

Attitudes of Elementary Pre-service Teachers towards Computer-Based Instruction

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Abstract— The study aimed to trace the profile of the senior elementary pre-service teachers in terms of sex, course, grade in basic computer subject, presence of computers at home, experience in using computer, and their perceived computer skills in terms of MS Word, MS Excel, MS Publisher, MS PowerPoint, Electronic Mail (E-mail), and internet surfing. The study also determined the attitudes of the senior elementary pre-service teachers towards computer-based instruction (CBI) and found out the significant relationship between the variables.

Using descriptive-correlational research, 123 senior elementary pre-service teachers were involved as respondents. An adapted instrument was used to gather data statistically treated using frequency counts, percentages, means, and multiple regression analysis.

Majority of the respondents are female, have no computers at home and have used computers in reporting/teaching while most have a grade of 1.75 in Basic Computer. Generally, most are skilled in using computer programs. Majority have favorable attitudes towards CBI. There is no significant relationship between the profile and the perceived computer skills and attitudes towards CBI. There is no significant relationship between the perceived computer skills and attitudes towards CBI.

The study concludes that despite the average computer skills, the respondents are open to the advantages of CBI.

Keywords--Attitudes, computer-based instruction, elementary, pre-service teachers, descriptive-correlational design, Philippines

I. INTRODUCTION

Technology is the main support for the students learning developments nowadays. With shifting from the teacher-centered instruction to child-centered instruction, the role, activities, attitudes, reflections of the students become more important concern to overlook the effectiveness of technology in instruction. Computers are the main technology support as a tool for effective learning and teaching process. Computer based instruction and computers programs, tools as itself provides much facilities and supports to students' educational life. Computers are update mechanism for the education and it is not only for education, these developments affect all global, cultural, economical life standards as well.

Computer-based instruction (CBI) was considered the technological phenomenon to revolutionize education and training. Today, the internet and computer technology are reported to have significantly altered the education landscape (Johnson & Aragon, 2002). The rapid advances in technology, the need for lifelong learning, and the growth of nontraditional students have encouraged the use of the computer as a method of instructional delivery. (Gibbons & Fairweather, 2000).

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Grabe (2001) reflects the issue of "Using Instructional Software for Content-Area Learning". The computer applications have great role in the instruction. The reflected issue contains what is instruction and how traditional instructional activities challenged by the development of high technology and computer-based instruction, computer facilities. For practicing, reaching high quality technology-based learning experiences for students, computers should create tendency from the students and be part of the instruction based on constructivist approach.

Forcier (1996) reflects the role of computers in education. The important points in here is that students should be in consciousness of the place of computer application in education, strategies for using computers, instruction and learning and issues, trends in information technology in order to shape right and concrete attitudes for technology and computers in instruction. The most important reflection is that computer application in education provides student-centered learning instead of teacher centered learning and learning becomes based on constructivist approach in order to create motivation and communication within instruction by the help of the computer and high technology materials.

Computers and the Internet are great resource for classroom teachers. Teachers can find suggestions, lesson plans, practical support, information, and materials through the Internet. In fact, using a computer can make a teacher's life easier and more efficient. Nowadays, teachers are using these technologies for teaching-learning process, but there are some issues concerning the use of technologies particularly computers. The slow internet connection of the Philippines has something to do with the level of usage of the netizens. The lack of computers in some schools can also affect the implementation of Information and Communication Technology. It is sad to note that teachers lack exposure to ICT which also affect the effective integration of technology in the school curriculum.

Researches have been conducted to assess the attitudes of learners towards computer-based instruction. Akram, et.al. (2012) found out that majority of the respondents agreed that computer helps in teacher's instruction, in understanding the complex concepts of subject and to improve the level of learning. The study of Teo (2008) showed no gender or age differences among pre-service teachers on computer attitudes. However, there were significant differences for computer attitudes by the subject areas that pre-service teachers had been trained during their university education. The study of Krishna & Sachan (2014) revealed that students have a positive attitude towards ICT and use them to facilitate learning, although female students are more inclined towards ICT usage and likely

to find that ICT help them at their studies. Teachers’ attitudes towards computers are found to be positive in the studies of Bakr (2011) and Cavas, et.al. (2009).

With the shift from teacher-centered to child-centered instruction, the importance of technology in instruction cannot be understated. The study aimed to trace the profile of the senior elementary pre-service teachers in terms of sex, course, grade in basic computer subject, presence of computers at home, experience in using computer, and their perceived computer skills in terms of MS Word, MS Excel, MS Publisher, MS PowerPoint, Electronic Mail (E-mail), and internet surfing. The study also determined the attitudes of the senior elementary pre-service teachers towards computer-based instruction (CBI) and found out the significant relationship between the profile of the respondents and their perceived computer skills and the significant relationship between the respondents perceived computer skills and their attitudes towards computer-based instruction (CBI).

II. METHODOLOGY

The study utilized descriptive-correlational research with 123 senior elementary pre-service teachers was involved as respondents. An adapted instrument (Akram, et.al., 2012) was used to gather data statistically treated using frequency counts, percentages for the profile of the respondents, means for their perceived computer skills and attitudes towards computer-based instruction (CBI) and multiple regression analysis for the test of significant relationship between variables. The respondents responded to their computer skills by checking VMS for Very Much Skilled, MS for Much Skilled, S for Skilled, LS for Less Skilled and NS for Not Skilled. The means of the items and of every respondent were computer and interpreted using the following;

- 4.21 – 5.00 Very Much Skilled
- 3.41 – 4.20 Much Skilled
- 2.61 – 3.40 Skilled
- 1.81 – 2.60 Less Skilled
- 1.00 – 1.81 Not Skilled

The respondents also answered their agreement or disagreement on their attitudes towards computer-based instruction by checking SA for Strongly Agree, A for Agree, U for Uncertain, D for Disagree and SDA for Strongly Disagree. The means of the items and of every respondent were computer and categorized into the following;

- 4.21 – 5.00 Highly Favorable
- 3.41 – 4.20 Favorable
- 2.61 – 3.40 Moderately Favorable
- 1.81 – 2.60 Less Favorable
- 1.00 – 1.81 Not Favorable

III. RESULTS AND DISCUSSION

Table 1 presents the sex of the respondents. The table shows that majority of the respondents are female. This means that majority of the senior elementary pre-service teachers are female.

TABLE 1. SEX OF THE RESPONDENTS

	Frequency	Percent
male	20	16.3
female	103	83.7
Total	123	100.0

Table 2 presents the course of the respondents. The table shows that majority of the respondents are BEEd pre-service teachers.

TABLE 2. COURSE OF THE RESPONDENTS

	Frequency	Percent
BEEd	88	71.5
BEEdHE	35	28.5
Total	123	100.0

Table 3 presents the grade in basic computer subject of the respondents. The table shows that most of the respondents have a grade of 1.75. This means that they are average learners of computer.

TABLE 3. GRADE IN TBASIC COMPUTER

	Frequency	Percent
1.00	4	3.3
1.25	6	4.9
1.50	25	20.3
1.75	40	32.5
2.00	26	21.1
2.25	9	7.3
2.50	3	2.4
2.75	6	4.9
3.00	4	3.3
Total	123	100.0

Table 4 presents the presence of computer at home by the respondents. The table shows that majority of the respondents have no computer at home.

TABLE 4. PRESENCE OF COMPUTER AT HOME

	Frequency	Percent
yes	46	37.4
no	77	62.6
Total	123	100.0

Table 5 presents the use of the respondents of a computer in class reporting/teaching. The table shows that majority of them used computer in class reporting and teaching. This means that even if they do not have personal computer, they still managed to use computer in their class reporting and teaching.

TABLE 5. THE USE OF COMPUTER IN CLASS REPORTING/TEACHING

	Frequency	Percent
yes	102	82.9
no	21	17.1
Total	123	100.0

Table 6 presents the perceived over-all computer skills of the respondents. The table shows that most of the respondents are skilled in using computer. This means that the respondents have an average level of skills in terms of using computers. This proved their average grade in their basic computer education subject.

TABLE 6. PERCEIVED OVER-ALL COMPUTER SKILLS

	Frequency	Percent
Very Much Skilled	12	9.8
Much Skilled	30	24.4
Skilled	48	39.0
Less Skilled	30	24.4
Not Skilled	3	2.4
Total	123	100

Table 6.1 presents the perceived computer skills of the respondents in MS Office Word. The table shows that most of the respondents are much skilled in using the MS Office Word. This means that most of the respondents know how to use the MS Office Word Application in the computer.

TABLE 6.1. PERCEIVED COMPUTER SKILLS IN MS WORD

	Frequency	Percent
Less Skilled	8	6.5
Skilled	36	29.3
Much Skilled	53	43.1
Very Much Skilled	26	21.1
Total	123	100.0

Table 6.2 presents the perceived computer skills of the respondents in MS Office Excel. The table shows that most of the respondents are less skilled in using the MS Office Excel application. This means that the respondents are not proficient in using the MS Office Excel application.

TABLE 6.2. PERCEIVED COMPUTER SKILLS IN MS EXCEL

	Frequency	Percent
Not Skilled	12	9.8
Less Skilled	52	42.3
Skilled	34	27.6
Much Skilled	20	16.3
Very Much Skilled	5	4.1
Total	123	100.0

Table 6.3 presents the perceived computer skills of the respondents in MS Office Publisher. The table shows that majority of the respondents are less skilled in using the MS Office Publisher application. This means that generally the respondents do not know exactly how to use the MS Office Publisher.

TABLE 6.3. PERCEIVED COMPUTER SKILLS IN MS PUBLISHER

	Frequency	Percent
Not Skilled	24	19.5
Less Skilled	64	52.0
Skilled	20	16.3
Much Skilled	11	8.9
Very Much Skilled	4	3.3
Total	123	100.0

Table 6.4 presents the perceived computer skills of the respondents in MS Office PowerPoint. The table shows that majority of the respondents are less skilled in using the MS Office PowerPoint application. This means that generally the respondents do not know exactly how to use the MS Office PowerPoint.

TABLE 6.4. PERCEIVED COMPUTER SKILLS IN MS OFFICE POWERPOINT

	Frequency	Percent
Not Skilled	24	19.5
Less Skilled	64	52.0
Skilled	20	16.3
Much Skilled	11	8.9
Very Much Skilled	4	3.3
Total	123	100.0

Table 6.5 presents the perceived computer skills of the respondents using Email. The table shows that most of the respondents are skilled in using E-mail. This means that the respondents have average knowledge in using E-mail.

TABLE 6.5. PERCEIVED COMPUTER SKILLS USING EMAIL

	Frequency	Percent
Not Skilled	19	15.4
Less Skilled	33	26.8
Skilled	38	30.9
Much Skilled	24	19.5
Very Much Skilled	9	7.3
Total	123	100.0

Table 6.6 presents the perceived computer skills of the respondents using the internet. The table shows that most of the respondents are much skilled in using the internet. This means that the respondents are generally knowledgeable in using the internet.

TABLE 6.6. PERCEIVED COMPUTER SKILLS USING THE INTERNET

	Frequency	Percent
Less Skilled	17	13.8
Skilled	33	26.8
Much Skilled	37	30.1
Very Much Skilled	36	29.3
Total	123	100.0

Table 7.1 presents the attitudes of the respondents towards computer-based instruction. The table shows that majority of respondents have favorable attitudes towards computer-based instruction. This means that the respondents have positive

disposition towards computer-based instruction. This confirmed the study of Teo (2008), Krishna & Sachan (2014) and Bakr (2011).

TABLE 7.1 RESPONDENTS BY ATTITUDES TOWARDS COMPUTER-BASED INSTRUCTION

	Frequency	Percent
Highly Favorable	8	6.5
Favorable	86	69.9
Moderately Favorable	29	23.6
Total	123	100.0

Table 7.2 presents the respondents' attitudes towards computer-based instruction per item. Generally, the students have favorable attitudes towards computer-based instruction. The data reveals that majority of the items were rated highly favorable by the respondents. Looking at the three highest means, the respondents have very highly favorable attitudes towards computer-based instruction as "computers help in teacher's instruction," "computer-based instruction should be part of the curriculum," and "computer-based instruction tools help in self-learning of students." This means that the students recognize the advantages of computers in the different components of the teaching-learning process – the teachers, the students, and the curriculum.

TABLE 7.2 ATTITUDES TOWARDS COMPUTER-BASED INSTRUCTION PER ITEM

Statement	Mean	Interpretation
Computers help in teacher's instruction.	4.68	Highly Favorable
Computer-based instruction should be part of the curriculum.	4.58	Highly Favorable
Computer-based instruction tools help in self-learning of students.	4.45	Favorable
Computer-based instruction tools are available in the school.	4.11	Favorable
Computer-based instruction is helpful in the development of competence.	4.07	Favorable
Computer-based instruction tools required less time and energy of teachers.	4.02	Favorable
Better way of learning is to allow students to move at their own pace.	4.01	Favorable
Computer-based instruction tools are more helpful for college learners than basic education learners.	3.91	Favorable
Computer-based instruction helps in understanding the complex concepts of the subject.	3.87	Favorable
I feel comfortable in using various computer-based instruction tools.	3.76	Favorable
Learning through projects and slides is more intensive than learning through boards and charts.	3.72	Favorable
Computer-based instruction tools play an important role to improve problem-solving skills.	3.71	Favorable
I am confident to use computer-based instruction in class.	3.64	Favorable

Computer-based instruction tools are more appropriate to meet the student's requirements.	3.62	Favorable
Computer-based instruction tools are only useful to develop cognitive skills in some subjects.	3.35	Moderately Favorable
Computer-based instruction tools cannot be helpful for all kind of students.	2.78	Moderately Favorable
Teaching using computers and traditional method have no difference.	2.72	Moderately Favorable
Computer-based instruction tools can be replacement of human teacher.	2.59	Less Favorable
Computer-based instruction tools waste the time of students.	2.25	Less Favorable

The three of the bottom five means state that students have moderately favorable attitudes towards CBI as "computer-based instruction tools are only useful to develop cognitive skills in some subjects," "computer-based instruction tools cannot be helpful for all kind of students," and "teaching using computers and traditional method have no difference." This means that the respondents are not yet fully aware of the different uses of computers in diverse skills and the type of learners that are exposed to the usage of computers in teaching-learning process.

The two lowest means state that, "computer-based instruction tools can be replacement of human teacher," and "computer-based instruction tools waste the time of students." This means that the respondents disagree with these statements.

Table 8.1 presents the test of significant relationship between the profile and the attitudes of the respondents towards CBI. The table shows that there is no significant relationship between the profile of the respondents and their attitudes towards CBI. This means that their sex, course, the presence of personal computer, the use of computer in reporting/teaching and their grade in basic computer education subject do not depend on their attitudes towards CBI.

TABLE 8.1. TEST OF RELATION OF PROFILE AND ATTITUDES TOWARDS CBI

Model	Significance	Interpretation
Sex	.107	Not Significant
Course	.380	Not Significant
Grade in Basic Computer	.796	Not Significant
Presence of Computer At Home	.720	Not Significant
Used Computer in Reporting/Teaching	.078	Not Significant

Table 8.2 presents the test of significant relationship between the profile and the perceived computer skills of the respondents. The table shows that there is no significant relationship between the profile of the respondents and their perceived computer skills. This means that their sex, course, the presence of personal computer, the use of computer in reporting/teaching and their grade in basic computer education subject do not depend on their perceived computer skills.

TABLE 8.2. TEST OF RELATION OF THE PROFILE AND THE PERCEIVED COMPUTER SKILLS

Model	Significance	Interpretation
Sex	.594	Not Significant
Course	.924	Not Significant
Grade in Basic Computer	.423	Not Significant
Presence of Computer At Home	.424	Not Significant
Used Computer in Reporting/Teaching	.129	Not Significant

Table 8.3 presents the test of significant relationship between the perceived computer skills and the attitudes of the respondents towards CBI. The table shows that the perceived computer skills of the respondents and their attitudes towards CBI are not significantly related. This means that the computer skills they possess do not depend on their attitude towards CBI.

TABLE 8.3. TEST OF RELATION OF THE PERCEIVED COMPUTER SKILLS AND ATTITUDES TOWARDS CBI

Model	Significance	Interpretation
Attitudes Towards CBI	.158	Not Significant

IV. CONCLUSION

The study concluded that despite the average computer skills of the respondents, they are still open to the advantages of computer-based instruction (CBI). This means that there is a need to expose the pre-service teachers to computer-based instruction so that their attitudes will be improved.

V. RECOMMENDATION

Based on the findings of the study, pre-service teachers must be exposed to computer-based instruction while they are still in the early years of their studies. This will help them improve their attitudes in CBI and their skills in using computer applications. Teachers in the Teacher Education Institutions should require their students to use computers in the teaching-learning process.

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