Shu - Te University

College of Informatics

Graduate School of Information Management

Master

Applying TAM in exploring the fact influencing the usage of Intelligent University Software in universities of Vietnam

Student：Pham Thien Huong

Advisor：Dr. Chih-Chiang-Fang

Dr. Tran Minh Tien

June, 2011

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A Thesis
Submitted to the
Graduate School of Information Management
College of Informatics
Shu-Te University
In Partial Fulfillment of the Requirements
For the Degree of
Master of Science
In
Information Management

June,2011

Shu-Te University Authorization Document of Thesis

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Thesis Title: Applying TAM in exploring the fact influencing the usage of Intelligent University Software in universities of Vietnam

Adviser: Dr. Chih-Chiang Fang

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July / 31 / 2011

Department of Information Management , Shu-Te University

Applying TAM in exploring the fact influencing the usage of Intelligent University Software in universities of Vietnam

Student：Pham Thien Huong

Advisor：Chih-Chiang-Fang Co-adviser：Dr. Tran Minh Tien

ABSTRACT

Information technology has well developed in recent time. IT has changed the way people live, work and play. Information Technology is used in almost all aspects of social life. The country is in its deep integration into the global development in all fields, especially in information technology. In parallel with traditional methods, thorough application of the advantages of information technology in the management of students will contribute to a new step forward in creating incentives promote quality teaching and learning in university, especially at a time when society is trying, determined to bring education and a new look. Therefore, in this study, I would like to focus the Application of Training Management Software. The training Management Software is the software that manages the system of training & information in university to support two training models: Annual credit institutions and multi-disciplinary, multi-system. With the ability of managing all aspects of studying and training of students from the start till graduation, The Training Management Software is a powerful tool that supports training department in universities, colleges and technical secondary schools in Vietnam. In this study, I study the critical factors which influence the acceptance of the Intelligent University software in univesities of Vietnam.

Keywords: Management Student’s Grade, Academic Management System, TAM, Vietnam.

ACKNOWLEDGEMENT

I would like to take this opportunity to express my gratitude to all those who have helped and supported me during my study at College of Informatics, Shu–Te University, Taiwan and Faculty of Education, Vietnam National University.

First of all, I would like to express my deepest gratitude to my advisor, Dr Chih-Chiang Fang at Shu-Te University - for his generous guidance and patience to me during the period of my thesis writing. His inspiring advice is extremely essential and valuable in my thesis. He is a really knowledgeable and nice professor. I feel very lucky and deeply appreciate them to give me the opportunity of being his student. Special thanks also go to association advisor Dr Tran Minh Tien - Dean Assistant for Students' Affairs Vice-Head of Dept. Teaching-Learning Methodology and Technology Faculty of Education, VNU, Hanoi for his supportive assistance and valuable ideas. Without his support, my thesis cannot be completed.

I am highly appreciated to Dr. Ming – Hsiung Hsiao with his helpful ideas in my learning process about SPSS software. From bottom of my heart, my sincere thanks go to Dr. Pi-un Chen. Although her health is not good, she often reminds me to complete my thesis. I would also like to show my sincere gratitude to all the professors as well as members in Faculty of Education for being my supporters during the time I studied at College of Informatics, Shu–Te University, Taiwan and Faculty of Education, Vietnam National University.

I am much grateful to my dear friends for their support not only on my study in school but also in my daily life. Thanks for their being with me no matter laughs or tears and their helping me to go through all the difficulties. It was them who enriched these two years in my life and made it so beautiful and unforgettable.

Most importantly, my special thanks must go to my family who are always there for me with countless warming love and care, who has given me the greatest support and encouragement, so that I can keep concentrating on my 2-year study.

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This chapter will explain the background of the research study related to Management in a University and the application of IT to manage the many outstanding.

1.1 Background

In the world as well as in our country now, , information technology is a core industry and it has penetrated to all aspects of economic and social life. The more the society develops,, the more there are demands of IT application and vice versa, the achievements of information technology has facilitated the fast development of production and society.

With actual demand and the advancement of computer science, eventually there are many IT applications in different industries, supporting people in manufacturing operations, saving much effort and time, while delivering reliable and accurate results . Computer has recently become an important & necessary tool that is indispensable to each agency or enterprise. In parallel with the computer equipment, software and user provided software is more urgent. In fact, there are so many jobs that require computer modernization, especially in management. So in this essay, I would like to mention an application of information technology in the management of pupils and students. The management of pupils and students is the first task set for educators, which can evaluate the learning process of students at schools and universities. So, we may see the introduction of information technology to the schools/universities is essential.

Information technology (IT) is a powerful tool to support innovative methods of teaching, learning and support innovation in management education, contributing to the improvement in efficiency and quality of education. IT personnel development and application in education is an important task that determines the country's IT development. Today, Vietnamese education is implementing following tasks:

Department of Information Technology hosted the deployment of IT applications in. To organize the recruitment, evaluation and equip with essential software to use in

the whole sector, such as university management software (management of student learning, teacher management and schedule arrangement support, library management, financial management and facilities), e-learning tools, software and other educational software. To be initiated from the school year of 2008-2009.Guide the activities of the working unit in charge of IT in education. Formulate criteria for monitoring and evaluation standards for IT applications in education. Guide the implementation, monitoring and review of the implementation of the tasks of teaching, training, IT use for educational management level and educational institutions, report to the Ministry's leaders.

1.2. Research Motivation

Since recently science & technology was strongly developed, they have been being applied in many branches and sectors, at all levels, especially in the management. Science & technology has contributed to many great achievements, promoted social development, reduced all the hard work and time consuming manual tape in the management of books and papers on all aspects, hence, people have more time for other work, for their intellectual development, and to explore the potentiality of computers ... so the question

"how a university to build a academic management system for their own?" is essential. The biggest problem that Universities encounter is how to choose suitable management software among various available software in the market. I want to do this research to find out and prove a software useful for the operation and management in the University which can do many things such as Intelligent University is a software.

For leaders/managersMonitor the study of student as well as the manage the university's staff. Improve centralized management capacity and resource optimization. Increase analyzing ability and actively intervene in the management process promptly and effectively. For faculty and administratorsComputerize almost the training management competence, improve work efficiency and reduce administrative procedures. Easily make statistics and report to the leaders of the actual data. Handle the

work in a scientific way, promote exchange, cooperation capacity. For students Promote the exchange and collection of information about the curriculum, supplement knowledge and collective activities.

1.3. Research Purposes

In management information systems, there are many theoretical models which have been proposed to explain and predict the acceptance of a technology. They are the Technology Acceptance Model, the Theory of Planned Behavior, the Theory of Reasonable Action. In my thesis, the purposes are concluded as follows:

1. To demonstrate the Academic Management System "Intelligent University" software.
2. To help improve management of the University.
3. To meet the ability to process information more quickly and require the higher level of quality in work than other software.
4. To examine the actual use Intelligent University software among other software in Ha Noi.

Chapter 2 Literature Review

2.1 University Development Trend In The World

Development trend of electronic education ICT is a powerful application in the process of training, content changes, modern teaching methods and to the practical requirements. The trend worldwide is to develop e-education, university digital form, a coalition of universities within the region, globally. Can understand some of the university teaching is a process in which all activities are built on an electronic environment. For example, systems research, engineering and research results, learning resources are digitized, such as lectures systems, electronic textbooks, electronic libraries, information and data sources, and management systems training. Even the student support activities, commercial activities in schools such as services infrastructure, procurement of equipment, development of technology transfer services is implemented in the model digitized. Information system to promote employment, recruitment, scholarships, all of which are managed digitally.

In recent years, many universities around the world have initially built the foundation for digital university. Some universities have successfully implemented this model as Ukeu (University of British goods), Cyber University (University digitization of Korea), University Usq (Queensland, Australia), MIT (USA). Cyber University According to statistics, approximately 70% of the top universities of U.S. plans to develop in the digital university. In Europe, Korea, Singapore has about 80% of college-oriented development model number of universities (Ta Quang Buu library, 2010).

2.1.1 Development trend of Vietnamese universities

Currently, in Vietnam, many universities also have developed systems for online education distance education students online and regular students. That is the basis for building digital university. IT University has built repository of electronic learning materials - otherwise known as Teaching and Learning software. School's learning resources include all types of electronic learning materials related, such as the syllabus,

slide systems, sample exercises, reference materials, slides, videos, CD-ROM .... Students granted system access account learning resources, access to electronic systems curriculum courses, e-books library. It has more than 10 cities to connect to e-learning system of the IT University.

Corporation Viettel Telecom has signed an agreement with the Ministry of Education and Training, funded forever, free broadband Internet connectivity to all schools, kindergartens, educational centers, departments of education and training. MOET plans to celebrate the inauguration ceremony of the education network celebrate 1000 years of Thang Long on 09/10/2010. Thus, Vietnam will have a network infrastructure for education mainly based on fiber optic backbone of Viettel. Through online education, the Ministry of Education and Training can provide online learning services to nearly 700 education and training office districts and 2,500 schools and proceed to secondary school. Training models, teacher training directly through education will be implemented vigorously.

Also, take full advantage of the development of ICT, especially the development of broadband Internet and handheld devices also bring many new teaching methods such as M-Learning, U-Learning (ubiquitous Learning: Learning anytime, anywhere). The development of mobile technologies, including next-generation mobile phones, PDA Internet connections and laptop with wi-fi access, will help learners connect higher and better use learning anytime, anywhere. Currently the IT University has begun to study the use of mobile devices in e-education, perform some tasks like redesigning the web interface, e-textbooks ... fit the screen size of mobile devices (Ta Quang Buu library, 2010). In the context of such a university development, application of IT in educational management is one of the tasks that need doing in the education in Viet Nam.

2.1.2 IT application to university administrators in Ha Noi

Hoa Sen University in the application of IT administration and management. The project will also help save time and money in stages as to effect the transfer and save points in seconds, score reports, personnel, and provides the general reporting of

important information about student members and executive management ... meet the University's development in coming years (Hong Loan, 2010).

FPT University is now implementing a range of IT applications such as use of electronic library systems, student records management, software testing and marking on your computer; ISO Management Systems, Financial Management , HR, learning management system online CMS, and many multimedia applications for learning ... the whole school supports students are equipped with laptops, internet access anytime, anywhere information through wireless networks, to conditional use effective application of IT in the learning process (education newspaper, 2010).

2.2 University of smart solutions

2.2.1 Introduction and Background

Academic Management System (IU's solution for short name) has been developed to assist staff in handling the administrative management at universities, colleges, secondary vocational training to improve high performance as well as assist students in the exploitation of information. IU solutions focus primarily on the computerization of the basic business processes in the fields such as management training, schedule management, student management, personnel management, salary management, ...

IU Solution are diversified in training methods and types:

- Multiple levels of training (technical secondary schools, colleges, University, Post Graduate).

DANH MỤC ĐIỂM ĐẶC BIỆT

Hệ đào tạo: CD, hình thức đào tạo: Chính quy

STT	Tên điểm đặc biệt	Ký hiệu	Ký hiệu người dùng	Điểm xử lý	Loại xử lý	Tính vào ĐTK
1	Cấm thi	F	F	0	Cục bộ	1
2	Cấm thi do vắng nhiều bị học lại	HL	HL	0	Cục bộ	0
3	Đình chỉ thi	0F	0F	0	Cục bộ	1
4	Chưa nhận được điểm thi	Z	Z		Cục bộ	0
5	Vắng thi có phép	PH	PH		Cục bộ	0
6	Miễn thi (điểm thưởng 10)	M	M	10	Toàn cục	1
7	Miễn thi (điểm thưởng 8)	M8	M8	8	Cục bộ	1
8	Miễn thi (điểm thưởng 9)	M9	M9	9	Cục bộ	1
9	Vắng thi không phép	KP	KP	0	Cục bộ	1
Thêm					Cục bộ	

Figure 1. Multiple levels of training (Colleges, University…)

- Many types and modes of training (full time, on-the-job, title II, online distance trainings...).
- More training model (School regulations, Credit, and the combination of the Annual Credit institutions).

TRA CỨU ĐIỂM HỌC TẬP

Ngành : ---

Sinh viên : ---

Năm học : 2010_2011 Học kỳ : 1

Điểm học tập 1 năm học 2010_2011 lớp 09CDCK01

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6.93	8.5	8	8	7.0	6	7	6.0	6	6	8.3	8	8	8.8	8	8
7.03	8.5	8	8	8.0	4	6	6.0	3	5	8.4	8	8	9.3	8	9
6.23	7.0	8	8	6.0	4	5	3.3	3	3	7.3	7	7	9.0	8	9
6.53	8.5	3	6	7.0	4	6	4.0	4	4	8.2	8	8	9.0	7	8
6.97	7.5	6	7	9.0	4	7	5.3	7	6	8.4	6	7	8.3	7	8
7.67	9.0	8	9	10	8	9	6.0	7	7	8.5	7	8	9.3	9	9
7.4	8.5	9	9	9.0	5	7	5.7	4	5	8.1	7	8	9.3	8	9

Figure 2. Search Student's Marks

The application of solutions IU in universities, colleges, secondary vocational trainings will help improve the management capacity of the schools/universities, meet the ability to process information quickly and the level of quality required in jobs. IU solution is built and operates entirely via the web environment, Oracle database, allowing the store of a large amount of information and data, being convenient for the expansion and exploitation of the system or up gradation in the future. Users can access from anywhere via the network as per their power decentralized to exploit: Leaders access and have a look at the statistics report Staff work & operate. Lecturers enter students' marks, look up personal information Students enroll/register, search for personal information.

2.2.2 The Basic Features

IU solutions include the main modules which can be used independently as follows:

- Training Management module in the model of year institutions
- Training Management module in the model of credits
- Human Resources/ Salary Management module.

2.2.2.1 Module: Managing the training plan

Allow the management of plans on Industry and professional framework, and support the planning on training programs for each school system by courses and grades.Once the enrollment plan is available, the system supports users to create new Courses. The inputs include starting, ending years, number of semester to learn. The system automatically generates the code of the semester, the names of the semesters / courses, year of study, the parameters that can be edited. from the Frame the training program Developed as in the study plan for Specialties, classes, the system shall Support to filter out all the subjects to be studied during the year and make a study plan for each class. It Will also offer the number of subjects and numbers of lessons for each semester. After a detailed training plan for each subject is made, the system shall support in sending information: Subject, number of lessons, Time (From week - to week) and classes to the Departments, the faculties (section division of teaching). The system supports the overall view timetable of every classes of all training types in the university. The system also supports the Assignment of lecturers and calculate their workload. The system supports the management of classrooms information.

2.2.2.2 Module: Managing Schedules

The system supports the ability to manage resources of teachers, classrooms, school yards of the university.The system supports the automatically arranged schedule, ensuring students are learning continuously in a predetermined period. The system supports the management of examining/testing schedules, Examination room, the

number of students taking part in the examination, supervision over the official test and re-test of students.

2.2.2.3 Module: Management of headings (upper part of examination paper) and test organization

The system complies with the Principles in the headings process. The basic steps in the process of the system. Identify a list of students who attend the subject test that shall require headings process. (The students can have tests in many rooms, from many faculties, courses). This list must include students' numbers. Collect all test papers into containing bags. Making headings for papers bag after bag. Print the list of pairs of student's number- heading number, serving the process of manual record of the heading numbers on the papers. Prepare the mark entry form with heading numbers (form 4). Pair the heading and the paper and print the results in (the) original list.

2.2.2.4 Module: Scholarship Management

The system supports the management of the school's scholarship fund, Including regular funds (policy scholarship, social subsidies, learning encouragement), as well as short term funds (the fund formed by the associations or Donors). The system allows the declaration of information relating to the funds, the criteria for approval, as well as the Conditions among the funds to support the purpose of filtering the list of students eligible for scholarships under each fund. due to Various practical conditions, the system also allows the manager to intervene directly in the above proposed list to have a list of students who actually receive the scholarship. Provide the total amount paid to each scholarship fund, serving the revenue -expense balances of the university.

2.2.2.5 Module: Management of Enrolled students

The system supports the input of data from the files of successful students into the system, management the enrollment of students, in addition, the system also allows to add, modify and remove students information.

Then the system can support the allocation of students into classes. The system can support the Management of the list, curriculum vitae, and records of students. The system supports the management of rewards or discipline activities.

2.2.2.6 Module: Management of Student's Grade

The system supports inputting marks using the list of students in a class, using the examination list and the student codes. Number of testing time of student could also be managed.

The system supports the Statistics of student study progress:

GPA one semester of study

GPA of the school year

GPA of the whole Course

The final paper marks

Statistics of the subjects needing studying as regulated

The system supports calculating students' average marks for different period or from time to time: semester, academic year, the Entire learning process as per class, discipline, faculty, or the Entire university.

The system supports all the Approval of Approved Activities such as examination in schools, the school, the class, reservation, repetition, dissertation, Graduate, ... and also supports the flexible and easy changes in approving Conditions for each academic year, each course.

The system supports the integration of learning Outcomes for each semester, academic year, full course.

Figure 3. Input Marks For Subject

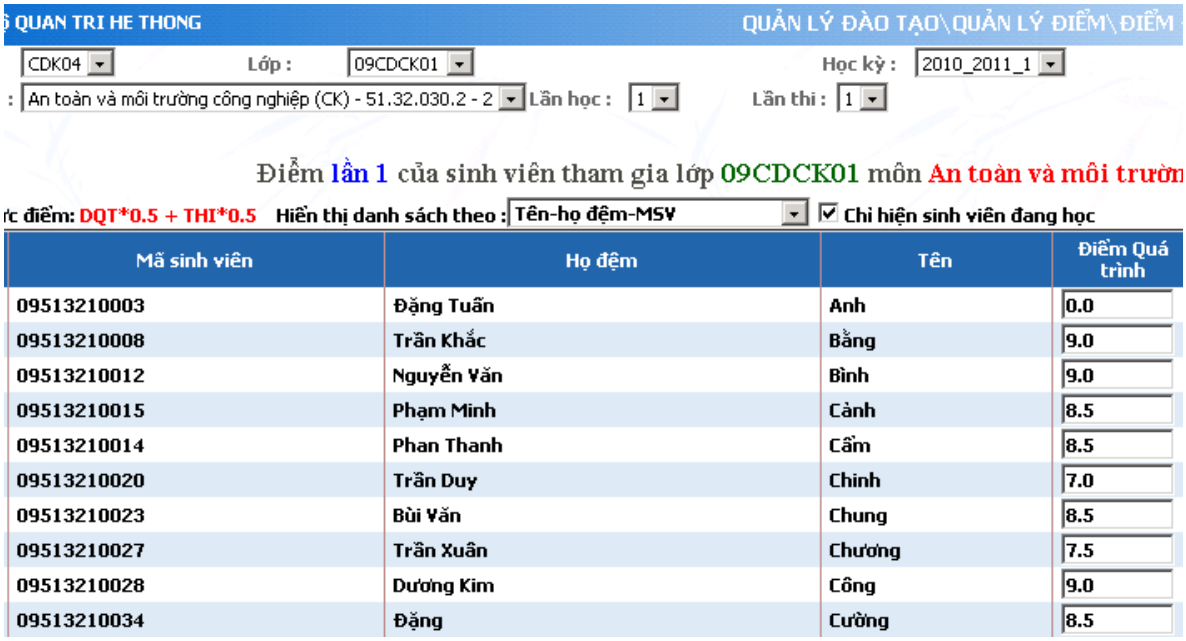
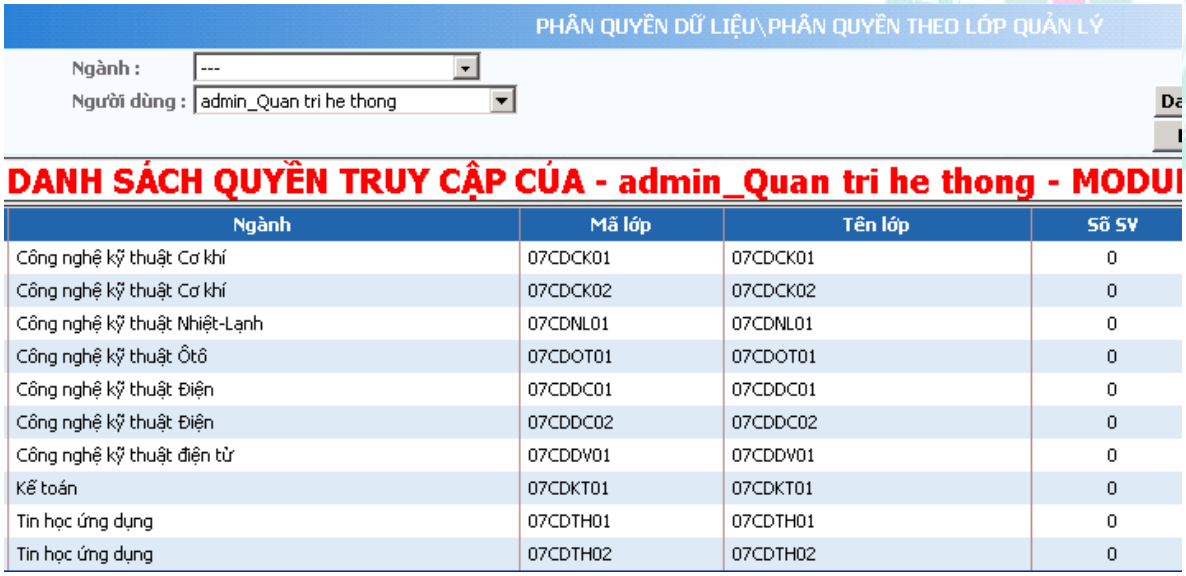


Figure 4. Input Marks For Class



Ngành	Mã lớp	Tên lớp	Số SV
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Công nghệ kỹ thuật Cơ khí	07CDCK02	07CDCK02	0
Công nghệ kỹ thuật Nhiệt-Lạnh	07CDNL01	07CDNL01	0
Công nghệ kỹ thuật Ôtô	07CDOT01	07CDOT01	0
Công nghệ kỹ thuật Điện	07CDDC01	07CDDC01	0
Công nghệ kỹ thuật Điện	07CDDC02	07CDDC02	0
Công nghệ kỹ thuật điện tử	07CDDV01	07CDDV01	0
Kế toán	07CDKT01	07CDKT01	0
Tin học ứng dụng	07CDTH01	07CDTH01	0
Tin học ứng dụng	07CDTH02	07CDTH02	0

Figure 5. Input Marks For Each Course

2.2.2.7 Module: Management of tuition Fees

- The system supports the management of Fees for each course, each class in each school year, define the discount level and provides a list of students together with the tuition amount payable for each period.
- The system supports the finance department and provides a list of students to pay tuition fees. Close the tuition fee books to identity the list of students who are not eligible Prior to planning on the test.
- The system supports defining exemptions for certain students in each semester. Users can use the system to make a list of users being entitled to tuition fee reduction/exemption in a semester and the % of reduction/exemption applicable to the students.
- The system supports tracking of tuition Fees for students having to re-study any subjects/courses.

2.2.2.8 Module: Management the study, force to quit school

- The system supports filtering/defining for the students subject to dismissal. Such Students are those (the Conditions can be re-configured Easily upon request):
- Having exceeded the maximum time allowed for learning
- Having an Overall average mark of one semester <3
- Having an Overall average mark of two if needed. Apply preferential policies, reduce the marks the consider the dismissal of students.
- Force the students to quit school, close their data.

2.2.2.9 Module: Management of graduation and degree

- The system supports the consideration of student eligible to final paper or graduation examination, the conditions may vary differently in each department from time to time.
- The system supports recording of students' graduation information, including:
- Update thesis
- Update instructor
- faculty Reviewer Information
- Council Member Information
- Support system to help manage the degree of management Implementation Objectives and awarding of diplomas for all Participants in the training.

2.2.2.10 Module: Calculate the volume of work - over time

In order to determine the workload of lecturers in each semester or year, programs requires input parameters for evaluation. These parameters are:

- Identifying teachers' jobs/tasks (hourly standard version):
- Teaching and training (theory, Practice, supervisor, marking and instruction ...)
- Scientific research (Scientific themes at all levels)
- Fostering Expertise.

- The work obligations (political education, military service ...).
- The work of others.
- The standard hours Prescribed by the titles.
- The system of teaching exemption (by position) of the faculty

Statistics on Lecturing lessons, scientific research of the lecturers using teaching schedule (timetable) and program managing topics/themes of the scientific research of the university. To calculate the amount of over-time hours, the system shall use the difference in actual and the regulated completion volume of each lecturer in two aspects: lecturing and scientific research. Other criteria shall be used to evaluate the obligation fulfilling of lecturers (meeting Advanced title, Emulation Fighter ...).

2.2.2.11 Module: Online Portal

This portal helps students get useful information from the information system of the university. The portal helps students Understand more about the Environment they are studying, exchanging information and sharing opinions. This portal Offers: The ability to enroll online. See the Curriculum. Check students' mark. ForeThe information about students' Activities (Activities of clubs, Voluntary Movements, the Cultural Activities in the university). The comments /feedbacks for the school. This portal also helps Leaders get the update information and view reports and statistics on the field under their management to handle the operation, and have timely Intervention to adjust their management.

2.3 TAM (Technology Acceptance Model)

The technology acceptance model was the first created by (Davis, 1989), relied on the theory of reasoned action (TRA) (Fishbein & Ajzen. 1975) in psychology research. And it was introduced and developed by Fred Davis in 1986 (Davis, 1989). Original model of TAM is from a theory that addresses the issue of how users come to accept and use a technology. The model suggests when users are presented with, example, a new software , a number of variables influence their decisions about how and when they will use it. Extensive research has been carried out to

understand the user acceptance of IT (Taylor & Todd, 1995b and Venkatesh & Davis, 2000). Taylor and Todd (1995b, 145) said that "Understanding the determinants of information technology usage should help to ensure effective deployment of information technology (IT) resources in an organization". (Venkatesh and Davis, 2000).

As can be seen, an individual's reactions to using Information technology (IT) influence their intention to use it. This, in turn, directly influences their actual usage of the technology. (Venkatesh, Morris, Davis, 2003). The TAM was developed by Davis (1989) as a way to measure, predict, and explain the acceptance of Information technology (IT) and evaluate software applications within organization (Walker & Johnson, 2008). Over the last two decades the TAM has been the most influential research models in studying the determinants of IT usage (Chau, 2001). In the next section, the original model is explained in detail and current applications are discussed and evaluated.

The Technology Acceptance Model (Davis, 1989) tries to predict and explain the use and acceptance of technology. It is an adaptation of the Theory of Reasoned Action (TRA) and developed by Ajzen and Fishbein (Fishbein and Ajzen, 1975; Ajzen and Fishbein, 1980) and is closely related to the Theory of Planned Behaviour (Mathieson, 1991). The theory of reasoned action (TRA) regards a user's behavior as determined by the user's behavioral intention, where behavioral intention is a function of 'attitude toward the behavior ', (Ajzen and Fishbein, 1980; Davis, 1989). TRA started in 1950s and the first research relative TRA was published in 1967 (Ajzen and Fishbein, 1980). Since 1967, TRA has been tested and used extensively and its extension, the theory of planned behavior (TPB) (Ajzen, 1991) utilized widely.

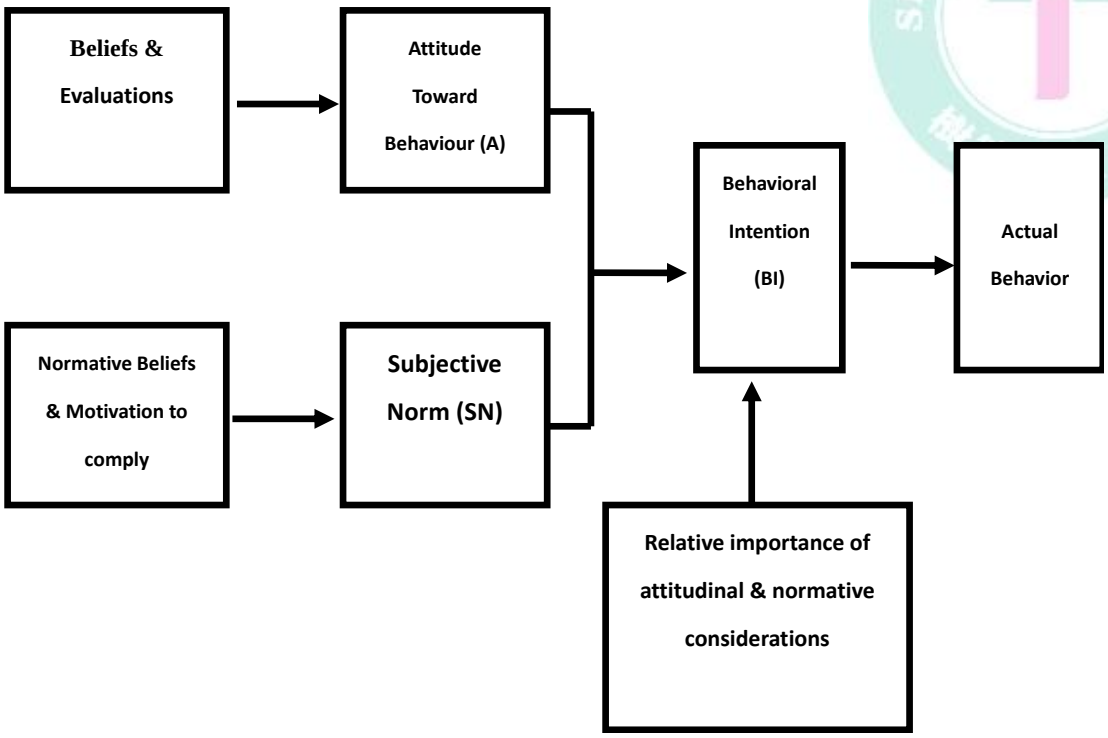

Figure 6. Theory of Reasoned Action (TRA) (Ajzen & Fishbein, 1980)

In a diagrammatic model of the theory, TRA has proven successful in predicting and explaining behavior across a wide variety of domains. TRA is relied on the assumption that consumers' behave rationally and that they collect and evaluate systematically all of the available information. Additionally, TRA supposes that people also take into account the effects of their possible actions and based on this reasoning make decision whether or not to take action (Ajzen and Fishbein, 1980). Individuals would use computer if they have a feeling that there could be positive benefits associated with using them (Compeau and Higgins, 1995). From the information systems (IS) perspective one relevant element of TRA is its assertion that any other factor that influences behavior for example systems design variables, user characteristics, task characteristics, political influences and organizational structure do so only indirectly by influencing attitude toward behavior, subjective norm or their relative weights (Davis, 1989).

In exploring user behavior, many researchers adopt behavior theories from psychology and marketing. It is in this context that the Theory of Planned Behavior (TPB) was constructed. The TPB was suggested as an extension to the TRA mentioned earlier by (Ajzen in 1985, 1991). In comparison with the TRA, the TPB adds 'perceived behavioral control' as a determinant of behavioral intention. The TPB is an extension of the TRA. Perceived behavioral control can be conceptualized as the consumer's subjective belief about how difficult it will be for that consumer to generate the behavior in question (Posthuma & Dworkin, 2000). The concept of perceived behavioral control has been considered in relation to a number of research settings. In investigating consumer complaint behavior (Stephensand, Gwinner. 1998), use the secondary appraisal as a conceptualization of a consumer's perceived ability to deal with an unsatisfactory experience. Shim (2001) have proposed and tested an online repurchase intentions model, which includes the concept of perceived behavioral control. In research unethical behavior (Chang,1998) has applied both the theory of reasoned action (TRA) and the theory of planned behavior and so included PBC in the investigation. A conceptual model of arbitrator acceptability included PBC among a number of other key concepts adapted from control theory and organizational justice theories (Posthuma and Dworkin. 2000). This arrangement control aspects of the observation are introduced the model. This makes the TPB more functional in its application. Researchers have used the Theory of Planned Behavior (TPB) widely to model the acceptance of a variety of new information technologies in businesses as well as to predict levels of usage. For example, (Mathieson, 1991) used the Theory of Planned Behavior (TPB) as well as the Technology Acceptance Model to predict user's intentions and user perception, specifically with respect to the usage of spreadsheets. The TPB is diagrammatically presented in figure 5 for greater clarity.

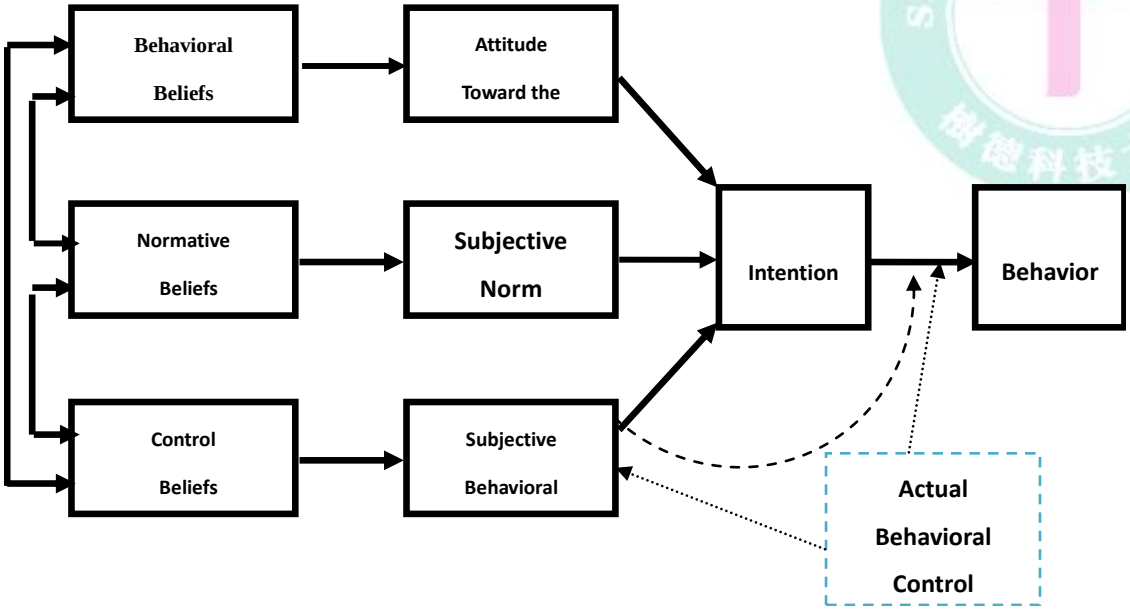

Figure 7. Theory of Planned Behavior (TPB) (Ajzen, 2006)

The TAM has based largely on the Theory of Reasoned Action (TRA) and is specifically tailored for determining acceptance of technology. This model, in its original form and in subsequent iterations (Venkatesh and Davis, 2000) appears to have been successfully applied to a number of technologies and settings (Horton, Buck, Waterson and Clegg, 2001). It is based on the notion that technology acceptance is determined by a number of variables, including:

Perceived Usefulness (PU), which is the degree to which a person believes that using a particular system will enhance his or her job performance (Davis, 1989). Perceived Ease of Use (PEU), which refers to the "the degree to which a person believes that using a particular system (technology) will be free of effort" (Davis, 1989). Attitude (A), which is a value and belief that is expressed as a positive, negative or neutral view towards the system. Behavioral Intention (FU), which is expressed as an anticipated action or inaction towards a system.

The Technology Acceptance Model (TAM) in its original forms and illustrates linear relationships between the variables described above. In addition, Davis (1989)

included “External Variables” as additional factors influencing a person’s acceptance of technology. These variables appear to be factors that influence someone’s attitude towards a technology but are not directly related to the technology. These external variables could include for example, previous exposure to similar technologies, training received prior to the technology uptake, confidence in a technological environment or individual characteristics.

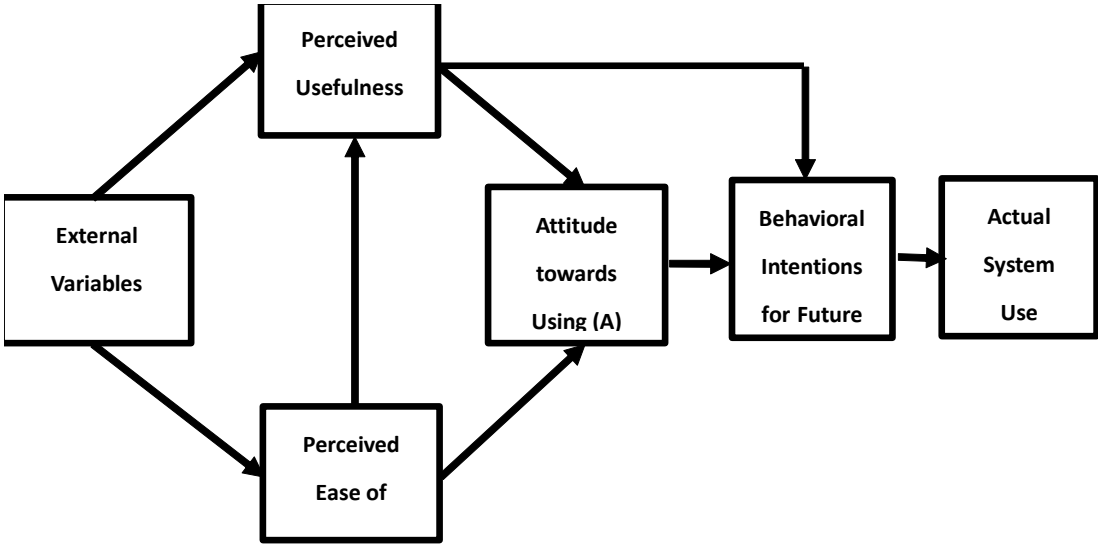

Figure 8. Technology Acceptance Model (Davis, 1989)

The individual relationships within this model are explained below. The Figure 6 shows, this model resembles the Theory of Reasoned Action (TRA) in that it stipulates that the actual use of a technological system is determined by Behavioral Intentions (FU). The Behavioral Intentions (FU) are determined by a combination of Perceived Usefulness (PU) and the Attitude towards Using (A) a particular system. The relationship between Attitude towards Using (A) and Behavioral Intentions (FU) is based on the understanding that an individual’s attitude towards a system may directly influence the intention to use such a system. Attitudes are shaped by perceptions and beliefs and this relationship is relatively stable and linear.

Thus, a positive experience and exposure to the system is likely to result in a positive attitude and vice versa. The relationship between Perceived Usefulness (PU)

and Behavioral Intentions (FU) implies that individuals in a specific contextual setting, such as accounting, finance, form an "intention to adopt" behavior that they believe will enhance their performance in working. The "forming of behavioral intention" is often initiated by extrinsic rather than intrinsic motivation and reflects a utilitarian approach towards performance - an approach which many professional accountants may adopt. However, technologies are often imposed on individuals and behavioral intentions for usage are developed regardless of an individual's attitude towards a system. Thus, the nature of the relationships in the model needs to be understood within a specific context. Finally, Davis (1989) included the Actual System Use in his model to show that a Behavioral Intentions (FU) is expected to result in congruent behavior. This is an important theoretical component of attitudes. However, it can be argued that a positive attitude towards a system does not necessarily lead to use of the technology.

Ease of Use (EOU) is seen to have a significant effect on Attitude (A). In fact, the TAM identifies two ways in which PEU influences attitudes and behavior: through self-efficacy and instrumentality (Davis, 1989). Thus it can be argued, that the easier a system is to operate, the greater should be the user's sense of efficacy (Bandure, 1982). Also, individuals who receive training appear less likely to be frustrated with the system and more likely to develop higher confidence in the system and a more positive perception of it (Igbaria and Zinatelli, 1997). Similarly, an improvement in for example the handling and navigation of a technological system is thought to positively influence an individual's attitude towards the system. The relationship of Perceived Ease of Use (PEU) to Behavioral Intentions (FU) is reported differently in the literature. This appears to be because of differences in settings in which the studies took place. Recent studies in an educational context (Cheung and Huang, 2005; Drennan, 2005) support an indirect relationship as originally established. As mentioned earlier, the degree of choice individuals have in the use of a technology, may be a critical factor in the explanatory power of this relationship. Thus, Igbaria (1997) found a direct relationship between EOU and BI, a fact that is inconsistent with Davis' theory (Davis, 1989). This may be due to the fact that Igbaria (1997) conducted the research in small firms, whereas most of the initial TAM studies focused on larger firms. It is suggested that these

contradictory findings may be credited to levels of training provided and that small business owners tend to have a more pragmatic approach in which the PEU is ranked as more important as the PU. However, these findings do not seem to be well established in other studies and more recent research has supported the original model in which PEU only has a indirect influence on BI through PU (Adams, Nelson and Todd, 1992; Venkatesh and Davis, 2000; Pituch and Lee, 2006).

TAM has been tested in many researches (see, for example, Davis, 1989; Davis et al., 1989; Mathieson., 1991; Adams et al., 1992; Davis., 1993; Segars and Grover., 1993; Taylor and Todd, 1995), and it has been given that TAM's ability to explain attitude toward using an information system is better than other model's (TRA and TPB) (Mathieson, 1991). These studies have showed that TAM consistently explains a significant amount of the variance (typically around 40 percent) in usage intentions and behaviour. The use of an information system has been comprehended in many studies as the user acceptance of the information system in question (Davis, 1989; Davis, 1993; Al-Gahtani, 2001). Therefore in accounting, accountants use accounting software for their working. Table 1 provides an overview of various technologies or software in previous studies. The author was, however, unable to find any published research in this context that specifically related to MISA accounting software.

Table 1. Review of Technology Acceptance Model

Author	Software	Sample size	Model used (usually TAM)
Davis (1989)	Text-editor	107 full time MBA students	TAM + TRA
Davis (1989)	Write one, chart master	200 and 40 MBA students	TAM, TAM
Davis (1993)	E-mail, text-editor	112 professionals and managers	TAM
Mathieson	Spreadsheet	262 students course	TAM + TPB

Author	Software	Sample size	Model used (usually TAM)
(1991)		intro-management	
Taylor and Todd (1995b)	University computing, resource centre, business school student	786 students	TAM + TPB + decomposed TPB
Keil (1995)	Configuration software	118 salespersons	TAM
Szajna (1996)	Electronic mail	61 graduate students	TAM
Moon & Kim (2001)	World-Wide-Web usage	152 graduate students	TAM + Perceived Playfulness
Mallat (2006)	Mobile ticketing service	360 respondents	TAM + Diffusion of Innovations
Abdalla (2007)	e-blackboard system	518 undergraduate students	TAM
Ju, Chumg & Chu (2007)	E-learning	227 respondents	TAM + Habitual

Chapter 3 Research Methodology

3.1 Research Framework

The purpose of this study is applying TAM model to evaluating the IU usage in Management University in Vietnam. Specifically, this study explores the relationship between perceived easy-of-use, perceived usefulness, user's intention and actual usage IU software that supports in managing university. Perceived usefulness was originally seen as a fairly simple concept including components of effectiveness that are mainly related to extrinsic motivation in work contexts. Perceived ease of use defined as the degree to which a person believe that using system would be free of effort. Behavioral intention is the measure of the strength of one's intention to perform a specified behavior. Actual usage is measured in terms of frequency of system use ('how often') and the volume of system use ('how much') by the user (Trang, 2009). Davis's measurement scales for Usefulness and Ease of Use therefore associate with the usefulness and ease of use of the software in one's job.

In this study I use two external variable is Information Quality and System Quality because they are 2 important factors to consider will have a direct impact on the use of software. This model was tested on using IU software to Manager University.

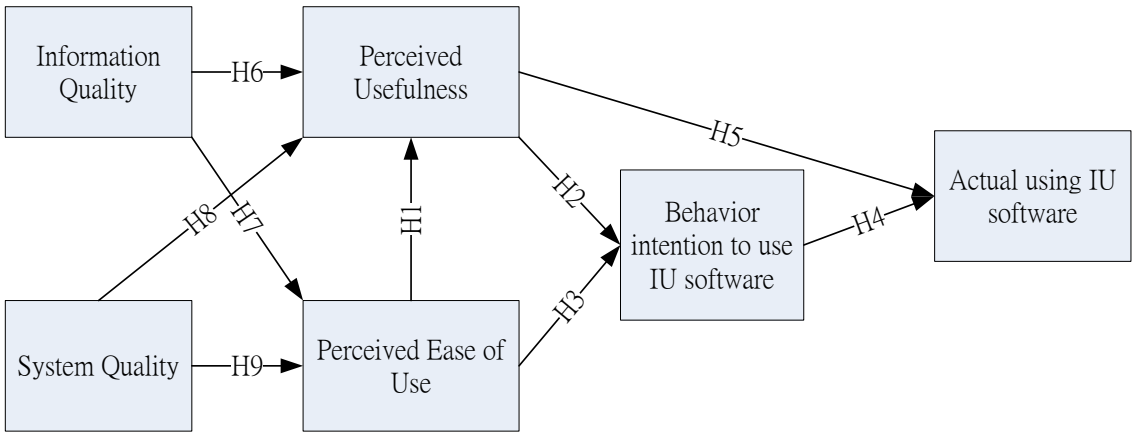

Figure 9. Research Framework

3.2 Research Hypotheses

Behavioral intension to use IU software are often affected by the perceived usefulness of the users, therefore the study proposes a hypotheses as following:

H1: Perceived ease of use affects positively on Perceived usefulness of the IU

H2: Perceived usefulness affects positively on behavior intention to use IU

H3: Perceived ease of use affects positively on behavior intention to use IU

H4: Behavioural intention affects positively on Actual using of the IU

H5: Perceived usefulness affects positively on Actual using of the IU

H6: System quality affects positively on Perceived usefulness of IU

H7: System quality affects positively on Perceived ease of use IU

H8: Information quality affects positively on Perceived usefulness of IU

H9: Information quality affects positively on Perceived ease of use IU

3.3. Tool development

This study employs a quantitative approach to reveal perceived usefulness, perceived ease of use, user's intention to use and actual usage Intelligent University! software in managing the Student's grade in University in Vietnam. Because quantitative research involve the use of structured questions where the response options have been predetermined and a large number of respondents is involved. To test the proposed research model, a field questionnaire survey was carried out to find the information. These fields are shown in Appendix 2. The question survey is based on constructs validated in prior research and adapted to the context of this study.

The questionnaire has four main sections. In the first section, 22 items were used to measure the variables involved, presented as follows: 5 items for system quality factor, 4 items for information quality factor, 4 items for perceived usefulness factor, 4 items for perceived ease of use factor, 3 items for behaviour intention factor, and last 2 items for actual usage factor. These 22 items were measured using seven-point Likert scales ranging from 1 (strongly disagree) to 7 (strongly agree). The second section contained 5 items sought for demographic information: gender, age, duration of the current job, title of the current job, and the level of education. In this research, the

authour uses the SPSS (Statistical Package for the Social Sciences) with version 16 for analyzing.

After the raw data was coded, the analysis is performed,. A codebook is showed in the Appendix 3 to record how data was coded.

The measure used in this study carried from a researchers. Table 2 is built up in order to provide more information about the detailed survey questions.

Table 2. The Detailed Survey Quetions

Variable	Items	Source
System Quality	The IU system has an appropriate style of design for Management Student's grade	Davis et. al. (1989)
	The IU system has an easy navigation to information	
	The IU system has slow response and transaction processing	
	The IU system keeps transactions secure from exposure	
	The IU system keeps error-free transactions	
Information Quality	The IU system has sufficient contents which I expect to find	
	The IU system provides complete information	
	The IU system provides detailed information	
	The IU system provides timely information	
Perceived Usefulness	The IU software is improve working	
	The software makes the management of Student's grade easier	
	The software makes the management of Student's grade more convenient.	
	The software makes the management of Student's grade faster	

Perceived Ease of Use	The software is easy to use.
	The software is easy to understand.
	The software is simple software.
	Using the software can be skilful.
Behavioral Intention to use	I intend to use the software because it is a good idea.
	I intend to use the software because it is beneficial for me.
	I have positive perception about using the software.
Usage	I use the software frequently.
	I use the software more than any other Mangement Student's grade software.

The respondents are those people working in the Deputy of Training in the University. The actual analysis is conducted in Vietnam, the 22 items survey was translated into Vietnamese for the sake of the respondent's convenience in answering process. By doing so, the survey questionnaire was directly distributed over a three-week period to 18 various university, thence, 220 replies were collected, out of 216 questionnaires.

Chapter 4 Research Analysis And Results

Based on research framework, the nine hypotheses were given. Software SPSS 16.0 package is used as the analyzing instrument and to get results and the statistical analysis methods are performed following four steps: descriptive statistics, reliability analysis, factor analysis and regression analysis.

4.1 Descriptive Statistics

The purpose of descriptive statistics is to facilitate the presentation and interpretation of data. The detail description of the respondents' personal data, such as gender, experience, title of current job, age, background education will be analyzed by descriptive statistics. Every construct of the data will be analyzed in percentage, frequency, standard deviation and mean and distribution in order to know the sample distribution.

4.1.1 Descriptive and Analysis of Sample Demographics

Two hundred and sixty employees correctly completed the survey on evaluating the impact of the software in managing according to a seven-point likert scale from "strongly disagree" to "strongly agree".

The characteristics of 216 Vietnamese employees include five major demographics: 1. Gender, 2. Age, 3. Experience, 4. Title of current job, and 5. Education background.

- **Gender:** As indicated in Table 3, Total respondents are 216, the frequency of male made up 136 (63%), while female just accounted for 80 (37%). In this study, the number of male is more than two times as many as the number of female. The rate of male workers in IT field is higher than the female.

Table 3. Gender

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	female	80	37.0	37.0	37.0
	male	136	63.0	63.0	100.0
	Total	216	100.0	100.0	

- **Age**: From the results of Table 4, The frequency of the age from 20 to 30 is 82 (38 %,) at the age from 31 to 41 is 121 (56 %) and above the age of 41 is 13 (6%). These results show that the distance between age groups is significant. Therefore, IU! software is not suitable to the group above 41 years.

Table 4. Age

Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Above 41	13	6.0	6.0	6.0
	Age 20-30	82	38.0	38.0	44.0
	Age 31-40	121	56.0	56.0	100.0
	Total	216	100.0	100.0	

- **Experiences**: Table Experience shows the experience's year of respondent . The Experience's year was just measured as 3 choices (1= from 5 to 10 years, 2 = more than 10 years, 3 = less 5 years). The frequency is given that from 5 to 10

years: (109) 48.7% more than 10 years: 13 (5.8%) and less than 5 years: 94 (42%). The results is show that IU is suitable with all group experience of employees.

Table 5. Experience with this Organization

Experience

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		8	3.6	3.6	3.6
	5-10 years	109	48.7	48.7	52.2
	Above 10	13	5.8	5.8	58.0
	Less 5 years	94	42.0	42.0	100.0
	Total	224	100.0	100.0	

- **Title of current position:** Because this study was carried out in 18 various university department in Vietnam, in which, each university department only has one or two managers, the rest are staff, the results in the table Position are showed that the staff's value made up 81.5%, while the manager's value just accounted for 18.5%.

Table 6. Title of current position

Position

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Manager	40	18.5	18.5	18.5
	Staff	176	81.5	81.5	100.0
	Total	216	100.0	100.0	

- **Education Background**: A respondent was asked to indicate their major, their education background. The aim of this research is to get the information about the differences between the education background of employees so that "level of educational background was just measured as 5 choices (1= Diploma, 2 = Engineering, 3 = Master, 4 = PhD, 5 = Other). As the result is illustrated in Table 7, with 38 % (82) of respondents have Master degree, 31% (67) of respondents have Engineering degree and 31% (67) of respondents undetermined. The results above show that using the IU software not suitable with employees have high education background, and it used by most of Engineering and Master. The IU software not suitable with all of the Information Technology employees.

Table 7. Education background

Education background

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Engineering	67	31.0	31.0	31.0
	Master	82	38.0	38.0	69.0
	Other	67	31.0	31.0	100.0
	Total	216	100.0	100.0	

After analyzing data, the result of descriptive for 5 sample demographics (Gender, Age, Experience, Title of current job, and Education background) is displayed in the Table 8.

Table 8. Distribution of sample demographics

Demography Items		Frequency	Percent	Valid Percent	Cumulative Percent
Gender	female	80	37.0	37.0	37.0
	male	136	63.0	63.0	100.0
Age	Above 41	13	6.0	6.0	6.0
	Age 20-30	82	38.0	38.0	44.0
	Age 31-40	121	56.0	56.0	100.0
Experience	5-10 years	109	48.7	48.7	52.2
	Above 10	13	5.8	5.8	58.0
	Less 5 years	94	42.0	42.0	100.0
Position	Manager	40	18.5	18.5	18.5
	Staff	176	81.5	81.5	100.0
Education	Engineering	67	31.0	31.0	31.0
	Master	82	38.0	38.0	69.0
	Other	67	31.0	31.0	100.0

4.1.2 Descriptive Statistics of Cognitive Variables

After using descriptive statistics to analyze data relating to demographic data, the study continues using descriptive statistics to analyze data for cognitive variables. Generally, the analyses were conducted including mean and standard deviation value.

The Mean value is the most commonly used method of describing central tendency. All you do is add up all the values and then divide by the number of values to compute the mean.

The standard deviation value is a detailed estimate of dispersion and more accurate because an outlier can greatly exaggerate the range. The relation that set of scores has to the mean of the sample is the Standard Deviation shows:

Table 9. Descriptive Statistics for System Quality (SQ)

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
SQ1	216	3	7	5.39	.893
SQ2	216	3	7	5.50	.900
SQ3	216	3	7	5.36	.909
SQ4	216	4	7	5.44	.833
SQ5	216	3	7	5.36	.920
Valid N (list wise)	216				

There are 4 items (SQ1, SQ2, SQ3, SQ4) from Table 9 used to analyze the descriptive statistics of the System Quality factor. Out of them, the mean value of SQ2 is the highest (5.50) and the mean value of SQ3 and SQ5 is the lowest (5.36). Besides the mean value there is standard deviation value. The standard deviation value of SQ4 is smallest (0.833). That means the respondents have more consistent option in SQ4.

Table 10. Descriptive Statistics for Information Quality (IQ)

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
IQ1	216	1	7	4.99	1.348
IQ2	216	1	7	5.10	1.376
IQ3	216	1	6	4.89	1.509
IQ4	216	1	6	4.45	1.417
Valid N (listwise)	216				

The items IQ1, IQ2, IQ3, IQ4 of Table 10 are used to analyze the descriptive statistics of the Information quality construct. The mean value of IQ2 is the highest (5.10) and the mean value of IQ4 is the lowest (4.45). The smaller a standard deviation value is, the more consistent option of respondents is. So IQ4 has the most consistent of data.

Table 11. Descriptive Statistics for Perceived Usefulness (PU)

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
PU1	216	4	7	5.89	.877
PU2	216	5	7	6.00	.747
PU3	216	5	7	6.00	.747
PU4	216	3	7	5.56	1.015
Valid N (list wise)	216				

The items PU1, PU2, PU3, PU4 of Table 11 are used to analyze the descriptive statistics of the Perceived Usefulness construct. The mean value of PU2 and PU3 is the highest (6.00) and the mean value of PU4 is the lowest (5.56). Besides the mean value there is standard deviation value. The standard deviation value of PU2 and PU3 is smallest (0.747). That means the respondents have more consistent option in PU2 and PU3.

Table 12. Descriptive Statistics for Perceived Easy Of Use (PEOU)

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
PEOU1	216	3	7	5.17	.960
PEOU2	216	3	7	5.15	1.046
PEOU3	216	2	7	5.06	1.282
PEOU4	216	2	7	5.06	1.436
Valid N (list wise)	216				

The items PEOU1, PEOU2, PEOU3, PEOU4 of Table 12 are used to analyze the descriptive statistics of the Perceived Ease Of Use construct. The mean value of PEOU1 is the highest (5.17) and the mean value of PEOU3 and PEOU4 is the lowest (5.06). Besides the mean value there is standard deviation value. The standard deviation value of PEOU1 is smallest (0.960). That means the respondents have more consistent option in PEOU1.

Table 13. Descriptive Statistics for Behavior Intention construct (BI)

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
BEIU1	216	3	7	5.67	.945
BEIU2	216	3	7	5.72	.933
BEIU3	216	4	7	6.06	.782
Valid N (listwise)	216				

Table 13 shows the descriptive statistics of behavior intention construct. It consists of 3 items (BEIU1, BEIU2, BEIU3). The item BEIU1 has the smallest mean value (5.67) and the highest mean value is BEIU3 item (6.06). The lowest standard deviation value is 0.782 (BEIU3). Therefore, the BEIU3 item is the most consistent option from respondents.

Table 14. Descriptive Statistics for Actual system construct (AU)

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
AU1	216	4	7	5.89	.877
AU2	216	2	7	5.61	1.211
Valid N (list wise)	216				

The AU2 (Mean = 5.61, Std. Deviation = 1.211) is estimated as higher standard deviation. On the contrary, the AU1 item (Mean = 5.89, Std. Deviation = .877) is estimated as lower standard deviation in the AU factor. This proves the option of respondents on AU1 is more consistent.After data are analyzed of 216 respondents, the result of descriptive for Cognitive variables (System Quality, Information Quality, Perceived Usefulness, Perceived Ease-of-Use, Behavior Intention and Actual Usage) is displayed in the Table 15.

Table 15. Descriptive statistics for Cognitive variables (6 factors - 22 items)

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
IQ1	216	1	7	4.99	1.348
IQ2	216	1	7	5.10	1.376
IQ3	216	1	6	4.89	1.509
IQ4	216	1	6	4.45	1.417
SQ1	216	3	7	5.39	.893
SQ2	216	3	7	5.50	.900
SQ3	216	2	6	4.61	1.342
SQ4	216	4	7	5.44	.833
SQ5	216	1	7	5.13	1.480
PU1	216	4	7	5.89	.877
PU2	216	5	7	6.00	.747
PU3	216	5	7	6.00	.747
PU4	216	3	7	5.56	1.015
PEOU1	216	3	7	5.17	.960
PEOU2	216	3	6	4.78	1.033
PEOU3	216	1	7	4.28	1.487
PEOU4	216	2	7	5.06	1.436
BEIU1	216	3	7	5.67	.945
BEIU2	216	3	7	5.72	.933

BEIU3	216	4	7	6.06	.782
AU1	216	4	7	5.89	.877
AU2	216	2	7	5.61	1.211
Valid N (listwise)	216				

4.2 Reliability Analysis

Reliability analysis applies to a measure when similar results are obtained over time and across situation. As defined, reliability is the degree to which measures are free from error and therefore yield consistent results. Usually reliability is measured by Cronbach's α; if it is greater than 0.7, then it means that there exists high degree of reliability, if less than 0.35, then it means that the reliability is relatively low, and this coefficient needs to be deleted (Y.Y. Huang, Bertram Tan, 2007).

To ensure that the measurement scale of the research designed for questionnaire are highly representative of each variable, to test the reliability of the items measuring the constructs. This research measures the reliability of the measurement for six constructs, including system quality, information quality, perceptions about usefulness, perceptions about ease of use, user's intention and user's actual usage. Table 16 illustrates the Cronbach's α values for each construct.

Table 16. Construct Reliability for each Factors

Factors	**Items**	**Cronbach α**
System Quality	5	.837
Information Quality	4	.878
Perceived Usefulness	4	.765
Perceived Easy Of Use	4	.749
Behavior Intention To Use	3	.794

Actual Use	2	.676

4.3 Factor Analysis

Factor analysis (FA) can be used to identify the structure of relationships among respondents (or items) by examining the correlations between the respondents (or items). With the FA, the research can identify the separate dimensions of the structure and then determine the extent to which each variable is explained by each dimension. Once these dimensions and the explanation of each variable are determined, the study can do summarization and data reduction.

First, in order to assess construct validity and identify the unique dimensions of each construct, factor analysis with VARIMAX rotation was employed. Construct validity examines the extent to which a construct measures the variable of interest. In other words, it should demonstrate relatively high correlations between items of the same construct (convergent validity) and low correlations between items of constructs that are expected to differ (discriminator validity). The factor loading value is higher than or equal to 0.5 and the Eigenvalue is greater than one. (Hair et al. ,2006).

There are totally 6 constructs being developed in this study with 22 items. It is necessary to test the relationships between constructs and their perspective measurement items.

Table 17. VARIMAX Rotated Component Analysis (Factor – Loading Matrix) after eliminating 1 item (SQ5) from 20 initial items

	Component					
	SQ	IQ	PU	PEOU	BEIU	AU
SQ1	.557					
SQ2	.755					
SQ4	.568					
IQ1		.737				

IQ2	.730				
IQ3	.709				
IQ4	.691				
PU1		.693			
PU2		.659			
PU3		.581			
PU4		.541			
PEOU1			.549		
PEOU2			.583		
PEOU3			.600		
PEOU4			.520		
BEIU1				.900	
BEIU2				.868	
BEIU3				.535	
AU1					.625
AU2					.678

Table 17 shows the results of VARIMAX rotation on the 20 items (SQ1,SQ2, SQ4, IQ1, IQ2, IQ3, IQ4, PU1, PU2, PU3, PU4, PEOU1, PEOU2, PEOU4, BEIU1, BEIU2, BEIU3, AU1, AU2) constrained to six factors. The Cronbach's α value is checked again, the reliability of the construct is 0.825.

After eliminating 2 items (SQ3 and SQ5) from 22 original items, because these values of factor loading are lower than 0.5, the value of cronbach's α is reduced but it still satisfied the conditions given.

4.4 Regression Analysis

The purpose of regression analysis is to create a linear equation, in order to analyze the relationship between dependent variables and independent variable.

Multiple regression analysis is the study of how a dependent variable is related to two or more independent variables. Simple regression analysis is the study of how a dependent variable is related to an independent variable.

In this study, multiple and simple regression were adopted to examine the relationships between independent variables and dependent variables to test our research hypotheses. To test the hypothesis, this study adopted a significance level of 5%, it means that when the p-value is less than 0.05, then the independent variables have a significance effect on the dependent variables. Otherwise, It does not have significant relationships.

To identify whether the higher level of System quality, information quality will lead to higher level of perceived usefulness and ease of use. And PU and PEOU of the software will lead to higher level of behavior intention is one of the research purposes. Similarly, to identify the higher level of behavior intention will lead to the higher level of actual usage the software is also tested in this study.

Simple Regression Analysis for Perceived Easy Of Use

Testing hypothese H1: The Perceived Easy Of Use has a positive impact to the Perceived Usefulness.

Table 18. Results Linear Regression Analysis for Testing H1

Construct	Unstandardized coefficients β	t value	R^2	Adjust R^2	F value
(Constant)	19.892	15.293	.034	.030	7.596***
PEOU	.184***	2.756			

Dependent Variable: PU

*** P <0,001, ** p <0,01, * p <0.05, + p <0,1

Look at table 18, we see F value = 7.596, Sig. = 0.006 so coefficient 0.184 of PEOU have meaningful statistics at 0.001, , hypothesis H1 is proven true that

H1: The Perceived Easy Of Use has a positive impact to the Perceived Usefulness.

Simple Regression Analysis for Perceived Usefulness

Testing hypothese H2: The Perceived Usefulness has a positive impact to the Behavior Intention To Use.

Table 19. Results Linear Regression Analysis for Testing H2

Construct	Unstandardized coefficients β	t value	R^2	Adjust R^2	F value
(Constant)	12.764	9.469	.054	.050	12.205***
PU	.200***	3.494			

Dependent Variable: Users' BEIU

*** P <0.001, ** p <0.01, * p <0.05, + p <0.1

Look at table 19, we see F value = 12.205, Sig. = 0.001 so coefficient 0.200 of PU have meaningful statistics at 0.001, , hypothesis H2 is proven true that

H2: The PU has a positive impact to the BEIU.

PU: Perceived Usefulness

BEIU: Behavior Intention To Use.

The final model shown in the Table 23 had a good fit (F 12.205, p = 0.001). The coefficient is positive 0.200 so this means PU has positive effect on BEIU (H2) – this is reasonable. We also can see in the table that the adjusted R^2 value for PU is 0.050, meaning that PU explain 5.0% of variance of BEIU. It is low because the author has only one independences. With all the results above H2 is supported.

Simple Regression Analysis for Perceived Easy Of Use

Testing hypothese H3: The PEOU has a positive impact to the Behavior Intention To Use.

Table 20. Results Linear Regression Analysis for Testing H3

Construct	Unstandardized coefficients β	t value	R^2	Adjust R^2	F value
(Constant)	13.736	12.392	.051	.046	11.399***
PEOU	.192***	3.376			

Dependent Variable: BEIU
*** P <0.001, ** p <0.01, * p <0.05, + p <0.1

Look at table 20, we see F value = 11.399, Sig. = 0.001 and coefficient 0.192 of PEOU , so this means PEOU has positive effect on BEIU (H3) – this is reasonable. We also can see in the table that the adjusted R^2 value for PEOU is 0.046, meaning that PEOU explain 4.6% of variance of BEIU. It is low because the author has only one independences. With all the results above H3 is supported.

PEOU: Perceived Easy Of Use.
BEIU: Behavior Intention To Use.

Simple Regression Analysis for BEIU

Testing hypothese H4: The BEIU has a positive impact to the AU.

Table 21. Results Linear Regression Analysis for Testing H4

Construct	Unstandardized	t value	R^2	Adjust R^2	F value

	Unstandardized coefficients β	t value	R^2	Adjust R^2	F value
(Constant)	2.242	2.997	.421	.418	155.642***
BEIU	.531***	12.476			

Dependent Variable: AU
*** P <0.001, ** p <0.01, * p <0.05, + p <0.1

The final model shown in the Table 21 had a good fit (F 155.642, p = 0.001), so coefficient 0.531 of BEIU , so this means BEIU has positive effect on AU (H4) – this is reasonable. We also can see in the table that the adjusted R^2 value for BEIU is 0.418, meaning that BEIU explain 41.8% of variance of AU. It is low because the author has only one independences. With all the results above H4 is supported.

*BEIU: Behavior Intention To Use***.**

AU: Actual Usage.

Simple Regression Analysis for PU

Testing hypothese H5: The PU has a positive impact to the AU.

Table 22. Results Linear Regression Analysis for Testing H5

Construct	Unstandardized coefficients β	t value	R^2	Adjust R^2	F value
(Constant)	5.564	5.262	.130	.126	31.900***
PU	.253***	5.648			

Dependent Variable: AU
*** P <0.001, ** p <0.01, * p <0.05, + p <0.1

Look at table 22, we see F value = 31.900, Sig. = 0.001 and coefficient 0.253 of PU , so this means PU has positive effect on AU (H4) – this is reasonable. We also can

see in the table that the adjusted R^2 value for PU is 0.126, meaning that PU explain 12.6% of variance of AU. It is low because the author has only one independences. With all the results above H5 is supported.

PU: Perceived Usefulness.

AU: Actual Usage.

Simple Regression Analysis for SQ

Testing hypothese H6: The PU has a positive impact to the PU.

Table 23. Results Linear Regression Analysis for Testing H6

Construct	Unstandardized coefficients β	t value	R^2	Adjust R^2	F value
(Constant)	22.066	11.981	.003	-.002	.565***
SQ	.053***	.752			

Dependent Variable: PU

*** P <0.001, ** p <0.01, * p <0.05, + p <0.1

Look at table 23, we see F value = .565, Sig. = 0.001 and coefficient 0.053 of SQ , so this means SQ has positive effect on PU (H6) – this is reasonable. We also can see in the table that the adjusted R^2 value for SQ is -0.002, meaning that SQ explain 0% of variance of PU. It is too low , With all the results above H6 is not supported.

PU: Perceived Usefulness.

SQ: System Quality.

Simple Regression Analysis for SQ

Testing hypothese H7: The PU has a positive impact to the PEOU.

Table 24. Results Linear Regression Analysis for Testing H7

Construct	Unstandardized coefficients β	t value	R^2	Adjust R^2	F value
(Constant)	22.786	12.402	.017	.012	3.681
SQ	-.134	-1.918			

Dependent Variable: PEOU
*** P <0.001, ** p <0.01, * p <0.05, + p <0.1

Look at table 24, we see F value = 3.681, Sig. = 0.001 and coefficient -.134 of SQ , so this means SQ has negative effect on PEOU (H7) – this is reasonable. With all the results above H7 is not supported.

*PEOU: Perceived Easy Of Use***.**
SQ: System Quality..

Simple Regression Analysis for IQ

Testing hypothese H8: The IQ has a positive impact to the PU.

Table 25. Results Linear Regression Analysis for Testing H8

Construct	Unstandardized coefficients β	t value	R^2	Adjust R^2	F value
(Constant)	17.842	25.804	.244	.241	69.141***
IQ	.281***	8.315			

Dependent Variable: PU
*** P <0.001, ** p <0.01, * p <0.05, + p <0.1

Look at table 25, we see F value = 69.141, Sig. = 0.000 and coefficient 0.281 of IQ , so this means IQ has positive effect on PU(H4) – this is reasonable. We also can

see in the table that the adjusted R^2 value for IQ is 0.281, meaning that IQ explain 28.1% of variance of PU. It is low because the author has only one independences. With all the results above H8 is supported.

*PU: Perceived Usefulness***.**

IQ: Information Quality.

Simple Regression Analysis for IQ

Testing hypothese H9: The IQ has a positive impact to the PEOU.

Table 26. Results Linear Regression Analysis for Testing H9

Construct	Unstandardized coefficients β	t value	R^2	Adjust R^2	F value
(Constant)	12.684	19.468	.335	.332	107.831***
IQ	.331***	10.384			

Dependent Variable: PEOU

*** P <0.001, ** p <0.01, * p <0.05, + p <0.1

The final model shown in the Table 26 had a good fit F value = 107.831, Sig. = 0.000 and coefficient 0.331 of IQ , so this means IQ has positive effect on PEOU(H9) – this is reasonable. We also can see in the table that the adjusted R^2 value for IQ is 0.331, meaning that IQ explain 33.1% of variance of PEOU. It is low because the author has only one independences. With all the results above H9 is supported.

*PEOU: Perceived Easy Of Use***.**

IQ: Information Quality.

Based on these results, this study supposes to show the fitted model of the study in the context of Vietnam. Figure 6 is derived from the research framework with beta coefficients filled.

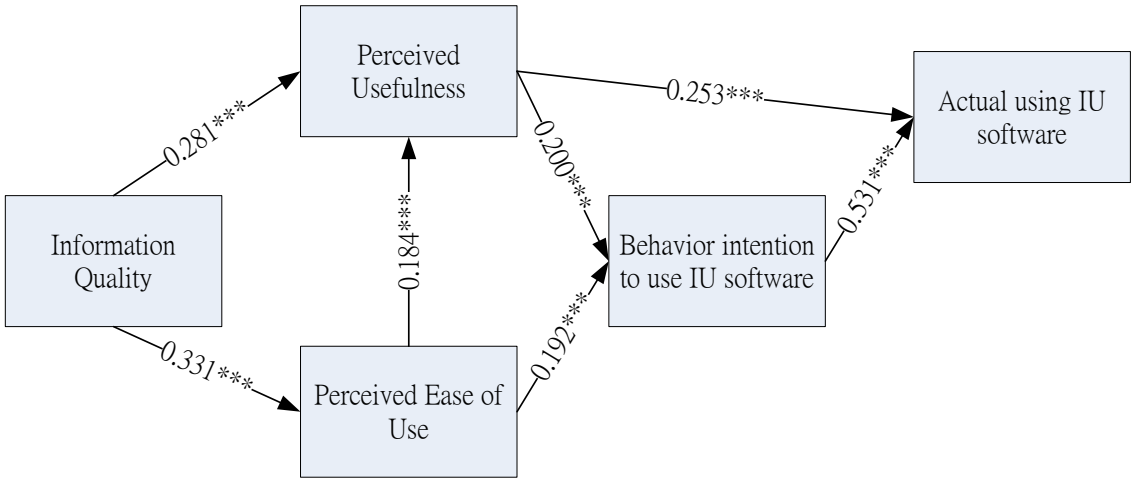

Figure 10. Path Cofficients for Research Model (***$p < 0.001$ ** $p < 0.01$)

Chapter 5 Conclusions

5.1 Research findings

The software leads the league in becoming one of the most favorite management software for perfect content management. It is easy to use and does not need much programming knowledge. It contains added features that have been created by its users itself.

Table 27. The Features Of Intelligent University

Content	Modify
Programming tools	Microsoft.Net
Database	Oracle 9i
Application Model	Client/Server
Operating System	Windows
Interface for admin, user	Web Interface
Interface for student	Web Interface
Multiple interface language for user use Vietnamese	Vietnamese
Use encoding font archive data	Unicode
Facility support multi user	At the same time
Capability to application Internet	Ready
Facility support in public option variable	Effective

The beauty of using IU is its vast availability of extensions and the community developing, supporting and building the management system for its user base. The purpose of this study is to examine the influence of information quality, system quality and user's perceptions about usefulness as well as perceptions about ease of use,

behavioral intention and actual usage of the software in mamaging the Student's Grade in Vietnam. The results of all hypotheses are listed below in the Table 30.

Table 28. Research Hypotheses and Results

Research Hypotheses	**Results**
H1: Perceived ease of use affects positively on Perceived usefulness of the IU.	Supported
H2: Perceived usefulness affects positively on behavior intention to use IU.	Supported
H3: Perceived ease of use affects positively on behavior intention to use IU.	Supported
H4: Behavioural intention affects positively on Actual using of the IU.	Supported
H5: Perceived usefulness affects positively on Actual using of the IU.	Supported
H6: System quality affects positively on Perceived usefulness of IU.	Not Supported
H7: System quality affects positively on Perceived ease of use IU.	Not Supported
H8: Information quality affects positively on Perceived usefulness of IU.	Supported
H9: Information quality affects positively on Perceived ease of use IU.	Supported

However, this study also found out that, user's perception of usefullness and easy of use of the software in managing student's grade have the strongest influence on user's intention. User's intention has very large influence on actual usage of the sotfware too and It is broadly used in some University in Vietnam. That is explained by

the way the sample was choosen, 216 respondents are IT faculty employees. Thus, the finding in this research, derived from the data analysis, is reasonable.

5.2 Research Implications

This study's findings have some conclusions as follow:

Firstly, the software has been widely used in managing task of the university but up to now, there haven't any official research about the reason of its wide usage. This research has contributed significantly in the fields of process and giving information, drawing conclussion and it is also studied and based on its precision model.

Secondly, the article has given recomendations to any individuals and organizations who want to get to know about apply Information Technology in the University. To aware of it's usefulness and its acceptance by users, at first, the IU software evaluator should have studied more detail about its usefulness, moreover, the concept of fully understanding about IT is still limitted in Vietnam therefore element of "ease of use is absolutely mentioned".

Thirdly, nowadays, there are a lot of software that supports for managing task in university. This article is typically demonstrated that the software – Intelligent university is one of dominant software and it meets the need of usefulness and ease of use for users.

Finally, a school or university can benefit significantly from a successful software. By this reason, this study may useful to the leaders of medium and small universiy which helps them making decision about applying IT model in their managing task.

5.3 Limitations

Admittedly, the study reported suffered from a number of limitation.

Firstly, another limitation is related to the sample size. As a general rule, the mininum sample size is to have at least five times as many as the variables to be analyzed. The higher cases-per-variable ratio is helpful to minimize the change of

"overfitting" the data (hair et al., 1998). In this study, there are 22 items measured; although the author has collected enough data (216 > 13 * 5 = 65) but the more we get, the better.

Secondly, the potential users for using the software in Vietnam Universities are not just engineerings in information technology field. But the research focuses on the engineerings, who are more familiar with programming. This is one of the limitations of the research.

Thirdly, before using a software, user needs to take the security level of the software that they want to use into consideration. But in this research, the author doesn't mention the safety evaluation of the software.

Finally, the lack in empirical study and literature about communication competence in Vietnam, the study should have been conducted using qualtitative research methodology to fill in the gap.

5.4 Future study

The study would like to mention the following two topics for future research:

Firstly, this study only was implemented in one country, Vietnam, thus future research is encouraged for making some comparison by doing research in different countries in order to have more concrete argument via the comparative analysis.

In addition, a research of evaluating the development tendency in the future of other softwares designed for education.

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APPENDIX 1 List of Customers are using the University of Intelligent Solutions IU

- National Economics University - training credits, students enroll online.
- Water Resources University – training credits, students enroll online.
- Vinh University – training credits, students enroll online.
- Forestry University, training credits, students enroll online.
- Economics University and Hue University-credit training, students enroll online.
- Transport Base University 1 - Credit training, students enroll online.
- Transport Base University 2.
- Son La College of Teachers.
- Phu Tho College of Medicine.
- Hanoi College of Medical.
- Hanoi University of Technology.
- Telecommunications Institute I.
- People's Security Institute.
- Ministry of science and technology (free software FOSS)
- Ton Duc Thang University

APPENDIX 2 Research Questionnaire

QUESTIONNAIRE SURVEY

A – **MAIN PART**

The following statements describe your evaluations of Intelligent University software. Please use the 7 – point scale below to indicate how much do you agree or disagree with the statements.

1 – Strongly disagree **2 – Disagree** **3 - Slightly disagree**

4 – Undecided

5 – Slightly agree **6 – Agree** **7 – Strongly agree**

No	Questions	Level						
		Strongly disagree	Disagree	Slightly disagree	Undecieded	Slightly agree	Agree	Strongly Agree
SYSTEM QUALITY								
1	The IU system has an appropriate style of design for Management Student's grade	1	2	3	4	5	6	7
2	The IU system has an easy navigation to information	1	2	3	4	5	6	7
3	The IU system has slow response and transaction processing	1	2	3	4	5	6	7
4	The IU system keeps transactions secure from exposure	1	2	3	4	5	6	7
5	The IU system keeps error-free transactions	1	2	3	4	5	6	7
INFORMATION QUALITY								
6	The IU system has sufficient contents which I expect to find	1	2	3	4	5	6	7

7	The IU system provides complete information	1	2	3	4	5	6	7
8	The IU system provides detailed information	1	2	3	4	5	6	7
9	The IU system provides timely information	1	2	3	4	5	6	7
10		1	2	3	4	5	6	7
PERCEIVED USEFULNESS								
11	The IU software is improve working.	1	2	3	4	5	6	7
12	The software makes the management of Student's grade easier	1	2	3	4	5	6	7
13	The software makes the management of Student's grade more convenient.	1	2	3	4	5	6	7
14	The software makes the management of Student's grade faster.	1	2	3	4	5	6	7
PERCEIVED EASY OF USE								
15	The software is easy to use.	1	2	3	4	5	6	7
16	The sofware is easy to understand.	1	2	3	4	5	6	7
17	The software is simple software.	1	2	3	4	5	6	7
18	Using the software can be skilful.	1	2	3	4	5	6	7
BEHAVIORAL INTENTION TO USE								
19	I intend to use the software because it is a good idea.	1	2	3	4	5	6	7
20	I intend to use the software because it is beneficial for me.	1	2	3	4	5	6	7
21	I have positive perception about using the software.	1	2	3	4	5	6	7
USAGE								
22	I use the software frequently.	1	2	3	4	5	6	7
23	I use the software more than any other Mangement Student's grade software.	1	2	3	4	5	6	7

If you have any additional comments you wish to make about Joomla! software usage, please add them here.

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B. **PERSONAL INFORMATION**

Those following personal information are just used in purpose of this research, and will be ensured to be securred by the researcher.

1. **Gender**: ☐ Male ☐ Female

2. **Age**: ☐ 20 – 30 years old ☐ 31 – 40 years old

☐ above 41 years old

3. **Experience with this Organization**

☐ Less than 5 years ☐ 5 – 10 years

☐ Above 10 years

4. **Title of current position**

☐ Staff ☐ Management

5. **Background of Education**

☐ Ph.D ☐ Master

☐ Engineering ☐ Diploma

☐ Other

Please check that you have responded to all questions.

Thank you very much for your time and participation!

Pham Thien Huong