Questionnaire module, which allows you to use a variety of question types to conduct full surveys.

The Database module is good for building searchable repositories. A common use of this module is for storing past exam papers, activities for students to do or print out, or collections of students' work.

The Forum module enables students to have virtual seminars. The teacher provides a text or audiovisual file, which the students respond to, one after another. And in so doing, they are not only reacting to the stimulus file, they are also responding to each other. Of course, Moodle is not the only tool to offer this, but it is one of many modules which all come in one package. This module can also be used for displaying student work.

The Glossary is like the database, except you can allow users to rate each other's contributions. Words can be hyperlinked to texts on the site. So students can click on a difficult word in a text and they will automatically be taken to the explanation you provide in the glossary. Glossary entries can be categorized to make searching easier. Typical uses are an A–Z of difficult words and collections of useful websites.

The Lesson module allows a teacher to write a series of lesson pages, each one ending with a question. If the students answer it successfully, they may continue. Otherwise, they can be sent back to review the lesson or directed to a remedial page. This allows students to spend as much time as they want or need on tricky questions. The Journal module is an online diary – useful for keeping notes and writing reflections on activities.

Up to now, Moodle is used as a repository where store e-education resources and students and teachers can meet each other to discuss and sharing knowledge for supporting teaching and learning activities in USLA.

2.5. Technology Acceptance Model (TAM)

The original version of the Technology Acceptance Model was put forward by (Davis, and Davis et al. 1989). TAM adopts the well-established causal chain of beliefs! attitude! intention! behavior that was put forward by social psychologists Fishbein and Ajzen (Fishbein et al., 1975), and which has become known as the theory of reasoned action (TRA). Based on certain beliefs, a person forms an attitude about a certain object, on the basis of which he or she forms an intention to behave with respect to that object. The intention to behave is the sole determinant of actual behavior.

Since Davis proposed TAM, several approaches that focus on the degree of technological acceptance have been based on the model (Adams, Nelson, & Todd, 1992; Igbaria, Guimaraes, & Davis, 1995; Mathieson, 1991). However, TAM only provides general information about whether a technology has been adopted by users. Further information is needed regarding its use in specific fields, so that the development of technology can be guided in the right direction (Mathieson, 1991).

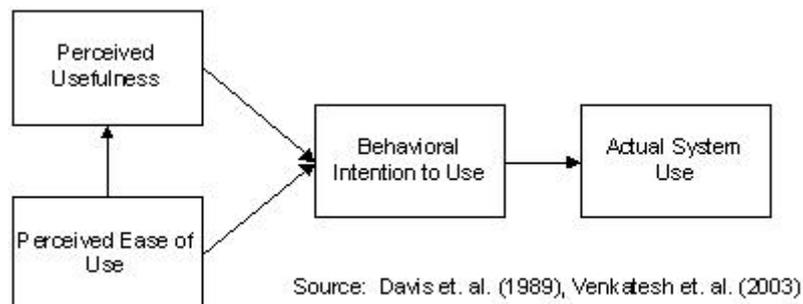


Figure 4. Technology Acceptance Model (Davis et al 1989)

The TAM explains user acceptance of a technology based on user perceptions (Davis, 1989; Davis et al., 1989). The mediating roles of perceived usefulness and perceived ease of use are examined in the relationship between external variables and the intention of system usage. While perceived usefulness is defined as “the degree to which a person believes that using a particular system would enhance his or her job performance,” perceived ease of use is defined as “the degree to which using the technology will be free of effort” (Davis, 1986, 1989). Both perceived usefulness and

perceived ease of use influence the individual's attitude toward using an information system. Attitude and perceived usefulness, in turn, predict the individual's behavioral intention to use it.

2.6. User acceptance of the e-learning system in ULSA

Because TAM explains user acceptance of a technology based on user perceptions (Davis, 1989; Davis et al., 1989), thus, with the research title "An Empirical Study on Factors Affecting the Acceptance of Applying E-Learning System in University of Labor and Social Affairs", author has been using TAM to exam user acceptance of e-learning system. In the next sessions will be explain the relationship between standard factors of TAM with the research framework.

2.6.1. Perceived Usefulness

Perceived usefulness is the degree to which a person believes that using a particular system could enhance his or her performance (Saade, et al., 2005). Within a high-tech context, engineers are generally reinforced for good performance by raises, promotions, bonuses, etc. This implies that an e-learning system with a high level of perceived usefulness is one for which a user believes that there is a positive user-performance relationship. There is also extensive research in the IS community providing evidences of the effect of perceived usefulness on behavioral intention to use (V. Venkatesh & M.G. Morris, 2000). The ultimate reason that engineers exploit e-learning is that they find the system improves their performance.

Users' intention to use information previous term technology is expected to be greatly affected by their perceived usefulness of the system (Davis et al., 1989). Individuals who believed that using e-learning systems could lead to positive outcomes also tended to have a more favorable attitude towards it. Also, there is an empirical support for the solutions. There is also extensive empirical evidence that supports the significant effect of perceived usefulness on behavioral intention (e.g., Agarwal & Prasad, 1999; Jackson et al., 1997). In this respect, Technology Acceptance Model towards use (Agarwal et al., 1999 and Moon et al., 2001).

There are many extensive researches that provide evidence of the significant effect of perceived usefulness on adaptation intention (Agarwal & Prasad, 1999; Davis

et al., 1989; Hu, Chau, Sheng, & Tam, 1999; Jackson, Chow, & Leitch, 1997; Venkatesh, 1999; Venkatesh & Davis, 2000). Empirical studies on the behavioral intention of technologies have found consistently positive relationships between usefulness and the user's intention of a variety of specific technologies, ranging from computer software to e-mail (Chau & Hu, 2001) and the TAM also supports this link (Davis et al., 1989).

Actually, through e-learning system in ULSA:

- Teachers can improve their performance in the job for example: they can teach on line instead go to the traditional classroom; they can easy access to the repository of e-learning system to get the material for teaching aid; they can discuss with student online, offline via the forums, etc.

- Students also improve their performance in studding by accessing to the courses from the e-learning system to learn offline as well as attend the online lecture, meeting teachers as well as their colleagues via forums; getting learning material form the system; etc.

2.6.2. Perceived ease of use

The perceived ease of use is another angle of human behavior which covers that, to what extent the new technology usage can provide ease at work or can give more relief on work. Both of these TAM attributes PU and PEOU are explaining the individual s self approach towards the new technology use (Davis, 1989). It is also noted that if the task is totally related to IT then PEOU influence the PU for new technology acceptance (David & Detmar, 2000).

Otherwise, perceived ease of use is defined as the degree to which an individual believes that using a particular system would be free of physical and mental effort. A considerable amount of prior studies supported the significant effect of perceived ease of use on behavioral intention, either directly or indirectly through perceived usefulness (e.g., Agarwal & Prasad, 1999; Davis et al., 1989; Hu et al., 1999 Hu, Chau, Sheng, & Tam, 1999; Jackson et al., 1997; Venkatesh, 1999; Yi & Hwang, 2003).

We had discussed on the behavioral intention to use of e-learning system in ULSA is influenced by the perceived usefulness in the 2.6.3 item. Actually, even

potential users believe that a given application is useful, they may, at the same time, believe that the system is too hard to use and that performance benefits of usage are outweighed by the effort of using application. Davis (1989) argued that perceived usefulness and perceived ease of use are explaining the individual's self approach towards the new technology use. Otherwise, if the task is totally related to information technology then perceived ease of use influence the perceived usefulness for new technology acceptance (David & Detmar, 2000).

Moodle is really useful for teachers and learners as well. Otherwise, Moodle is understood as an information system, characterized technology, to use and exploit it effectively, teachers and learners need to learn the skills to use Moodle better. Therefore, the level of Moodle using skill is affected the level of Moodle effectiveness.

2.6.3. Behavioral Intention to Use

The theory of planned behavior extends from TRA by incorporating an additional construct, namely perceived behavior control, to account for situations in which an individual lacks substantial control over the targeted behavior (Ajzen, 1991). According to TPB, an individual's behavior can be explained by his or her behavioral intention, which is jointly influenced by attitude, subjective norms and perceived behavioral control. Attitude refers to an individual's positive or negative evaluation of the performance effect of a particular behavior. Subjective norms refer to an individual's perceptions of other people's opinions on whether or not he or she should perform a particular behavior, while perceived behavioral control refers to an individual's perceptions of the presence or absence of the requisite resources or opportunities necessary for performing a behavior (Ajzen & Madden, 1986).

After several years to use the Moodle system, teachers and learners feel Moodle is a part of their work. It has become their habit, their intention to use in teaching and learning activities.

2.6.4. Actual System Use

There are some models to examine factors influencing the technology acceptance and actual system use. The most famous one is TAM (Davis, 1989; Davis et al., 1989). Following their literature above, the customer adaptation behavior is

determined by the intention to use a particular system, which in turn is determined by the perceived usefulness and perceived ease of use of the system. However, factors affecting the adaptation of a new information technology are likely to vary with the technology, target users, and context (Moon & Kim, 2001). As whispered by Sohail and Shanmugham (2003), customer adaptation describes beliefs about having necessary resources and opportunities for an individual's intention to perform. These are facilitating conditions, which refer to the availability of resources, i.e. the technological resources and infrastructure needed to engage in the adaptation (Triandis, 1979).

On the above, the study has analyzed the acceptance of users on perceived ease of use, perceived usefulness, and behavior intention to use of e-learning system in ULSA (Moodle system). The most importance things to affect the acceptance of user is the actual use of the system. Thus, if the system don't bring the benefits like users expectations, it will be very difficult to accept by users. The Moodle system in the ULSA is not an exception. The system has to better ever for supporting teaching and learning activities in the university.

2.7. Relationship between research factors and operation measurement for research construct

2.7.1. Relationship between Perceived Ease of Use and Perceived Perceived Usefulness

Following TAM research (Davis, 1989), what causes people to accept or reject information technology among the many variables that may influence system use, previous research suggests two determinants that are especially important First people tend to use or not use an application to extend; they believe it will help them to perform their job better. We refer about the first variable Perceived ease of use. Second, even potential users believe that a given application is useful, they may, at the same time, believe that the system is too hard to use and that performance benefits of usage are out

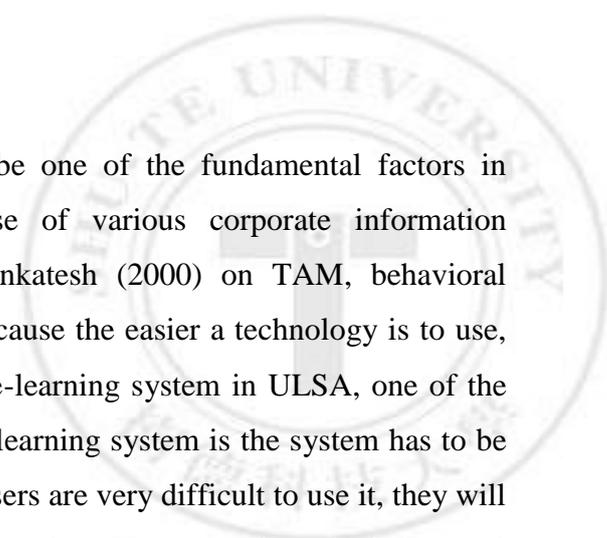
weighted by the effort of using application. That is, in addition to usefulness, usage is theorized to be influenced by Perceived ease of use.

We had discussed on the behavioral intention to use of e-learning system in ULSA is influenced by the perceived usefulness in the 2.6.3 item. Actually, even potential users believe that a given application is useful, they may, at the same time, believe that the system is too hard to use and that performance benefits of usage are out weighted by the effort of using application. Davis (1989) argued that perceived usefulness and perceived ease of use are explaining the individual's self approach towards the new technology use. Otherwise, if the task is totally related to information technology then perceived ease of use influence the perceived usefulness for new technology acceptance (David & Detmar, 2000).

2.7.2. Relationship between Perceived Ease of Use and Behavioral Intention to Use

Ease of use is believed to be one of the fundamental factors in determining the behavioral intention and use of various corporate information technologies (Davis, 1989). According to TAM, behavioral intention to use is influenced by ease of use, because the easier a technology is to use, the more useful it can be (Venkatesh, 1999). Extensive research over the past decade provides evidence of the significant effect of perceived ease of use on usage intention, either directly or indirectly (Venkatesh, 1999).

Recently, Gefen, Karahanna, & Straub (2003) have empirically found that two technological aspects of the interface, namely perceived ease of use and perceived usefulness significantly affect customer adaptation intentions. Voss (2003) has proposed three key quality factors relating to customer adaptation in a virtual environment – ease of use, information and status, and configuration and customization. Santos (2003) has uncovered five dimensions of internet systems adaptation – such as ease of use, appearance, linkage, structure and layout, and content. In recent times, Pikkarainen et al. (2004) applied the traditional TAM in Finland and found that system use is determined by perceived ease of use, which are related to attitude and thereby to actual adaptation.



Otherwise, ease of use is believed to be one of the fundamental factors in determining the behavioral intention and use of various corporate information technologies (Davis, 1989). According to Venkatesh (2000) on TAM, behavioral intention to use is influenced by ease of use, because the easier a technology is to use, the more useful it can be. In actual use of the e-learning system in ULSA, one of the best importance of user acceptance to use the e-learning system is the system has to be very easy to use. Because, if the system which users are very difficult to use it, they will not be use it and use other systems which bring similar efficiency. Thus, the behavioral intention to use of e-learning system in ULSA is influenced by the perceived ease of the users.

2.7.3. Relationship between Perceived Perceived Usefulness and Behavioral Intention to Use

There are many extensive researches that provide evidence of the significant effect of perceived usefulness on adaptation intention (Agarwal & Prasad, 1999; Davis et al., 1989; Hu, Chau, Sheng, & Tam, 1999; Jackson, Chow, & Leitch, 1997; Venkatesh, 1999; Venkatesh & Davis, 2000). Empirical studies on the behavioral intention of technologies have found consistently positive relationships between usefulness and the user's intention of a variety of specific technologies, ranging from computer software to e-mail (Chau & Hu, 2001) and the TAM also supports this link (Davis et al., 1989).

There also exists pragmatic evidence of a link between perceived usefulness and behavioral intention to use (Venkatesh, 1999). On the other hand, Eastin and LaRose, (2000) recognized the link and stated that high degrees of computer and Internet self-efficacy proved to have an attenuating effect on the relationship between usefulness and attitude toward adopting the Internet.

To make the intention to use the e-learning system, firstly, the system has to improve the performance of their job expressing in the effectiveness of teaching and learning activities. Otherwise, the use of the system has to bring up them the benefits on saving time, saving cost and other resources. According to (Davis, 1989; Davis et al., 1989) and the actual use of e-learning in ULSA we found that, the behavioral intention to use of e-learning system in ULSA is influenced by the perceived usefulness of the system by users.

There also exists pragmatic evidence of a link between perceived usefulness and behavioral intention to use (Venkatesh, 1999). On the other hand, Eastin and LaRose, (2000) recognized the link and stated that high degrees of computer and Internet self-efficacy proved to have an attenuating effect on the relationship between usefulness and attitude toward adopting the Internet.

2.7.4. Relationship between Behavioral Intention to Use and Actual System Use

According to TAM, a prospective user's overall feelings or attitudes toward using a given technology-based system represent major determinants as to whether or not he/she will ultimately use the system (Davis, 1993). TRA and TPB also assume that individual adopting is motivated by behavioral attitudes (Davis et al., 1989).

Understanding the determinants of consumers' attitude, it is argued that this attitude has a strong, direct, and positive effect on consumers' intentions to actually use the new technology or system (Bobbitt & Dabholkar, 2001). Wolfinbarger and Gilly (2003) also support this relationship and added two more situational factors; these are need for special items and attractiveness of alternatives. In general, the level of trust, interpersonal as well as institutional, is positively related to consumers' attitude, which is also related to intention to bank on the Internet (Gerrard & Cunningham, 2003).

In the actual use of e-learning system in ULSA, the acceptance of user on the e-learning system is expressed on the actual use of them on the system. If they accept the system, they will be use it and the converse. User acceptance means they (users) will have intention to use the system in the future as well as they recommend their colleagues and students using the system. Thus, we found that the actual use of the e-

learning system in ULSA is influenced by the behavioral intention to use of user on the e-learning system also.

Based on the theories related to TAM as well as the actual use of e-learning system in ULSA we inferred that: the actual use of the e-learning system in ULSA is influenced by the behavioral intention to use of the users; the behavioral intention to use of e-learning system in ULSA is influenced by the perceived usefulness and perceived ease of use of the users; and the perceived usefulness of the e-learning system in ULSA is influenced by the perceived ease of use of the users.

Chapter 3 Research Methodology

The purpose of this study is to identify highlight factors influencing the acceptance of applying e-learning system and to examine how factors are influencing on the e-learning system in University of Labor Social Affairs. This chapter is going to design the research framework, research hypotheses as well as research methodology.

3.1. Research Framework

Based on status of e-learning system use in ULSA as well as the TAM model and literature reviews in the Chapter 2, the study proposed the research framework as following:

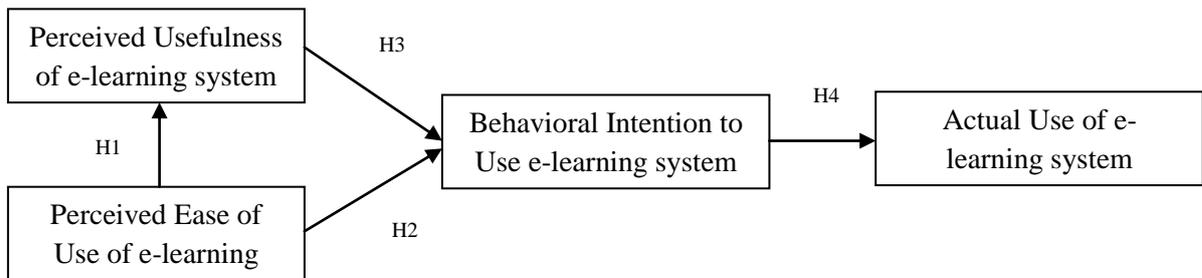


Figure 5. Research Framework

3.2. Research Hypotheses

This study included 4 hypotheses as following:

Hypothesis 1: The Perceived Ease of Use has a positive effect on the Perceived Usefulness of e-learning in ULSA.

Hypothesis 2: The Perceived Usefulness has a positive effect on the Behavioral Intention to Use e-learning system in ULSA.

Hypothesis 3: The Perceived Ease of Use has a positive effect on the Behavioral Intention to Use e-learning system in ULSA.

Hypothesis 4: The Behavioral Intention to Use has a positive effect on the Actual Use of e-learning system in ULSA.

3.3. Variable Definitions and Measures

There are four variables concerned in this study: The Perceived Ease of Use, The Perceived Usefulness, The Behavioral Intention to Use and Actual Use of e-learning system. This section will discuss and describe about the operational measurement approaches to those constructs. Based on those descriptions the author will provide more information to reader regarding four variables as mentioned. By adopting measurement scales from the status of applying e-learning in Viet Nam report 2006 – 2009, studies about TAM research model and suggestions of experts as references which response well to the objectives of this study, this study summarizes the items of measurement as those shown in the Table 1. All of the item measure will be using 5-point scale: Strongly disagree, disagree, undecided, agree, and strongly agree.

Table 2. Measurement of Variables

Variable	Measures	Content of Item	Source
Perceived Usefulness	(puc.1)	E-learning system has an appropriate style of design for users in ULSA.	Tony Ahn, Seewon Ryu, Ingoo Han 2004
	(puc.2)	E-learning system response time is short.	
	(puc.3)	E-learning system keeps transactions secure from exposure.	
	(puc.4)	E-learning system contains all needed data for user's processes.	
Perceived Ease of Use	(peuc1)	E-learning system has sufficient contents which I expect to find.	Tony Ahn, Seewon Ryu, Ingoo Han 2004
	(peuc.2)	E-learning system provides complete	

		information.	
	(peuc.3)	E-learning system provides detailed information.	
	(peuc.4)	E-learning system provides timely information.	
Behavioral Intention to Use	(biu.1)	I intend to use E-learning system	BooYoung Chung; Mirosław J. Skibniewski; and Young Hoon Kwak (2009)
	(biu.2)	I have access to the parts of the E-learning system when I need to do my job.	Davis et al. (1989) Venkatesh and Davis (2000) Amoako-Gyampah and Salam (2004)
	(biu.3)	Heavily use the E-learning system whenever I need it.	
	(biu.4)	I expect to use the new system	
Actual System Use	(asu.1)	The new system will provide access to more data	Davis et al. (1989) Venkatesh and Davis (2000) Amoako-Gyampah and Salam (2004)
	(asu.2)	The new system will make data analysis easier	
	(asu.3)	The new system will be better than the old system	

3.4. Sampling process

To investigate the research framework as well as research hypotheses of this study, author has sent questionnaires to managers, officers, teachers and students of ULSA. For the convenience of filling-in and understanding of contents, this

questionnaire is written in Vietnamese. The questionnaires were delivered directly and through e-mail to participants. Data collection lasted one week.

In the session one of the survey, participants were required to fill-in personal information in order to understand their gender, age, previous job, recent position, IT level, internet surfing experience as well as e-learning experience.

In the next session of the survey, the participants were asked the questions of their feeling, expressed thought, evaluation toe-learning system on Perceived Ease of Use, Perceived Usefulness, Behavioral Intention to Use and Actual Use. All questions in session 2 are designed on a five-point scale from 1- strongly disagree to 5 – strongly agree.

3.5. Research methodology

The author has been using SPSS 17.0.1 version to data analyzing for the purposes of thesis. Descriptive statistics, Factor analysis, Reliability analysis as well as Regression analysis also used to analyze research result.

3.5.1. Descriptive Statistics

The Descriptive Statistic is used to statistic personal data of respondents such as their gender, age, recent position, field of study, experience of working in ULSA as well as IT skill will be analyzed. Every construct of the data will be analyzed in percentage, frequency distribution in order to know the sample distribution.

3.5.2. Reliability Analysis

Four constructs, including: The Perceived Ease of Use, The Perceived Usefulness, The Behavioral Intention to Use and Actual Use of e-learning system will be measured by Reliability Analysis.

Cronbach's α is to test whether the measures are free from error. Values range between 0 and 1.0, with higher values indicating higher reliability of the measure. Constructs with Cronbach's α below 0.5 will be deleted.

3.5.3. Factor Analysis

To identify factors that statistically explain the variation and co-variation among measures, Factor Analysis technique is used to analyze. Therefore, factor loading of

each item must be greater than 0.5; eigenvalue has to be greater than 1 and the difference between two eigenvalue has to be greater than 0.3.

3.5.4. Regression Analysis

Regression analysis technique is used in this study for creating a linear equation, in order to analyze the relationship between dependent variables and independent variable. Otherwise, Regression Analysis also uses to be tested hypotheses of this study by this method.

Chapter 4 Data Analysis and Results

In this chapter, the author will use statistical software to analyze data and give out results based on data collection after survey. The results will be described as: descriptive data, factor analysis, reliability analysis, regression analysis and some other results of this study. The author has delivered 350 questionnaires to participants, after 15 days the author has received 248 good feedbacks and 49 bad feedbacks have been eliminated.

4.1. Descriptive Analysis of Sample Demographics

The demographics of research participants whom are working in ULSA include six major demographics: (1) Gender, (2) Age, (3) Current job position, (4) Experience in working in ULSA and (5) Experience in IT application in training.

As shown in Table 6, our samples include 57.3% Male and 42.7% Female. The percentage of the respondents for age between less than 30, 30-39, 40-50, and over 50 are 8.11%, 54.8%, 21%, and 16.1%, respectively, so most of the respondents in this study are at middle age, between 30 - 39 years old (54.8%) because many of teachers in the ULSA are young and they are high motivate to use e-learning in research and teaching. More detail in descriptive of the participants described as Table 4:

Table 3. Characteristics of Sample Demographics

		Frequency	Percent	Valid Percent	Cumulative Percent
Gender	Male	142	57.3	57.3	57.3
	Female	106	42.7	42.7	100.0
Age	Under 30	20	8.1	8.1	8.1
	30 to 39 years old	136	54.8	54.8	62.9
	40 to 50 years old	52	21.0	21.0	83.9
	Older 50	40	16.1	16.1	100.0
Job	Teacher	106	42.7	42.7	42.7
	Manager	62	25.0	25.0	67.7
	Officer	49	19.8	19.8	87.5

	Other	31	12.5	12.5	100.0
Experien on e-learning	Less than 1 year	121	48.8	48.8	48.8
	1 to 3 years	77	31.0	31.0	79.8
	3 to 5 years	46	18.5	18.5	98.4
	More than 5 years	4	1.6	1.6	100.0

4.2. Factor Analysis

From the research model of this study, we used Visual PLS to check the appropriateness of factors as mentioned in Figure. The result is showed in Table 4:

Table 4. Factor structure matrix of loading and cross loading

Scale Items	PUC	PEUC	BIU	ASU
puc.1	0.8055	0.4419	0.5734	0.4801
puc.2	0.7872	0.5123	0.5904	0.5752
puc.3	0.8076	0.4717	0.6210	0.6400
puc.4	0.7057	0.4091	0.5513	0.5364
peuc.1	0.4658	0.7929	0.6073	0.5185
peuc.2	0.4692	0.7876	0.6119	0.6133
peuc.3	0.4773	0.7798	0.6475	0.6696
peuc.4	0.4410	0.7731	0.5911	0.5866
biu.1	0.5939	0.6043	0.7816	0.6814
biu.2	0.6068	0.6631	0.7918	0.7825
biu.3	0.5983	0.6247	0.8144	0.8471
biu.4	0.5874	0.5969	0.7841	0.7625
asu.1	0.5585	0.5946	0.7785	0.7835
asu.2	0.6053	0.6814	0.8083	0.8381
asu.3	0.5830	0.5749	0.7723	0.8055

The Table 4 showed that, all of factors loading is greater than 0.5, according Hair et al. all of items are significant.

4.3. Reliability Analysis of the Variables

In this study, the Cronbach's α for measuring the reliability of the measurement for four constructs is used to ensure that the measurement scale we designed for our questionnaire are highly representative of each variable.

Cronbach's α is used to test whether the measures are free from error. Constructs with Cronbach's α below 0.5 will be deleted. Throughout the test we find out that all of the Cronbach's α are greater than 0.7, meaning that the constructs have high reliability. The result is shown in the following session.

4.3.1. Perceived Usefulness of e-learning system (PUC)

Table 5. Determination of the reliability of assessment items of PUC variables

Cronbach's Alpha	N of Items			
.775	4			
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
puc.1	10.29	9.072	.627	.694
puc.2	10.20	10.113	.577	.723
puc.3	10.65	9.015	.615	.700
puc.4	10.78	9.709	.500	.762

From the figure in Table 5 shows that $\alpha = 0.775 > 0.6$. According Nunnally J. C. at el (1994) the assessment items of PUC variables guarantee the reliability. Therefore, PUC variable can be reduced to $PUC = \text{Mean}(PUC1, PUC2, PUC3, PUC4)$.

4.3.2. Perceived Ease of Use of e-learning system (PEUC)

Table 6. Determination of the reliability of assessment items of PEUC variables

Cronbach's Alpha	N of Items			
.785	4			
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
peuc.1	11.19	9.434	.606	.724
peuc.2	11.03	10.120	.597	.731
peuc.3	11.29	9.512	.576	.740
peuc.4	11.34	9.415	.590	.733

From the figure in Table 5 shows that $\alpha = 0.785 > 0.6$. According Nunnally J. C. at el (1994) the assessment items of PEUC variables guarantee the reliability. Therefore, PEUC variable can be reduced to $PEUC = \text{Mean}(PEUC1, PEUC2, PEUC3, PEUC4)$.

4.3.3. Behavioral Intention to Use e-learning system (BIU)

Table 7. Determination of the reliability of assessment items of BIU variables

Cronbach's Alpha		N of Items		
.797		4		
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
biu.1	10.91	10.076	.609	.747
biu.2	10.72	11.068	.601	.754
biu.3	11.12	9.718	.630	.736
biu.4	11.17	9.836	.604	.750

From the figure in Table 7 shows that $\alpha = 0.797 > 0.6$. According Nunnally J. C. at el (1994) the assessment items of BIU variables guarantee the reliability. Therefore, BIU variable can be reduced to $BIU = \text{Mean}(BIU1, BIU2, BIU3, BIU4)$.

4.3.4. Actual Use of e-learning system (ASU)

Table 8. Determination of the reliability of assessment items of ASU variables

Cronbach's Alpha		N of Items		
.730		3		
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
asu.1	7.12	5.521	.510	.693
asu.2	7.25	4.706	.598	.587
asu.3	7.42	4.940	.554	.642

From the figure in Table 8 shows that $\alpha = 0.730 > 0.6$. According Nunnally J. C. at el (1994) the assessment items of ASU variables guarantee the reliability. Therefore, ASU variable can be reduced to $ASU = \text{Mean}(ASU1, ASU2, ASU3)$.

Base from result of Table 5, 6, 7 and 8. We collect the Cronbach's Alpha in the Table 9:

Table 9. Reliability of all variables

<i>Variables</i>	<i>Items</i>	<i>Cronbach's Alpha</i>
PUC (Perceived Usefulness of e-learning system)	4	0.775
PEUC (Perceived Ease of Use of e-learning system)	4	0.785
BUI (Behavioral Intention to Use e-learning)	4	0.797
ASU (Actual Use of e-learning system)	3	0.730

Otherwise, we use visual SPL to Cronbach's Anpha for 4 variables and get the result as the Table10:

Table 10. Determination of the reliability of assessment items of ASU variables

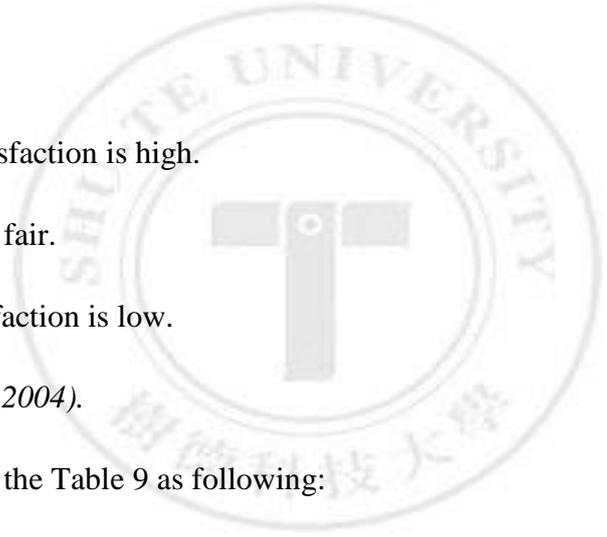
Construct	Composite Reliability	AVE	Cronbach Alpha
PUC	0.856710	0.599842	0.774619
PEUC	0.861551	0.608742	0.784612
BIU	0.869004	0.623904	0.797311
ASU	0.847616	0.649805	0.730469

The results showed in the table 9 are similar to the result in the Table 5, 6, 7, and 8. Therefore can confirm that 5 variables of the research has guaranteed the reliability

4.4. Descriptive statistics of study variables

Assessment rates of variables in the questionnaire (Annex 1) are as: (1) Strongly disagree; (2) Disagree; (3) Neutral; (4) Agree and (5) Strongly agree

Thus, average value (Mean) of variable and corresponding assessment is as follows:



If Mean is bigger than or equal to 3.5, satisfaction is high.

If Mean is from 2.5 to 3.49, satisfaction is fair.

If Mean is less than or equal to 2.49, satisfaction is low.

(Sekaran, 2004).

The descriptive statistics are expressed on the Table 9 as following:

Table 11. Descriptive statistics

	Minimum	Maximum	Mean
puc.1	1	5	3.69
puc.2	1	5	3.77
puc.3	1	5	3.33
puc.4	1	5	3.19
peuc.1	1	5	3.88
peuc.2	1	5	4.16
peuc.3	1	5	4.10
peuc.4	1	5	4.11
biu.1	1	5	3.76
biu.2	1	5	3.94
biu.3	1	5	3.77
biu.4	1	5	3.67
asu.1	1	5	3.79
asu.2	1	5	3.77
asu.3	1	5	3.69
Valid N (listwise)			

N	Minimum	Maximum	Mean	Std. Deviation
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PEUC	248	1.25	5.00	3.7379	.99866
BIU	248	1.25	5.00	3.6603	1.02906
PUC	248	1.00	5.00	3.4929	.98967
ASU	248	1.33	5.00	3.6304	1.05538
Valid N (listwise)	248				

The figures on the Table 10 show that the Mean of Perceived ease of use, Perceived usefulness, Behavioral intention to use, and Actual Use of e-learning system always greater than 3.0, thus, Users are highly aware above variables.

4.5. Hypothesis testing

In this study, linear regression was adopted to examine the relationships between independent variables and dependent variables to test our research hypotheses.

4.5.1. Linear Regression Analysis for Perceived of Usefulness

There is a hypothesis will be tested by linear regression analysis for Perceived Usefulness (PUC). In there, Perceived Ease of Use (PEUC) is independent variables and PUC is dependent variable. After use linear regression in SPSS, we have some result as Table 12:

Table 12. Results of Linear Regression Analysis for Perceived Usefulness

Constructs	Factors	St. coefficients β	t value	R ²	Adj-R ²	F value
PUC positive affect to PEUC	PUC	0.583***	11.409	0.346	0.343	130.166***

Dependent variable: PEUC (Perceived Usefulness)

***p<0.001, **p<0.01, *p<0.05

The result of above table shows that:

- With $R^2 = 0.346$ ($0.25 \leq R^2 \leq 0.5$), $F = 130.166$, $Sig = 0.000$ shows very high correlation between variables.
- Since PEUC and PUC have $t = 11.409$, $Sig=0.000$ and $\beta = 0.583^{***}$, thus, H1 is supported.

4.5.2. Linear Regression Analysis for Behavioral Intention to Use

There are 2 hypotheses will be tested by linear regression analysis for Behavioral Intention to Use (BIU). In there, Perceived Ease of Use (PEUC) and Perceived Usefulness are independent variables and BIU is dependent variable. After use linear regression in SPSS, we have some result as Table 13:

Table 13. Results of Linear Regression Analysis for Behavioral Intention to Use

Constructs	Factors	St. coefficients	t value	R ²	Adj-R ²	F value
		β				
PUC and PEUC positive affect to SMI	PUC	0.535***	12.935	0.742	0.740	351.876
	PEUC	0.464***	11.121			

Dependent variable: BIU (Behavioral Intention to Use)

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

The result of above table shows that:

- With $R^2 = 0.742$, $F = 351.837$, $Sig = 0.000$ shows the strong correlation between variables.
- Since PEUC and BIU have $t = 12.935$, $Sig=0.000$ and $\beta = 0.535^{***}$, thus, H2 is supported.
- Since PUC and BIU have $t = 11.121$, $Sig=0.000$ and $\beta = 0.464^{***}$, thus, H3 is supported.

4.5.3. Linear Regression Analysis for Actual Use of e-learning system

There is a hypothesis will be tested by linear regression analysis for Actual Use of e-learning system (ASU). In there, Behavioral Intention to Use (PEUC) is

independent variables and ASU is dependent variable. After use linear regression in SPSS, we have some result as Table 14:

Table 14. Results of Linear Regression Analysis for Actual Use of e-learning

Constructs	Factors	St. coefficients	t value	R ²	Adj-R ²	F value
		β				
BIU positive affect to ASU	BIU	0.993***	60.286	0.937	0.936	3632.218

Dependent variable: ASU (Actual Use of e-learning system)

***p<0.001, **p<0.01, *p<0.05

The result of above table shows that:

- With R² = 0.937, F = 3632.218, Sig = 0.000 shows very high correlation between variables.
- Since BIU and ASU have t = 60.409268 Sig=0.000 and beta = 0.993***, thus, H4 is supported.

From data in Table 11, 12, and 13, the study model proves relations as follows:

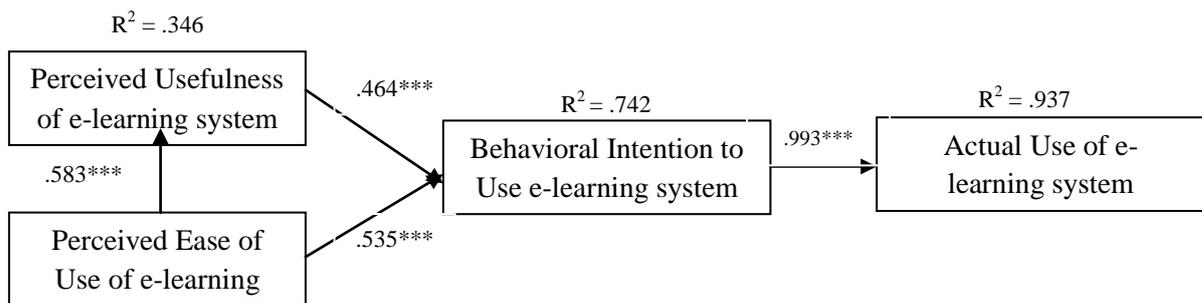


Figure 6. Model on relations among variables (used SPSS)

Otherwise, when I used Visual PLS to analysis, the result received is:

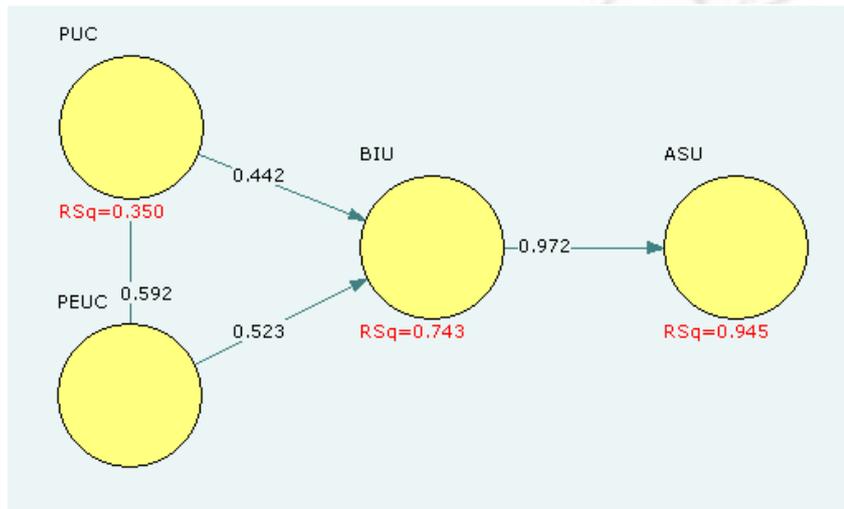


Figure 7. Model on relations among variables (used Visual PLS)

The final result of two software SPSS and Visual PLS give out the similar result. Thus, the research model as well and the hypotheses of the thesis is validated and supported by users.

Chapter 5 Conclusions

This chapter contains some results of the research from model after analyzing. Author will also give some contributions, implications of research based on results when apply in the real context in Vietnam. Besides that, author will give suggestions for future research as well as discuss about the limitation of the research.

5.1. Conclusions

The purpose of this study was armed to identify highlight factors influencing the acceptance of applying e-learning system and to examine how factors are influencing in ULSA. The results of all hypotheses are listed below in the Table 14.

Table 15. Research Hypotheses and Results

Research Hypotheses	Results
Hypothesis 1: The Perceived Ease of Use has a positive effect on the Perceived Usefulness of e-learning in ULSA.	Supported
Hypothesis 2: The Perceived Usefulness has a positive effect on the Behavioral Intention to Use e-learning system in ULSA.	Supported
Hypothesis 3: The Perceived Ease of Use has a positive effect on the Behavioral Intention to Use e-learning system in ULSA.	Supported
Hypothesis 4: The Behavioral Intention to Use has a positive effect on the Actual Use of e-learning system in ULSA.	Supported

The results of the study indicate that four factors are influencing positively on the acceptance of applying e-learning system in ULSA. This research also verifies that all four factors play an important role to deploy an e-learning project.

First, this finding could answer the reason of Perceived Ease of Use factor will positively influence the acceptance of applying e-learning project. We also can find that this factor will be the first step that we need to consider carefully before deploying an e-

learning project. Besides that we also can understand the importance of ease of use factor for end-users because the easier the more effective for users to start using new product or technology.

Second, this research also verifies that Perceived Usefulness factor positively influence on the acceptance of applying e-learning project. This result shows us that the Perceived Usefulness factor plays very important role to deploy e-learning. It's quite easy to understand this factor because as an investor, we all want to figure out how benefit and how usefulness of new product or technology in order to make investment decision.

Third, this research also verifies that Behavioral Intention to Use factor positively influence on the acceptance of applying e-learning project. TAM suggests that attitude is based on the salient beliefs that a person has about the consequences of a given behavior and his or her evaluation of those consequences. Davis (1993) put forward that consumers' attitude toward information system first associated with the direct possessions of relevant information system features. The result has shown us clearly that the Behavioral intention to use of users is very important factor following the TAM model described by Davis, so if you want to apply a new system, new technology such as e-learning system, the owner needs especially to focus on the behavioral of users in order to create the system become easier, useful to use.

Final, we also find that the Actual Use factor positively influence on the acceptance of applying e-learning project. Besides the awareness of three factors above (about: perceive ease of use, perceive of usefulness and behavioral intention to use) we also need to understand the importance of actual use factor because there is always a very big issue to approach users and let them try new product or services. We definitely need to make them understand the product but we also need to persuade them to start using this new service. By using and practicing, the users will easily know if the service really brings benefits to them.

This present study is only a small step in understanding factors influencing acceptance of applying e-learning project. We hope it will prompt new questions and further studies that will provide more guidelines for companies seeking to increase the business result.

5.2. Implications

5.2.1 Research implication

Despite its limitations, the study has both academic and managerial implications. The conceptual framework consists of four generic factors positively influence the acceptance of applying e-learning system that are rather independent from IT business domain. Therefore, the conceptual framework can be easily applied to other business model related to trading, e-commerce and service sector such as: software application, business solutions even though further studies need to be conducted to test the external validity of the study results.

Otherwise, with the basic factor including Perceived ease to use, Perceived usefulness, Behavioral intention to use and Actual use of e-learning system in ULSA, the study has contribute for educational manager in USLA on the status of the e-learning system implementing in the university. The study shown that, most of e-learning system features have met the university requirement.

5.2.2 Managerial impact

Based on the result in Table 10 Descriptive statistics, the study found that:

The Mean of puc.4 item is 3.19 less than 3.5. It shows that, the content of e-learning system is not sufficient for teaching and learning activities when user finding them. Otherwise, puc.3 item has Mean is 3.33 <3.5, it shows that them complete information which provides by the e-learning system is not good. Actually, the providing content into the e-learning system in ULSA is by teacher themselves with the purpose helping teaching of teachers and studying of student as well. There are some teachers is not active on upload content, discuss with student event use the e-learning system as well. Thus, there are some content and resource are not satisfied the users on both quantity and quality. Therefore, the ULSA director will make the policy that every teacher has to upload the related content of them into the e-learning system, they have to use this system for discuss with student, teaching online, of course, the ULSA has to the appropriate financial policy for teachers also.

Mean of other items are greater than 3.5. It indicated that most e-learning system features and services have met the user's requirement. There is only content for e-

learning system, ULSA has to focus on making the appropriate plan for developing content for e-learning system and maintain other services of e-learning system running well.

Based on the results of study, a number of implications can be made as to how organizations or universities can have a success applying e-learning project in Viet Nam and e-government deploying successfully as well.

5.3. Limitations

Until today, there is little specific empirical research addressing this issue, especially research about applying e-learning projects in universities in Viet Nam. Second, the research should be implemented on other channels and methods to receive more feedback from participants which are not only face-to-face, email interviews but also on the website, telephone...we also can have a short talk with participants to get more suggestion even discussion about this issue

Third, this study has implemented only inside ULSA in Vietnam and we just received about 297 feedbacks with 49 samples in poor quality responses, so this is still a very small number compares with the potential size of e-learning market in Viet Nam.

Finally, the study did not control for the possibility that the samples did not actually understand about the e-learning as well as other relating factors. They may answer the questions without reading and following the construction because of time-consuming requirement. As the result, the answer may not be remarked accurately.

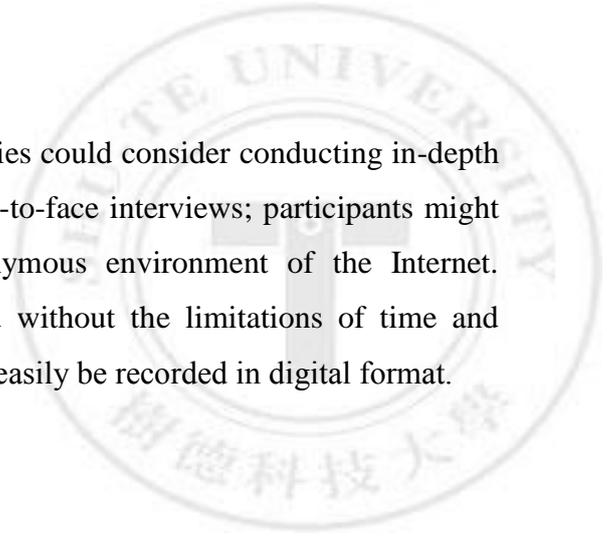
5.4. Suggestions

Although this research model has been proved successful however the survey's results only perform experimental in ULSA. So that it cannot fully reflect the aspirations and views of users in the other cases of applying e-learning system. Author hopes to receive comments from experts and other experienced peoples in implementing and applying e-learning systems to complement related studies later.

5.5. Future Study Suggestion

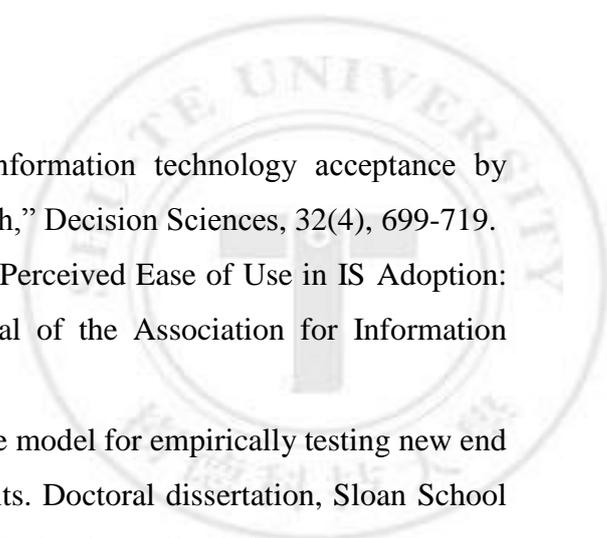
Future research should include interviews with more research targets from other universities in different cities, provinces and countries as well as conduct cross-cultural analyses. Future studies also need to increase the number of participants in order to have

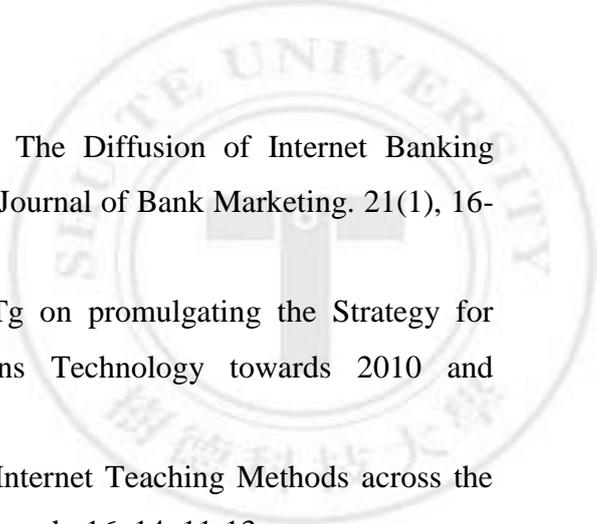
a better data to analyze in efficiency. Future studies could consider conducting in-depth interviews over the Internet, rather than our face-to-face interviews; participants might be more forthcoming and honest in the anonymous environment of the Internet. Moreover, on-line interviews can be conducted without the limitations of time and location, and each interviewee's responses could easily be recorded in digital format.



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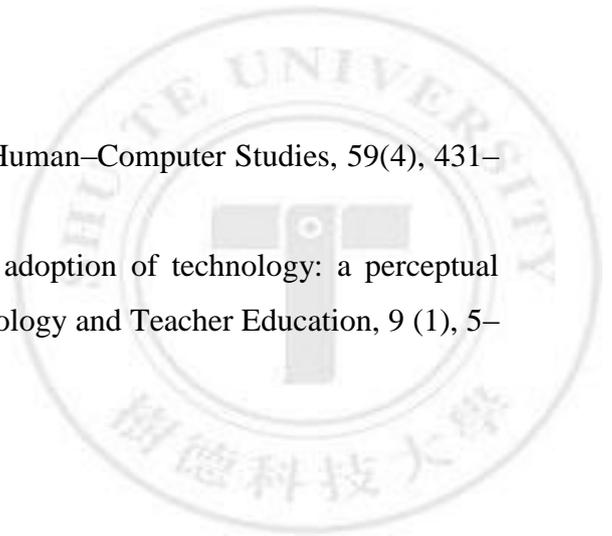
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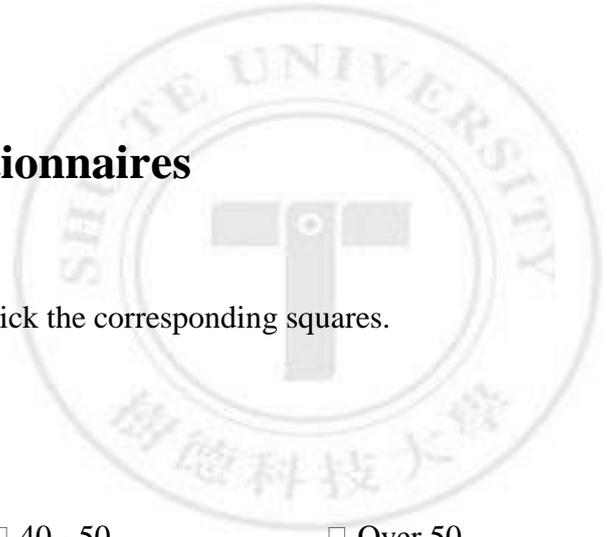
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Appendix Questionnaires

PART 1: Demographic

This section covers personal information. Please tick the corresponding squares.

1. Sex

- Male Female

2. Ages

- Below 30 30 - 39 40 - 50 Over 50

3. What is your current Job

- Teacher Manager Officer Other

4. What is your field of your study

- Business Social Engineer Other

5. How long have you worked in ULSA (working experience in ULSA)?

- Less than 1 1 - 3 3 - 5 Over 5

6. What is your level of IT application in training?

- Never before just 1 Amateur Professional

PART 2

Complete your table of questions:

Then, you are required to fill-out below questions. To answer those questions, circle with the most appropriate on the scale provided.

5-point Scale:

- | | | |
|----------------------|--------------|-------------------|
| 1. Strongly disagree | 3. Undecided | 5. Strongly agree |
| 2. Disagree | 4. Agree | |

Example: 1 2 4 5 (3)

Variable	Content of Item	Strongly disagree	Disagree	Undecided	Agree	Strongly agree
Perceived Ease of Use	E-learning system has an appropriate style of design for users in ULSA.	1	2	3	4	5
	E-learning system response time is short.	1	2	3	4	5
	E-learning system keeps transactions secure from exposure.	1	2	3	4	5
	E-learning system contains all needed data for user's processes.	1	2	3	4	5
Perceived Usefulness	E-learning system provides timely information.	1	2	3	4	5
	E-learning system provides detailed information.	1	2	3	4	5
	E-learning system provides complete information.	1	2	3	4	5

	E-learning system has sufficient contents which I expect to find.	1	2	3	4	5
Behavioral Intention to Use	I intend to use E-learning system	1	2	3	4	5
	I have access to the parts of the E-learning system when I need to do my job.	1	2	3	4	5
	Heavily use the E-learning system whenever I need it.	1	2	3	4	5
	I expect to use the new system	1	2	3	4	5
Actual System Use	The new system will provide access to more data	1	2	3	4	5
	The new system will make data analysis easier	1	2	3	4	5
	The new system will be better than the old system	1	2	3	4	5

Thank you for your take time in my questionnaire!