

**INTERNATIONAL JOURNAL OF ENGINEERING SCIENCES & RESEARCH
TECHNOLOGY****PRE-SERVICE TEACHERS' CONFIDENCE AND ATTITUDE ON THE
INTEGRATION OF INFORMATION AND COMMUNICATION TECHNOLOGY IN
TEACHING IN NAVAL STATE UNIVERSITY, NAVAL, BILIRAN, PHILIPPINES****Robert P. Jordan*, Minerva Ebajan-Sanosa, Noel P. Tancinco*** College of Education, Naval State University-Main Campus, P.I. Garcia, Naval, Biliran Province, 6560
Philippines

DOI: 10.5281/zenodo.57935

ABSTRACT

This study aimed to assess the level of confidence and attitude of pre-service teachers on the integration of Information and Communication Technology (ICT) in teaching. The descriptive-correlation research design was used in this study to gather data on the confidence and attitude of pre-service teachers on the integration of ICT in teaching in Naval State University-College of Education for School Year 2015-2016. Focus Group Discussion (FGD) was conducted to support the data obtained from the respondents. A model was evolved to improve the instruction of ICT subject/course based from the findings obtained from the respondents. The models shows that the instruction of ICT subject will have three phases; ICT Proficiency, ICT Technical Skills and Application. These phases are significant to acquire confidence and have a positive attitude on the integration of ICT in teaching. As to the pre-service teachers profile most of them are on the age of 20, with more females than the males, most of them took the BEED program, wherein most of them are specializing SPED while the BSED program there are more who specialized English and only 10 are taking BSIE program. From the fifteen (15) indicators on confidence "I can use ICT effectively in Teaching" got the highest weighted mean and described to be more confident, the average weighted mean of the confidence of pre-service teacher was 3.65 described to more confident. On the attitude of the pre-service teachers on ICT integration in teaching, the attitude statement "Technology is useful in managing students data such as attendance and grades got the highest weighted mean of 4.56 interpreted as strongly agree. The average weighted mean of the attitude of the pre-service teachers' on the integration of ICT in teaching is 3.91 interpreted as agree, therefore they have a positive attitude on ICT integration in teaching. As to the relationship of variables, between the profile and confidence and between profile and attitude, the profile in terms of age, sex and specialization has no significant relationship to the confidence and as well as to attitude of the pre-service teachers' in integrating ICT in teaching. On the other hand, the profile in term of the program of the respondents had a significant relationship with the confidence and attitude of pre-service teachers' on ICT integration to teaching, the confidence had a high significant relationship to their attitude. It is recommended that technical aspect of ICT be emphasized in instruction; provision of additional computers, ICT resources and other instructional technologies; provision of educational technology laboratory, instructors and students will integrate ICT in discussion or teaching demonstration. It is highly recommended that the model evolved from this study will be utilized by instructors teaching ICT subjects, not just in the NSU-College of Education but also with other colleges in the university.

KEYWORDS: Pre-service Teachers, Confidence and Attitude, Integration of Information and Communication Technology, Teaching.**INTRODUCTION**

The purpose of this study is to analyze the relations between teachers' skills in using new information and communication technology (ICT), their pedagogical thinking, and their reported practices. It indicated that a small percentage of teachers had adequate technical skill although a majority had access to computers whether at home or in school. It also furnished evidence that in the classroom, teachers who actively used ICT emphasized the importance of using information and communication technology for supporting a research like process of inquiry, collaborative

learning, learners' active engagement in knowledge formation process and the learnability of intelligence. Further the results indicate that the discrepancy between teachers' pedagogical principles that commonly emphasized active construction of knowledge, and their self-reported pedagogical practices, was lower for teachers who intensively use ICT as compared with other teachers. The integration of Information and Communication Technology (ICT) offers unprecedented opportunities to the education systems with its capacity to integrate, enhance and interact with each other over a wide geographic distance in a meaningful way to achieve the learning objectives. The use of ICT in the classroom is very important to provide opportunities for the students to learn and operate in the information age. Information and Communication Technology (ICT) is a term that includes any communication devices or application, like radio, television, cellular phones, computer, network, hardware and software, satellite systems and so on. ICT is considered as a tools, which can be added for existing teaching methods but also nowadays ICT is seen as an important resources to support new ways of teaching-learning process.

The Information and Communication Technology is an important aspect of education. Numerous benefits of using ICT in education have been unearthed therefore; ICT should be widely used in teaching. However, in order to use ICT in teaching, teachers have to have certain level of confidence (Bakar, et al. 2008). According to Baylon and Ritchie (2002), regardless of the amount of technology and its sophistication, technology will not be used unless faculty members have the skills, knowledge and attitude necessary to infuse it into the curriculum. Therefore, it is important for the future teachers to be equipped with what is needed to help them integrate ICT in teaching. Numerous studies showed that the quality of learning, (Davis et al. 1997) can be significantly enhanced when ICT is integrated with teaching. Research done by Bransford et al. (1994) showed that ICT can enhance critical thinking, information handling skills, level of conceptualization and problem solving capacity.

In the study made by Bakar et al. (2008), teachers have to be prepared to use ICT in teaching and in relation to this, it sought to identify trainee teachers' confidence in teaching using ICT. Gill, L. & Dalgarno, B. (2008) in their study say the role of ICTs in the school classroom is becoming increasingly prominent, both because of the need for children to develop skills that will empower them in modern society and because of the potential value of such technologies as tools for learning. One of the challenges facing teacher educator is how to ensure that graduate teachers have the necessary combination of skills and pedagogical knowledge that will enable them to both effectively use today's technology in the classroom as well as continue to develop and adapt to new technologies that emerge in the future.

Attitude is related to performance and appears to have substantial influence on computer utilization and technology-based performance (Jegade, Dibu-Ojerinde, & Ilori; Jegede & Owoli, 2005); however, some teaching faculty feel intimidated by technology and would rather not explore the potentials for pedagogy and professional advancement. Education around the world is experiencing major paradigm shifts in educational practices of teaching and learning under the umbrella of ICT enabled learning environment. The integration of ICT into the very idea of teaching and learning always places pedagogy over technology. It is not only concerned to master ICT skills, but rather it involves using ICT to improve teaching and learning. This study is about the confidence and attitudes among pre service teachers of Naval State University on the integration of Information and Communication Technology in teaching.

There is an urgency to improve the quality and equity of education to bridge the gap between developed and developing nations, and ICT is perceived as a necessary tool for this purpose. However, the presence of technology alone will not stimulate significant changes in a school. Teachers are important ingredient in the implementation of ICT in education. Without the involvement of teachers, most students may not take advantage of all the available potential benefits of ICT on their own. Teachers need to actively participate in using ICT. They have to be trained in the use of information technology and in its integration in classroom activities to enhance critical thinking and creativity among students. They must also learn to facilitate and encourage students by making them responsible to their own learning. The teachers have to upgrade their skills regularly if they want to stay abreast of developments in their profession and to remain confident in their application of technology. Karsenti and Larose (2001) stated that a major obstacle to an adequate use of technology in all grade levels and in the curriculum is the lack of critical mass of teachers who feel comfortable in using the technology and who can provide support and exemplary instances of good practice to those who are still not well versed with technology.

All teachers trained by teacher education institution or university have to take at least one course in ICT or computer education. Naval State University (NSU) is one of the institutions for training teachers and all trainee teachers at NSU have to enroll in at least one ICT course. But after the completion of those courses, do pre-teachers feel confident on the integration of ICT in teaching? Teacher's attitude comprised of their beliefs on the usefulness of technology in the classrooms, and their self-confidence on the use of technology. The researcher examined whether pre-service teacher have significant attitude towards integration of ICT in teaching. To address this, a study was conducted to assess the level of confidence and attitude of pre-service teachers of Naval State University on the integration of ICT in teaching.

OBJECTIVES OF THE STUDY

This study aimed to assess the level of confidence and attitude of pre-service teachers on the integration of Information and Communication Technology (ICT) in teaching.

Specifically, it sought to: 1) Determine the profile of pre-service teachers of Naval State University in terms of gender; age; program; and specialization, 2) Assess the level of confidence of pre-service teachers on the integration of Information and Communication Technology in teaching, 3) Assess the attitude of pre-service teachers towards integration of Information and Communication Technology in teaching, 4) Ascertain the significant relationship between the profile of pre-service teachers and their level of confidence on the integration of ICT in teaching, 5) Ascertain the significant relationship between the profile of pre-service teachers and their attitude towards integration of ICT in teaching, 6) Ascertain the significant relationship between the level of confidence and attitude towards integration of ICT in teaching among pre-service teachers, 7) Evolve a model that will improve the instructions of ICT courses/subjects.

FRAMEWORK OF THE STUDY

This section will present the theoretical and conceptual framework of the study:

Theoretical framework. This study will be based on the Theory of Reasoned Action propounded by Davis (1986). This theory deals specifically with the prediction of the acceptability of an information system. The purpose of this model is to predict the acceptability of a tool and to identify the modification which must be brought to the system in order to make it acceptable to users. Further, it suggests that the acceptability of information is determined by two main factors: perceived usefulness and perceived ease of use.

Perceived usefulness is defined as being the degree to which a person believes that the use of a system will improve his performance. Perceived ease of use refers to the degree to which a person believes that the use of a system will be effortless. Several factorial analyses demonstrated that perceived usefulness and perceived ease of use can be considered as two different dimensions (Hauser et Shugan, 1980; Larker et al, 1980; Swanson 1987).

As demonstrated in the theory of reasoned action, the Technology Acceptance Model postulates that the use of an Information system is determined by the behavioral intention, but the behavioral intention is determined by the person's attitude towards the use of the system and also by his perception of its utility.

According to Davis, the attitude of an individual is not the only factor that determines his use of a system; the use of a system also based on which it may have on his performance. Therefore, even if an employee does not welcome an information system, the probability that he will use it is high if he perceives that the system will improve performance at work. Besides the Technology Acceptance Model hypothesizes a direct link between perceived usefulness and perceived ease of use. With two systems offering the same features, a user will find more useful the one that he finds easier to use.

Conceptual framework. Different variables will be considered in the conceptualization of this study. The dependent variables covered the profile of the pre-service teachers of NSU-College of Education during the second semester of SY 2015-2016 in terms of gender, age, program of study and specialization. The independent variables, however, reflected the level of confidence of pre-service teachers on the integration of ICT in teaching and the attitude of pre-service teachers' on the integration of ICT in teaching.

Figure 1 .shows the schema/diagram of the conceptual framework of the studies.

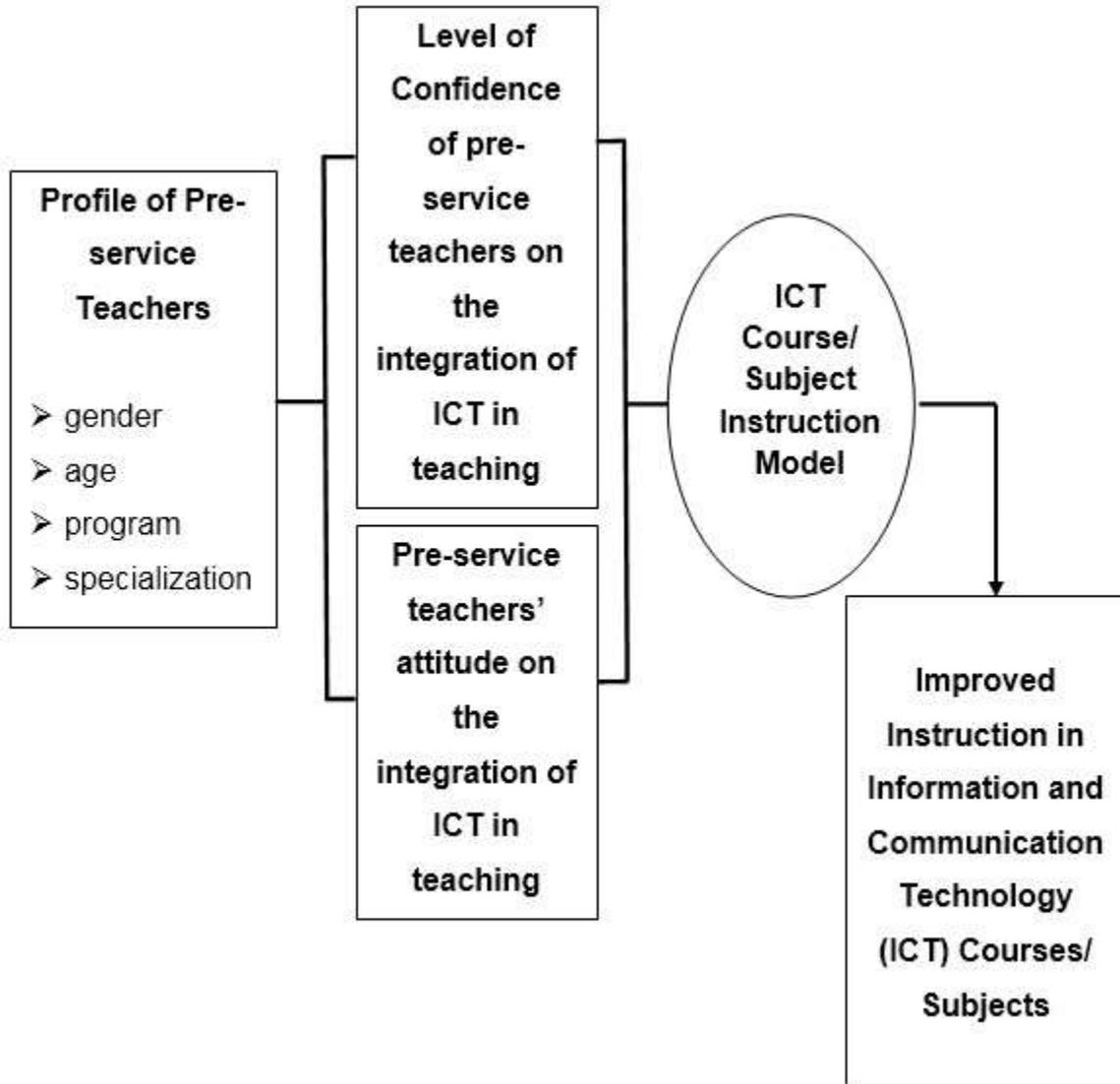


Figure1. The Conceptual Framework of the Studie

Scope and Delimitation of the Study

This study focused on confidence and attitude of pre-service teachers on the integration of Information and Communication Technology (ICT) in teaching. This study measured the level of confidence and attitude of pre-service teachers from the different program offerings of the Naval State University – College of Education, specifically the Bachelor of Elementary Education (BEE), Bachelor of Secondary Education (BSEd) and Bachelor of Science in Industrial Education (BSIE) on the integration of Information and Communication Technology (ICT) in teaching. The study will assess the level of confidence and attitude on the integration of ICT in teaching of pre-service teacher during the second semester of school year 2015-2016 to evolve a model to improved instruction in the ICT subject/s.

METHODOLOGY

The Descriptive-Correlation research design was used in this study. This design is considered appropriate for this study because the attainment of the objectives and the presentation and possible findings or results were analysed

through descriptions. A Focus Group Discussion (FGD) was conducted to support the result or finding in the description process. The study was conducted in Naval State University - College of Education's cooperating schools where the pre-service teachers were assigned during second semester of school year 2015-2016 for their student teaching. The pre-service teachers of Naval State University-College of Education during the second semester of school year 2015-2016 were the respondents of this study. They were the involved respondents in order to provide the necessary data to attain the objectives of this study. In computing the total number of respondents, it made use of the Slovin's Formula with 5% margin of error that resulted to 190 respondents out of the 356 pre-service teachers during the S.Y. 2015-2016 with the used of standardized questionnaire as an instrument to gather data. After identifying the number of respondents, stratified sampling was used in order to have a proportionate representative from all the three programs, the Bachelor in Elementary Education (BEED), Bachelor of Secondary Education (BSED), and Bachelor of Science in Industrial Education (BSIE). After the stratified sampling from the identified 190 respondents, BEED programs had 119 respondents, BSED program had 61 respondents and BSIE program had 10 respondents. This is presented in table below.

Table 1

Population Distribution of Respondents

Name of the Program	Total Number of Pre-Service Teachers	No. of Respondents
Bachelor of Elementary Education	231	119
Bachelor of Secondary Education	106	61
Bachelor of Science in Industrial education	19	10
Total	356	190

In addition to the survey questionnaire, a Focus Group Discussion (FGD) was conducted to support the result of the survey conducted. The FGD is composed of four research themes; (1) Experience prior to pre-service teaching with ICT, questions from this theme will serve as the introductory questions for the participants to start thinking about the topic to be discussed; (2) Experience as a pre-service teacher with ICT integration. Questions from this theme serve as the transitions to provide link between the introductory questions and the key questions; (3) Pre-service teachers confidence on ICT integration; (4) Attitude of pre-service teachers towards ICT integration. Theme 3 and 4 composed the key questions. Questions from theme 3 will reveal their confidence on the integration of ICT in teaching. Theme 4 will also reveal their attitude towards ICT integration in teaching. Summary statistics such as frequency counts, percentages, cross tabulation and descriptive measures such as mean were generated using descriptive statistics. Pearson Product Moment of Correlation was used to find out the relationship of variables and the t-test was considered to test the null hypothesis.

RESULTS AND DISCUSSION

Results are presented according to objective. First, Profile of the Pre-service Teachers. The respondents of this study were the 190 pre-service teachers of the three programs of the Naval State University – College of Education.

Table 2

Profile of the Pre-service Teachers

Gender	f	%
Male	23	12.11
Female	167	87.89
TOTAL	190	100.00
Age		
19	45	23.68
20	77	40.53
21	36	18.95
22	11	5.79
23	5	2.63

24	4	2.11
25	5	2.63
26	1	0.53
27	2	1.05
28	1	0.53
29	1	0.53
31	1	0.53
39	1	0.53
TOTAL	190	100.00
Program		
BEED	119	62.63
BSED	61	21.11
BSIE	10	5.26
TOTAL	190	100.00

Specialization	f	%
BSIE-TLE	10	5.3
Content Course	20	10.5
SPED	62	32.6
Pre-School	37	19.5
English	13	6.8
Mathematics	9	4.7
Science	10	5.3
Filipino	6	3.2
MAPEH	12	6.3
Social Science	11	5.8
TOTAL	190	100

Gender. As shown in the Table, there were more than female pre-service teacher with 87.89 percent while 12.11 percent were male. Results revealed that that there were more female pre-service teachers than that of male pre-service teachers. This is because the field of education is female dominated. They choose career paths where they can have positive social impact than their counterpart. *Age,* 77 or 40.53 percent of the pre-service teachers belonged to the age bracket of 20, 45 or 23.68 percent were under the age bracket of 19, 36 or 18.95 percent fell under 21 age bracket, 11 or 5.79 percent were under the age bracket 22, 5 or 2.63 percent belonged to the age bracket of 25 and 23, 4 or 2.11 percent were under the age bracket of 24, 2 or 1.05 percent were from the age bracket of 27, and 1 or 0.53 percent belonged to 39, 31, 29, 28, 26 age brackets. It could be observed that most of the pre-service teachers of the Naval State University - College of Education are 20 years old. It could be noted that most of the pre-service teachers are young adults and are in the productive stage of their career. *Program,* it could be gleaned that 119 or 62.63 percent pre-service teachers were Bachelor of Elementary Education (BEED) students, 61 or 21.11 percent were from Bachelor of Secondary Education (BSED) Department, and 10 or 5.26 percent were Bachelor of Science in Industrial Education (BSIE) pre-service teachers. It could be discerned that most of the pre-service teachers were taking up Bachelor of Elementary Education (BEED) program as indicated in the frequency of result. This is due to the demand for employment in the elementary level as result to the expansion of the basic education which started from kindergarten at the age of five thereby creating additional vacant positions. *Specialization,* 62 or 32.63 percent of pre-service teachers specialized Special Education, 37 or 19.47 percent took Pre-School, 20 or 10.53 percent specialized Content Course, 13 or 6.84 percent took up English as their specialization, 12 or 6.32 percent specialized MAPEH, 11 or 5.79 percent specialized Social Science, 10 or 5.26 percent took up BSIE/TLE and Science, 9 or 4.74 percent specialized Mathematics, and 6 or 3.16 percent were from Filipino specialization. It could be noted that most pre-service teachers from Bachelor of Elementary Education (BEED) program specialized Special Education and least specialized content course and in the Bachelor or Secondary Education (BSED) program it is noted that English has highest numbers of pre-service teachers and the least number specialized Filipino. This implies that the there is more opportunity to be employed if you are taking SPED as specialization compared to that of Content Course specialization

in the BEED program because they teach grades one to six aside from their specialization, however, for those specializing content course can only teach grades one to six unless they will take eighteen (18) units in SPED and pre-school specializations.

Pre-service Teacher’s Confidence on the integration of ICT in Teaching

The pre-service teachers were assessed with their confidence whether they are not confident, less confident, confident, more confident and very confident on the integration of ICT in teaching. This is presented in table below.

Table 3

Pre-service Teacher’s Confidence on the integration of ICT in teaching

Indicators	WM	Description
I can continuously use ICT in teaching	3.95	More Confident
I can use ICT effectively in teaching	4.05	More Confident
I have the readiness to use ICT in teaching	3.92	More Confident
I am ready to answer questions about ICT whenever posted by students	3.51	More Confident
I have the skills to teach using ICT	3.84	More Confident
I entertain students’ questions related to ICT from students	3.58	More Confident
I feel I am able to motivate students to use ICT in learning	3.98	More Confident
I have capabilities in using multimedia for teaching	3.87	More Confident
I am able to design learning experience using ICT for high achievers	3.60	More Confident
I have the skills to evaluate computer software for teaching and learning	3.33	Confident
I integrate ICT in the delivery of my lessons	3.68	More Confident
I can assure the system quality of my software	3.29	Confident
I am using information tools relevant to teaching	3.73	More Confident
I have computer hardware troubleshooting skills to maintain the effective operation of ICT tools	3.05	Confident
I can use the systems, software and application for assessment and evaluation	3.43	Confident
AWM	3.65	More Confident

As revealed in the table 4.05 weighted mean or described to be more confident on the indicator; I can use ICT effectively in teaching while 3.05 described to be confident on the indicator; I have computer hardware troubleshooting skills to maintain the effective operation of ICT tools. The average weighted mean of 3.65 described as more confident. In relation to this, focus group interview was conducted, when asked about their confidence in their ability to integrate ICT in teaching; there was a range of responses from participants. Participants A, F, and H, have said that they are more confident, for they can integrate ICT effectively in delivering quality instructions, ICT is effective for them to be more informative about the lesson, with ICT they are more innovative in their teaching and very effective in instruction. While participants B was more confident, participant B stated “I am more confident not very confident because I cannot or “kasi di ko kayang ayusin kung may sira ang isang computer kaya di ko masabi na I am very confident, I’m not an ICT expert so I can only operate the basic operations....”. The results implied that the pre service

teachers can integrate ICT effectively in teaching, but when it comes to the technical aspects or troubleshooting skills on ICT to maintain the effective operations was a problem among pre-service teachers. The results also showed that they have sufficient knowledge as pre-service teacher to integrate ICT in teaching, but not sufficient knowledge in terms of the technical aspects of the ICT when integrated in teaching. This implied further that, if the pre-service teachers have the confidence in utilizing or integrating ICT in teaching they could use their specialized skills when they apply for teaching position in the Department of Education. They would be able to confidently demonstrate the ICT skills they have to gain additional points for ranking. Further, these ICT skills would also enhance the teaching-learning process of the learners.

Pre-service teacher's attitude on the integration of ICT in Teaching

The pre-service teachers were assessed on their attitude whether they strongly disagree, disagree, undecided, agree and strongly disagree towards ICT. This is presented in table below.

Table 4
Pre-service teacher's attitude on the integration of ICT in teaching

Indicators	WM	Description
Student create products that show higher level of learning	4.23	Agree
There are more discipline problems	3.80	Agree
Students are more motivated	4.40	Strongly Agree
Student go to inappropriate sites	3.86	Agree
There is more student collaboration	4.21	Agree
Plagiarism becomes more bigger problem	3.96	Agree
The abundance of unreliable sources is disturbing	3.77	Agree
Electronic media will replace printed text within five years	3.56	Agree
Most technology would do little to improve my ability to teach	3.83	Agree
Technology has changed the way that I teach	4.17	Agree
Students are more knowledgeable than I'm when it comes to technology	3.50	Agree
School systems expect us to learn new technologies without formal training	3.53	Agree
Indicators	WM	Description
There is too much technological change coming too fast without enough support for teacher	3.78	Agree
Technology has left many teachers behind	3.43	Undecided
Technology is a good tool for collaboration with other teachers when building unit plans	4.31	Strongly Agree
I learn new technologies best by figuring them out myself	4.06	Agree
Technology is useful in managing student data such as attendance and grades	4.56	Strongly Agree
Technology is unreliable	2.96	Undecided

I perceive computers as pedagogical tools	4.00	Agree
I generally have positive attitude towards using computer technology in teaching	4.17	Agree
I like using computers for teaching purposes	4.29	Agree
I like searching the internet for teaching resources	4.51	Strongly Agree
Computers can be a good supplement to support teaching and learning	4.45	Strongly Agree
I believe I can take risks in teaching with computer technology	3.95	Agree
If I have time I would like to try out instructional computer technology innovations in my Teachings	4.26	Agree
If I have access to resources I would like to try out instructional computer technology Innovations in my teachings	4.16	Agree
If I have training, I would like to try out instructional computer technology innovation in my teaching	4.26	Agree
I am not the type to do well with computerized teaching tools	3.08	Undecided
I am not prepared to integrate instructional computer technology in my teachings	2.82	Undecided
If I get problems using the computer, I can usually solve them one way or the other.	3.44	Undecided
AWM	3.91	Agree

The data presented in table 4, among the 30 identified attitudes indicators, “Technology is useful in managing student data such as attendance and grades” obtained the highest weighted mean of 4.56 which is described as strongly agree. Meanwhile, the indicator “I am not prepared to integrate instructional computer technology in my teachings” got the lowest mean of 2.82 described undecided. Results connote that, as perceived by the pre-service teachers, the average weighted mean of 3.91 revealed that they have a positive attitude in integrating ICT in teaching.

During the Focus Group Discussion, Participant A believed that ICT can help her/him achieve quality lesson and a best tool for him/her to become productive and confident in dealing with the different activities. Further, Participant H said that ICT can give her students a wide range of experience and information about the lesson. It could also show clear pictures and videos as stated by Participant D. Participants E’s perspective reveals that ICT will help the teaching and learning process more exciting, more innovative, and more colorful. This implies that pre-service teachers have positive attitude in integrating ICT in teaching. This mean suggests that pre-service teachers were positive about the use of ICT not just in the actual teaching but also the other duties of teachers like data management/record, the ease of use of technology to present something to the learner for effective instruction, the excitement of the of the learner when using ICT in delivering the lesson and the feeling of becoming an innovative teacher. This further implies that with ICT, teaching is becoming more meaningful and effective, because it widens ones learning horizon and potential that in turns promotes a positive feeling towards successful integration of ICT in the teaching and learning process. As such, there is a demand to developing ICT skills among future teachers and in-service teachers, because nowadays the work of teachers is not just confined in the teaching-learning process but also on the effective management of records, file management and reports which nowadays being done through the internet, applications and other ICT resources.

RELATIONSHIP OF VARIABLES

The relationship of variables is another important objective in this study. The significant relationship between the profile of pre-service teachers and their level of confidence on the integration of ICT in teaching, the profile of pre-service teachers and their level of confidence on the integration of ICT in teaching, and the level of confidence and attitude towards integration of ICT in teaching among pre-service teachers are presented in the following tables.

Table 5

Relationship between the Profile of Pre-service Teachers and their Level of Confidence on the Integration of ICT in Teaching

Variable	X ²	r	df	p-value	Decision
Age	----	.067	----	0.356	Accepted
Gender	37.91	----	41	0.609	Accepted
Program	149.10	----	82	0.000	Rejected
Specialization	412.667	----	369	0.058	Accepted

As depicted in Table 5, the result shows the relationship between the profile of pre-service teachers and confidence on the integration of ICT in teaching. As presented in the table the correlation using the Pearson correlation to assess relation between the age of the respondents and confidence on the integration of ICT in teaching, results reveal that there is no significant relationship between variables having an ($r = .067$), and ($p\text{-value} = 0.356$). This means that the age of the respondents does not affect their confidence on the integration of ICT in teaching. The table also presented the relationship between the gender of the respondents and the confidence on the integration of ICT in teaching using chi square. Having the results of ($X^2 = 37.91$), ($df = 41$) and ($p\text{-value} = 0.609$), results reveal that the gender of the respondents and the level of confidence on the integration of ICT in teaching has no significant relationship. This means that the gender of the respondents does not affect their confidence on the integration of ICT in teaching. The relationship of the respondents specialization and level of confidence on the integration of ICT in teaching were not significantly related having an ($X^2 = 412.667$), ($df = 369$), and ($p\text{-value} = 0.058$). Results reveal that the specialization of the respondents does not affect their confidence on the integration of ICT in teaching. The hypothesis was accepted, therefore not significant. This means that the profile in terms of age, gender and specialization did not affect the confidence of the pre-service teachers on the integration of ICT in teaching. And as provided also in the table the relationship between the program of the respondents and level of confidence on the integration of ICT in teaching were significantly related having an ($X^2 = 149.10$), ($df = 82$) and ($p\text{-value} = 0.000$). The hypothesis was rejected, therefore significant. This reveals that the profile in terms of program of respondents affects their confidence on the integration of ICT in teaching. This implies that the effective integration of ICT in teaching depends on the teachers ICT skills and their intention of technology use. Future teachers and in-service teachers needed knowledge and skills on the appropriate ICT integration in teaching in ways that optimize the benefits of their students learning.

Table 6

Relationship between the Profile of Pre-service Teachers and their Attitude towards Integration of ICT in Teaching.

Variable	X ²	r	df	p-value	Decision
Age	----	.069	----	0.356	Accepted
Gender	41.42	----	45	0.624	Accepted
Program	113.998	----	90	0.045	Rejected
Specialization	417.336	----	405	0.325	Accepted

As revealed in Table 6, the result shows the relationship between the profile of pre-service teachers and their attitude towards integration of ICT in teaching. As presented in the table the correlation using the Pearson r to assess relation between the age of the respondents and their attitude towards integration of ICT in teaching, results reveal that there is no significant relationship between variables having an ($r = .069$), and ($p\text{-value} = 0.356$). This means that the age of the respondents does not affect the attitude of the pre-service teachers on the integration of ICT in teaching. The table also presented the relationship between the gender of the respondents and the attitude towards integration of ICT in teaching using chi square. Having the results of ($X^2 = 41.42$), ($df = 45$) and ($p\text{-value} = 0.624$), results reveals that

the gender of the respondents and their attitudes towards ICT integration in teaching has no significant relationship. This means that the gender of the respondents does not affect the attitude towards integration of ICT in teaching. The relationship of the respondents specialization and attitude towards ICT integration teaching is not significantly related having an ($X^2 = 417.336$), ($df = 405$), and ($p\text{-value} = 0.325$). Results reveal that the specialization of the respondents does not affect the attitude towards ICT integration in teaching. Hypothesis was accepted, therefore not significant. This means that the profile in terms of gender, age and specialization do not affect the attitude of pre-service teacher on the integration of ICT in teaching. Moreover, the relationship between the profile in terms of program of the respondents and attitude towards ICT integration in teaching were significantly related having an ($X^2 = 113.998$), ($df = 90$) and ($p\text{-value} = 0.045$). Hypothesis was rejected therefore significant. This reveals that the program of respondents affects the attitude pre-service teachers on the integration of ICT in teaching. This implies that pre-service teachers could integrate ICT in teaching when there are available resources to be utilized and also they have knowledge or skills on the available resources whatever is their gender, age or specialization, on the other hand, the learning environment and types of learners influence the effective integration of ICT in the teaching-learning process.

Table 7

Relationship between the Level of Confidence and Attitude towards Integration of ICT in Teaching among Pre-service Teachers

Variable	r	p-value	Decision
Attitudes of pre-service teacher on the integration of ICT in teaching	0.373**	0.000	Rejected

** significant at $p < .01$ alpha level

As revealed in table 7, the level of confidence and attitude towards integration of ICT in teaching among pre-service teachers were very high significantly related having an ($r=0.373$) and ($p\text{-value} < 0.01$). Results show that the level of confidence of pre-service teachers affected the attitude of pre-service teachers' integration of ICT in teaching. Thus, the hypotheses status that there is no significant relationship between the level of confidence and attitude towards integration of ICT in teaching among pre-service teachers was rejected and therefore significant. This implies that if the level of confidence of the pre-service teachers is higher, their attitude on the integration of ICT in teaching is also higher or positive. If they have positive attitude in integrating ICT in teaching, they are also confident to integrate it in their teaching.

MODEL TO IMPROVE THE INSTRUCTION OF ICT SUBJECTS/COURSES

Another important objective of this study is to evolve a model that will improve the instruction of ICT subjects/courses at Naval State University-College of Education.

ICT Subject Instruction Model is a model to improve the instruction of ICT subject/courses. The model was developed based on the general objective of the present study which is to assess the level of confidence and attitude of pre-service teachers on the integration of ICT in teaching. This is presented in Figure 2.

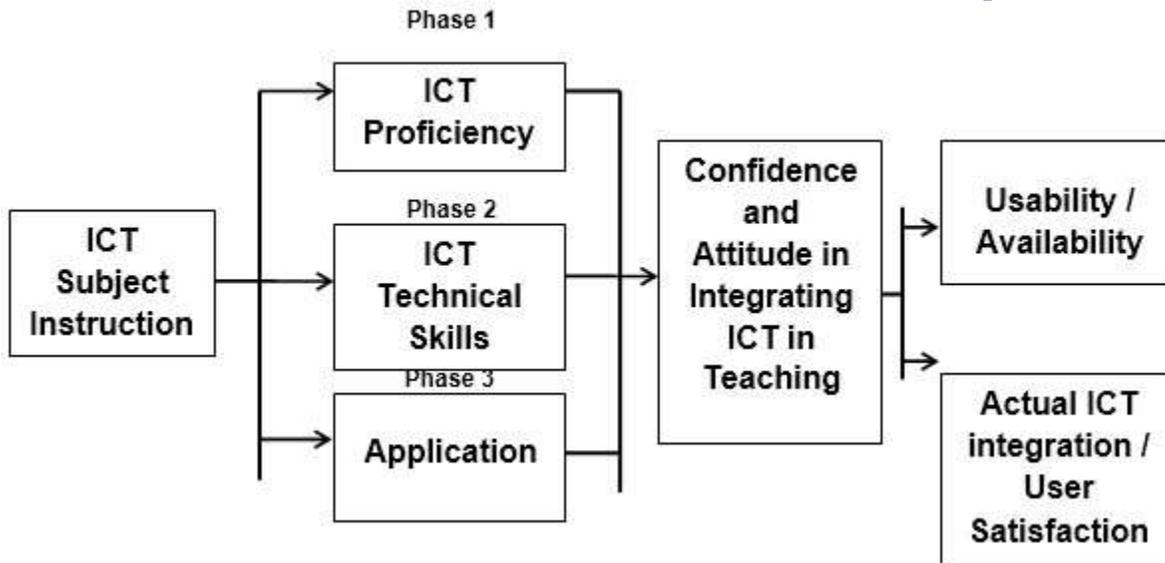


Figure 2. Proposed Model to Improve the Instruction of ICT Subjects/ Courses

This model shows that the instruction for the ICT subjects/courses suggest having three phases; ICT Proficiency, ICT Technical Skills and Application. ICT proficiency phase is a part of the instruction that will cover the knowledge, theories, principles and basics of the ICT resources. The technical skills phase is an important phase in the ICT subject instruction, so that future user will have the skills or competence, not just in using the ICT but also in terms of the technical aspects that they may be experienced in utilizing ICTs. The application phase of the ICT subject instruction play an important role, this phase will give the opportunity for the users to apply the knowledge and skills gained from instruction in the ICT subject.

The three phases of the model of instruction for ICT subjects/courses, students are expected to have confident and positive attitude in integrating ICT in teaching. Thus this model also suggested that in other subject that the students will be taking, ICT should also be integrated for further enhancement of the knowledge and skills that the students acquired during their ICT subject/courses.

The confidence and attitude of the students on the integration of ICT in teaching will be showed by the user on the availability and usability of the ICT resources. It can also be manifested from the user on the actual integration of ICT and the satisfaction of the user after integrating ICT in teaching.

This model was developed based on the results obtained from this study. Davis, et al (1989) develop Technology Acceptance Model (TAM), from the theory Reasoned Action which is also propounded by Davis et al. (1989) wherein this present study was anchored. TAM is an information system that represents the way in which users come to accept and use a technology. The results of the present study proposed a model to improve the instruction in ICT subjects/courses. TAM Davis (1989), suggests that when users are presented with a new technology, a number of factors influence their decision about how and when they will use it in particular; Perceived usefulness, this was defined by Davis as the degree to which a person believes that using a particular system would enhance his or her job performance or this is the perceived attitude of the user of the systems, and Perceived ease of use is considered as the confidence of the user wherein Davis (1989) define as the degree to which a person believes that using a particular systems would be free from effort.

CONCLUSION

Based on the findings, the following conclusions were drawn: From the fifteen indicators about confidence; “I can use ICT effectively in teaching” got the highest and interpreted to be more confident, likewise, the indicator “I have computer hardware troubleshooting skills to maintain the effective operations of ICT tools got the lowest mean and

interpreted to be confident. The level of confidence of pre-service teachers was found to be more confident. The pre-service teachers are more confident in the integration of ICT in teaching and believe that ICT is effective in delivering quality instructions, ICT is effective for them to be more informative about the lesson, and with ICT they are more innovative in their teaching and very effective in instruction, On the other hand, they need to learned more about the technical skills of ICT to maintain the effective integration. Moreover, the attitude of pre-service teachers towards ICT integration, it was perceived that they have a positive attitude in integrating ICT in teaching. The highest mean from the indicators about their attitude was “Technology is useful in managing student’s data such as attendance and grades, while the “I am not prepared to integrate instructional computer technology in my teachings”. Therefore, it could be concluded that they may have positive attitude on the basic use of computer such as managing data, but with the with instructional technology to integrate in teaching they have a problem. As to the profile of the pre-service teachers, most of the pre-service teachers are on the age of 20, in terms of sex, there were more female pre-service teachers than that of male pre-service teachers, in terms of the program, and the three programs of the Naval State University-College of Education were represented using random sampling. Likewise, the program Bachelor of Elementary Education (BEED) got the highest number of pre-service teachers and the Bachelor of Science in Industrial Education got the lowest in number. In terms of specialization for the program Bachelor of Elementary Education (BEED) Program, there were more pre-service teachers specializing SPED while the Content Course specialization has the lowest in numbers. On the program Bachelor of Secondary Education (BSED) the highest number of pre-service teacher were specializing English and Filipino specialization got the lowest in number.

RECOMMENDATIONS

The following are the recommendations based on the results of the study: The instructors teaching ICT subjects should give more emphasis on technical aspects on ICT tools or resources and should teach the students the basic troubleshooting of ICTs. The university should prioritize the provision of additional computers, ICT resources and other instructional technologies that will be used for ICT subject instruction. The university should provide Educational Technology Laboratory solely for the NSU-College of Education students. The faculty of the NSU-College of Education should encourage students to integrate or use ICT in the discussion or during teaching demonstration. It is highly recommended that the model evolved from this study should be utilized by instructors teaching ICT subjects/courses to improve the instruction of ICT subject/courses and will help the students to be confident and have positive attitude towards ICT integration in teaching.

It is highly recommended that the model will be utilized as bases for instructions of ICT subjects in other colleges in the university to help the students gain enough knowledge and skills about ICT, since nowadays ICT skills and knowledge is important in any jobs after graduation.

REFERENCES

- [1] Ab. Rahim Bakar & S. Mohamed (2008). Teaching using information and communication technology: Do trainee teachers have the confidence. *International Journal of Education and Development using information and communication Technology*, 4 (1), 5-12.
- [2] Alazam, A., Bakar, A. Hamzah, R. & Asmiran, S. 2012. Teachers’ ICT Skills and ICT Integration in the Classroom: The case of a Vocational and Technical teachers in Malaysia. *Creative Education*, 3, 70-76.
- [3] Baylon, A., & Ritchie, D. 2002. What factors facilitate teacher skill, teacher morale, and perceived student learning in technology-using classroom?. *Computer & Education*, 39(1), 395-414.
- [4] Davis, F.; Bagozzi, R.; Warshaw, R. (1989). User Acceptance of computer Technology: A comparison of two Theoretical Models. *Management Science*, Volume35, 1989, pp. 982-1003.
- [5] Davis, N., Desforjes, C. et al 1997. Can Quality in Learning be Enhanced through the use of IT? In Somekh, B. and Davis, N. *Using Information Technology Effectively in Teaching and Learning*, London, Routledge
- [6] Bransford, J.D; Brown, A.L. and Cocking, R.C. (Eds) 1999. *How People Learn: Brain Mind, Experience and School*, Committee on Developments in the Science of Learning, National Research Council, National Academic Press.
- [7] Gill, L & Dalgarno, B (2008). Influences on pre-service teachers’ preparedness to use ICTs in the classroom. *Proceedings ascilite Melbourne*, 2008, 330-339.

- [8] Jegede, P.O., &Owolabi, O. (2005). Effects of professional Status, subject discipline and computer access on computer attitudes among teacher educators in Nigeria Colleges of Education. *Information Technology Journal*, 4(2), 58-162.
- [9] Karsenti, T., Savoie_Zajc, L. and Larose, F. 2001. Les futursenseignants aux TIC: Changementsdansl'attitude, la motivation et les pratiquespedagogiques. *Education et Francophonie*, 29 (1),[<http://www.acelf.ca/revue/XXIX-1/articles/03-Karsenti.html>],29 pages.