DECISION-MAKING AND EXPECTATION FACTORS TOWARDS STUDYING ON INFORMATION AND COMMUNICATION TECHNOLOGY

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Abstract

The purpose of this research was to find out the factors affecting the decision-making and expectation towards the studying on information and communication technology. The sample group included 564 students studying in the Faculty of Information and Communication Technology, Silpakorn University. The samples were selected by stratified sampling method. The instrument used was questionnaire by rating scale. The reliability was between .81 - .90. The statistical data analysis included mean, standard deviation, and Exploratory Factor Analysis (EFA) by Principal Components Analysis (PCA) with Varimax Rotation. The research results revealed that the factors affecting the study of information and communication technology consisted of 2 factors, which were, Institute and Desire Factor, and Motivation Factor. Both factors could be explained the variance of decision-making on the study of ICT at 34.14%, and 27.68%, respectively. While the factor of expectation towards the information and communication technology consisted of 2 factors including Environments of Instructional Activities Factor, and Physical Environment Factor. Both factors could be explained the variance of expectation towards the study of ICT at 38.91%, and 23.69%, respectively.

Keywords: Decision-Making, Expectation, Information and Communication Technology, Institute and Desire Factor, Motivation Factor

Introduction

Information and Communication Technology (ICT) takes a crucial role towards the development of capability for the societies and countries in today's world. This is considered as the crucial mechanism in changing the people livelihood. Moreover, it affects the development in every aspect, such as economy, society, environment, and education. It is unavoidable for educational institutes to apply technologies to the teaching and learning. Instead, it is important to realize that how to apply those technologies to support learning for learners, and push the learning into steps of information and long-life learning society, which can lead to the development of human resources as qualified in accordance with the country's requirement. In the future, the roles of Information and Communication Technology will be increasing especially the Information and Communication Technology will be considered as extremely valuable on educational system in the higher educational institutes, this is because to apply technologies appropriately can expand the scope of learning widespread. Moreover, the applied technologies can be integrated in various component forms towards all educational processes, which include teacher, learner, material, building, time, and budget. These can help respond the needs of effective instructional management.

Thailand established the Ministry of Information and Communication Technology in B.E. 2545 (2002) to supervise the information and communication technology of the country. With this reason, the higher education institutes in Thailand realize the necessity of human resources development to gain knowledge for keeping up with the ongoing advanced technologies, as well as being able to integrate various sciences for applying with utmost benefits (Faculty of Information and Communication Technology, 2012). Therefore, the curriculums through the Information and Communication Technology have been established for both Bachelor's Degree and Master's Degree level, however the Bachelor's Degree level   is more emphasized. Wallop Suwannadee, et.al., (1998) suggested that the higher education institute was considered as the learning institute where the information has to be researched, and it was the resource to develop persons in every aspect, as well as becoming the place to produce the graduates or important human resources for Thai society to get all people to access learning to become the people full of intelligence, goodness, happiness, quality, knowledge, and virtue.

Moreover, the institute would take a role and become essential on educational management to respond the learners' requirements, as well as increasing opportunities to respond the learners' requirements on academic quality, together with virtue, supporting the rights and freedom of the learners through learning and educational alternatives fully according to their requirements, interests, and skills.

As the importance of Information and Communication Technology mentioned above, and for getting the teaching and learning of higher education to achieve success, therefore any institute which opens this instructional field has to obtain the information applied for planning of teaching and learning. The facilitation of learners or students development has to be considered. The qualities development of education has to rely on various components, such as the curriculums development, teaching and learning, lecturers, learning atmosphere, educational equipment and materials, innovation and technology, as well as students' recruitment processes. Therefore, the importance of survey on students' information especially the first year students on the decision making towards the study of ICT, as well as the expectation towards the study of ICT for the first year students is considered as extremely crucial towards the students' success on their study, in order to acquire essential information in terms of reasons and expectation towards the study at this Faculty so that the information can lead to the ways to determine policies and plans, approach strategies and publication as the set goals and full of efficiency, as well as being able to organize teaching and learning to be appropriate in accordance with the students and parents' requirements further.

Purposes of Research

To explore and analyze the factors affecting the decision making of study, and factors of expectation towards the study on Information and Communication Technology of the Bachelor's Degree students.

Conceptual Framework of Research

The conceptual framework to explore and analyze the decision making and expectation factors towards the study on Information and Communication Technology of the first year students in the Bachelor's Degree level   consists of The Multiple Factors Theory of Decision Making and Social Action, Achievement Motivation Theory, Expectation Theory, and related researches, such as the research contributions of Apinya Ingard and Jessada Sutthiudom (2005), Preeyanut Saitanu (2012), Weerayut Pornpojtanamas (2012), Rasamee Tongkerd (2011), Paradee Anannawee (2011), Wisaluck Sitkhuntod, and Sirintorn Sinjindawong (2013) as shown in the *Fig.1*
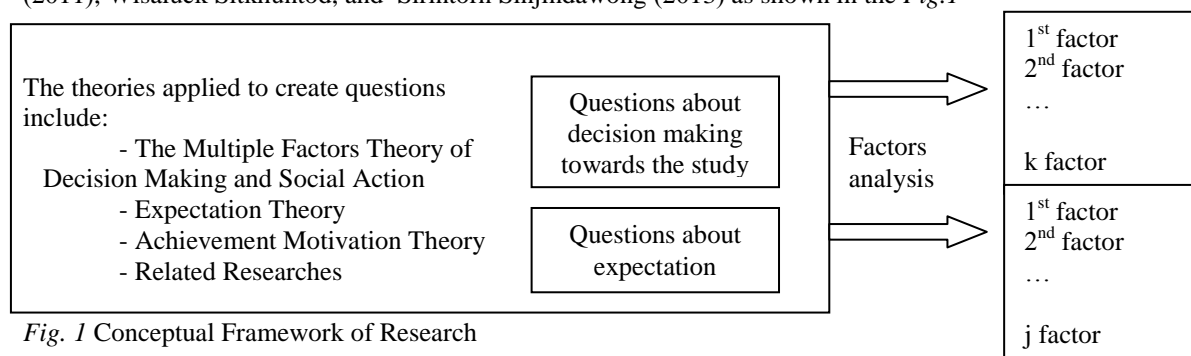

Fig. 1 Conceptual Framework of Research

Methodology of Research

Population and Sample Group
The population of this research is the first year students   using the improved curriculum of the Faculty of Information and Communication Technology, Silpakorn University. The population consists of 750 students from the Information and Communication Technology curriculum, 950 students from the Information Technology for Design, 1,750 students from the Communication Arts, 450 students, totally. The sample group used for this research was 564 first year students studying in the semester 1, 2012 Academic Year. The sample group was selected by Stratified Random Sampling method by using the curriculum of Stratified Sampling curriculum.

Instrument of Research

The instrument of research is questionnaires answered by the students themselves. The researcher collected the concepts, principles, and related researches to find the model questionnaire to use and adapt the question items to be in accordance with the glossaries and contexts in this study, as well as dividing the questionnaires to be 7 parts as follows:
Part 1: The questionnaire about personal factors, this is about the questions of gender, previous programs in high school level, previous grade point average in high school level, current course curriculums, and recruitment system of further study. The characteristics of questions include multiple choice questions integrating with the open-ended questions.

Part 2: The questionnaire about decision making towards the study. There are 11 question items in 4 levels of rating scale. The weighted score is counted from 1 score which means the opinion is at the little level, to 4 scores which mean the opinion is at the much level.

Part 3: The questionnaire about the expectation towards the study. There are 11 question items in 5 levels of rating scale. The weighted score determined according to the Likert's concept as follows; the weighted score is arranged from 1 score which means the opinion is at the least level to the 5 scores which mean the opinion is at the most level.

The questionnaire of Part 2 and 3 has already been investigated the content validity by 3 experts. Moreover, the questionnaires were evaluated the Index of Item - Objective Congruence (IOC), and the results appear that the value of the Index of Item - Objective Congruence (IOC) are more than 0.50 in every item. The questionnaires were also made as tried out questionnaire to test with 30 students to investigate the understanding of the passage and the clarity of language used, as well as evaluating the time period of doing the questionnaires, then the results were analyzed to find the reliability by finding the Cronbach's Alpha Coefficient. The analysis results got the reliability coefficient between .81- .90.

Data Analysis

The collected data were analyzed with Statistical Package by finding mean and standard deviation of general data and the significance level of decision making and expectation factors towards the study, as well as determining the interpretation criteria on the mean of the significance level of decision making factors towards the study as follows; the scores between 3.51 – 4.00 means much level, the scores between 2.51 – 3.50 means rather much level, the scores between 1.51 – 2.50 means rather little level, and the scores between 1.00 – 1.50 means little level. Whereas the expectation factors toward the study are divided as follows; the scores between 4.51-5.00 means the most level, the scores between 3.51-4.50 means much level, the scores between 2.51-3.50 means moderate level, the scores between 1.51-2.50 mean little level, and the scores between 1.00-1.50 mean the least level.

The analysis of decision making and expectation factors towards the study of the Information and Communication Technology for the first year students in the Bachelor's Degree level   use the Exploratory Factor Analysis by Principal Component Analysis Method, Orthogonal Rotation by Varimax with Kaizer Normalization method. The criteria for factors consideration are Eigenvalues which have to be more than 1.0, and Factor Loading has to have the Absolute value more than 0.30. The investigation of basic agreements by analyzing the appropriation of Correlation Matrix as overall image of all question items by the Kaiser-Meyer-Olkin (KMO) had the values not less than 0.50. And the test results by the Bartlett's Test have to acquire the relationship by statistic significance, therefore the data will be appropriate to be analyzed the factors (Suwimon Tirakanan, 2010).

Research Results

Most of the sample group is female (69.9%) studying in the Faculty of the Information and Communication Technology, Silpakorn University by the central recruitment system of students considered as the most (94.3%). Most of the sample group graduated in the Science – Math Program the most (52.0%). The sample group selected to study in the Communication Arts Curriculum the most (52.3%). And the first year students of 2012 Academic Year had the previous collected Grade Point Average (GPA) at 3.21 (S.D. = .33).

1. The analysis of decision making factors towards the study of the Information and Communication Technology for the first year students at the Bachelor's Degree level   found that 2 factors were found, which included the institute and requirement factor, and motivation factor as shown in the Table 1. This can be described in details as the following:

1.1   The institute and requirement factors gives the results of significance at the rather much level.

The Eigenvalues are equal to 3.755. This can describe the variance of decision making to study for 34.14% which consists of 1) readiness of information and technology, 2) buildings and facilities, 3) fame of the Faculty or University, 4) lecturers of the Faculty, 5) curriculums and study programs, 6) interest and self-skills, and 7) parents' desire.
1.2 Motivation factor; this gives the significance results at the rather much level. The Eigenvalues are equal to 3.044. The variance of the decision making can be explained the decision making towards the study of 27.68% which consists of 1) the first year students   have old friends to study together 2) the institute is near home, 3) the senior persuade the first year students to study here, and 4) the first year students   cannot enter into other universities.

Table 1 Decision making factor towards the study of the Information and Communication Technology of the first year students in the Bachelor's Degree level

Dimensions and Items	Factor loading	Mean	S.D.
Institute and Requirement Factor			
▪ Readiness of information technology	.801	2.60	0.83
▪ Buildings and facilities	.777	2.61	0.77
▪ Fame of Faculty or University	.727	2.68	0.93
▪ Lecturers of the Faculty	.710	2.56	0.75
▪ Curriculums and programs	.697	2.60	1.05
▪ Direct to the interests and self-skills	.645	2.60	1.10
▪ Parents' desire	.573	2.63	0.85
Eigenvalues = 3.755, % of variance explained= 34.14%, % of Cumulative variance explained = 34.14%			
Motivation Factor			
▪ The first year students have old friends to study together	.803	2.63	1.13
▪ The University is near home	.771	2.53	1.13
▪ The senior persuade the first year students to study here	.736	2.51	0.99
▪ The first year students cannot enter into other universities.	.640	2.51	1.18
Eigenvalues = 3.044, % of variance explained= 27.68%, % of Cumulative variance explained = 61.82%			
KMO Measure of Sampling Adequacy = 0.867, Bartlett's Test = 2,998.083, df. = 55, p-value = .000			

2.   The analysis of expectation factors towards the study of Information and Communication Technology of the first year students at the Bachelor's Degree level   revealed that 2 factors were found, which included the environment factor of instructional activities factor, and physical environments factor as shown in the Table 2 which can be described in details as the following:

2.1   Environment factor of instructional activities give the results of significance at the much level. The Eigenvalues are equal to 4.28. This can explain the variance of expectation towards the study of 38.91% which consists of 1) there are rooms for doing research and group work, 2) there is an opportunity to share opinions or express ideas appropriately and freely, 3) there are appropriate laboratory rooms for the students,   4) there are curriculum supplementary instructional activities facilitated for the students, and 5) the students are independent to choose the courses of study, 6) there is the teaching and learning management emphasizing the creative ideas expression, 7) there are places for the students to read and review their textbooks, or study with their friends, and 8) there are computers serviced for searching knowledge via internet.

2.2 Physical environments factor gives the results of significance at the much level. The Eigenvalues are equal to 2.61. This can describe the variance of expectation towards the study of 23.68% which consists of 1) there are full of teaching and learning materials in the classroom, 2) the classroom environments are appropriate to the teaching and learning, and 3) there are documents and books for the research sufficiently.

Table 2 Expectation factors towards the study on the Information and Communication Technology of the first year students at Bachelor's Degree level

Dimensions and Items	Factor loading	Mean	S.D.
Instructional Activities Environments Factor			
▪ There are full of teaching and learning materials in the classroom	.786	4.00	0.80
▪ There is an opportunity to share opinions or express ideas appropriately and freely	.785	4.12	0.86
▪ There are appropriate laboratory rooms for the students	.765	4.16	0.76
▪ There are curriculum supplementary instructional activities facilitated for the students	.761	3.98	0.75
▪ The students are independent to choose the courses of study	.728	4.12	0.86
▪ There is the teaching and learning management emphasizing the creative ideas expression	.692	4.21	0.74
▪ There are places for the students to read and review their textbooks, or study with their friends	.630	3.99	0.84

▪ There are computers serviced for searching knowledge via internet.	.547	4.16	0.75

Eigenvalues = 4.280,   % of variance explained= 38.91%,
% of Cumulative variance explained = 38.91%

Physical Environments Factor

▪ There are full of teaching and learning materials in the classroom.	.819	4.16	0.66
▪ The classroom environments are appropriate to the teaching and learning	.812	4.10	0.66
▪ There are documents and books for the research sufficiently	.728	4.03	0.73

Eigenvalues = 2.610,   % of variance explained= 23.68%,
% of Cumulative variance explained = 62.59%

KMO Measure of Sampling Adequacy = 0.916, Bartlett's Test = 3,064.776, df. = 55, p-value = .000

Conclusion

The analysis results for factors of decision making towards the study on the Information and Communication Technology of the first year students at the Bachelor's Degree level consist of 2 factors, which include the institute and requirement factors, and the motivation factor. The question issue about the fame of the Faculty or University has the most significance level which is at the rather much level ($\bar{x}$ = 2.68, S.D. =.93), secondly is about the parents' desire ($\bar{x}$ = 2.63, S.D. = .85), the first year students have old friends to study together ($\bar{x}$ = 2.63, S.D. =1.13), buildings and facilities ($\bar{x}$ = 2.61 S.D. = .77), readiness of information technology ($\bar{x}$ = 2.60, S.D. = .83), curriculum and programs ($\bar{x}$ = 2.60, S.D. = 1.05), interest and self-skills   ($\bar{x}$ = 2.60, S.D. = 1.10), lecturers of the Faculty ($\bar{x}$ = 2.56, S.D. = .75), the University is near home ($\bar{x}$ = 2.53, S.D. =1.13), the senior persuade the first year students to study here ($\bar{x}$ = 2.51, S.D. = .99), and the first year students cannot enter into other universities ($\bar{x}$ = 2.51, S.D. = 1.18), respectively.

The institute and requirement factors which consist of the readiness of information technology buildings and facilities, fame of the Faculty and University, lecturers of the Faculty, curriculums and programs, interest and self-skills, and parents' desire. These can explain the variance of decision making towards the study in the Faculty the most.

Motivation factors which consist of the first year students have old friends to study together, the University is near home, the seniors persuade to study, and the first year students   cannot enter into other universities, these are the secondary factors which can explain the variance of the decision making to study in the Faculty.

1. The analysis results of the factors on expectation towards the study of the Information and Communication Technology for the first year students at the Bachelor's Degree level revealed that 2 factors were found which include the environments factor of instructional activities, and physical environments factor. The question issues have the teaching and learning management emphasizing the creative ideas expression had the most significance level which is at the much level ($\bar{x}$ = 4.21, S.D. =.74), secondly, it is about there are full of teaching and learning materials in the classroom ($\bar{x}$ = 4.16, S.D. = .66), there are computers serviced for searching knowledge via internet ($\bar{x}$ = 4.16, S.D. = .75), there are appropriate laboratory rooms for the students ($\bar{x}$ = 4.16, S.D. = .76), there is an opportunity to share opinions or express ideas appropriately and freely ($\bar{x}$ = 4.12, S.D. = .86), the students are independent to choose the courses of study ($\bar{x}$ = 4.12, S.D. = .86), the classroom environments are appropriate to the teaching and learning ($\bar{x}$ = 4.10, S.D. = .66), there are documents and books for the research sufficiently ($\bar{x}$ = 4.03, S.D. = .73), there are places for the students to read and review their textbooks, or study with their friends ($\bar{x}$ = 3.99, S.D. = .84), and there are curriculum supplementary instructional activities facilitated for the students ($\bar{x}$ = 3.98, S.D. = .75), respectively.

2.   The environments factor of instructional activities which consist of there are rooms for doing research and group work, there is an opportunity to share opinions or express ideas appropriately and freely, there are appropriate laboratory rooms for the students, there are curriculum supplementary instructional activities facilitated for the students, the students are independent to choose the courses of study, there is the teaching and learning management emphasizing the creative ideas expression, there are places for the students to read and review their textbooks, or study with their friends, and there are computers serviced for searching knowledge via internet, these can explain the variance of expectation towards the study in the Faculty the most.

The physical environments factor which consists of There are full of teaching and learning materials in the classroom, the classroom environments are appropriate to the teaching and learning, there are appropriate laboratory rooms for the students, these are the secondary crucial factors which can explain the variance of expectation towards the study in the Faculty.

Recommendation

The administrators of the higher education have to emphasize the development or organize the infrastructure, as well as all facilities which support the instructional management with concrete evidences, such as the teaching and learning equipment for any curriculum, computer both internal and external laboratory, to be beneficial in terms of retrieval for students, laboratory for students, the classroom environmental management ready for teaching and learning, and sufficient documents and books in the library, etc. This is because these are the parts of the expectation towards the study of the Information and Communication Technology.

Brief Biography

Assistant Professor Dr. Apinya Ingard received her Ph.D. in Research and Statistics for Cognitive Science from the College of Research Methodology and Cognitive Science, Burapha University. She received her Master's degrees in Applied Statistics from National Institute of Development Administration. Her Bachelor's degree was in Accounting from Bangkok University. At present she is a faculty member at Faculty of Information and Communication Technology, Silpakorn University.

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