

# Student Teachers' Attitudes Towards the Use of ICT in the Classroom

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## Abstract

The purpose of this study is to explore the student teachers' attitudes towards the use of information communication and technology (ICT) for learning in the classroom in Malaysian higher education. The present study used a quantitative method in the form of a survey. The sample consisted of 374 student teachers that were randomly selected. The data were collected through a set of a questionnaire consisting of utilization of ICT, attributes of ICT, perceived usefulness of use ICT, perceived ease of use ICT, and attitude towards ICT use tests. The data of the study were analysed inferentially and descriptively using standard deviation, mean, frequency, percentage. Findings showed that majority of the student teachers highly had positive attitude toward the use of ICT may implement ICT. In addition, the findings of study indicated that there is a relationship between perceived usefulness, perceived ease of use, and attitude toward the use of ICT and utilization of ICT for learning by student teachers. Findings from the study revealed that student teachers need to ICT efficient training courses and workshop in their universities. Based on the findings of the study, it was recommended that educators in student teachers' training institutions should apply ICT tools in their lecture delivery to enable student teachers benefit from it.

## Keywords

Student Teachers, ICT Utilization, Attitude, Learning

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## 1. Introduction

Globalization and fast changes in technology have created a new economy which is driven by knowledge. In association with this, Information and Communications Technology (ICT) is now certainly the critical enabler of a knowledge-based economy for many countries [1]. In the early 1980s, ICT was presented as an innovation that might be used in universities and schools. It was speculated that this innovation would change the face of education system with high impacts on teaching and learning. Moreover, ICT can enhance the quality of education by helping teachers perform their duties in line with increase students' learning [2]. Numerous nations have allocated huge budgets for utilization ICT in education and put

ICT courses in teaching education programs, as well as educated pre-service teachers on ICT use for learning [3]. They emphasize that ICT in education increasing learning and providing students with new sets of knowledge and skills, by achieve students with poor or no access by facilitating and improving teachers training, and by minimizing costs related with the delivery of traditional instruction [4].

## 2. Background of Study

In the technology tendency of the 21st century, all nations of the South East Asia Ministers of Education Organization, including Malaysia, have started to focus on the benefits of ICT to improve teaching and learning. In line with Vision 2020, which is also known as "Wawasan 2020", was launched

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in 1991 during the tabling of the Sixth Malaysia Plan by the fourth Prime Minister of Malaysia, Tun Dr. Mahathir bin Mohamad. Malaysia has started on numerous technology initiatives to spearhead ICT usage particularly at the turn of the 21st century for rapid economic development and growth, with the vision of becoming a developed country by 2020 [5].

In this information age, the Malaysian higher education system, has a clear perspective that ICT can convert traditional education systems and bring benefits and advantages to the country as a whole, particularly for the student [6]. Over the last ten years alone, the education system has made important advantages in student enrolment, attained global recognition on key dimensions such as research publications, in addition to becoming a top destination for international students [7]. The areas of teaching and learning several universities are starting to offer web-based courses to enhancement traditional classroom-based courses. The Ministry of Education in order to achieve its set goals formulated policy purposes for its ICT plan in education. They are to decrease the digital gap between the haves and the have-nots in the country and enable ICT access for all students, to use ICT as a learning tool in education system and taught as an independent subject and integrated into others and lastly, to use ICT to improve effectiveness, efficiency and productivity of management in education [8].

### 3. Problem Statement

While investors in education system expect a high level of technology acceptance in the universities, there is also a growing concern that in spite of increasing number of technologies and level of educational technology provided by student teacher education programs, the levels of ICT utilization among Malaysian student teachers were often low [9-10]. This reluctance to use ICT has been the case despite the evident realization of the potential of using ICT in various institutions of higher education in Malaysia. Several researchers identified some of the primary reason and factors that seem to hinder ICT utilization for learning by Malaysian student teachers. Researchers [11-12] indicated that, pre-service teachers in Malaysia are not being sufficiently prepared to ICT acceptance to integrate ICT into their classrooms. Luan, and Teo [3] who demonstrated computer attitudes, perceived ease of use, and perceived usefulness, to be significant determinants of student teachers' behavioral intention to use technology. In another research, Wong et al. [13]. In investigated Malaysian pre-service teachers' behavioral intention to use technology found that perceived usefulness is a significant influence on student teachers' attitude towards computer use for learning. Fook et al. [14] investigated using ICT for learning by pre-service teachers in

the ESL classrooms in Malaysia. The findings emphasized the lack of technical malfunction and facilities in schools as the biggest obstacles for the student teachers in their efforts to utilize ICT in the classroom.

In another study, Luan and Teo [15] investigated on acceptance of computer technology among Malaysian student teachers. The study found perceived ease of use, perceived usefulness of computer technology, and attitude towards computer use to be significant determinants of intentions to use computers among student teachers. The aforementioned studies suggest that a low level of usage of ICT by most of the student teachers in Malaysian public universities. Therefore, the purpose of the present study is to determine the factors predicting Malaysian higher education student teachers' utilization of ICT for learning.

## 4. Methodology

### 4.1. Research Design

In this study the researcher employed quantitative approach where data were collected through using questionnaire.

### 4.2. Population and Sampling

The target population is all student teachers of the five Research Universities in Malaysia. The accessible population for this study is all student teachers of the five research universities in Malaysia made up of a population size of 3565 student teachers during the second semester of the academic year 2014–2015 at the faculty of education. Participants were 374 student teachers was randomly chosen from these universities (UM, n = 45; UKM, n = 56; UPM, n = 127; USM, n = 116; UTM, n = 30).

### 4.3. Instrumentation

The instrument used for collection of data were consisted of five sections drawn from each of the variables of the study. The instruments consisted of utilization of ICT by student teachers for learning, perceptions towards attributes of ICT, perceived ease of use, perceived usefulness, and attitude towards the use of ICT. The utilization of ICT questionnaire consisted of 15 items related to volume or frequency of use of ICT. The ICT utilization scale was adapted from Tezci [16]. The attributes of ICT questionnaire consisted of 23 statements on the "relative advantage, complexity, compatibility, observability, and trialability". Items for the attributes of ICT were adapted from the instrument developed by Ntemana and Olatokun [17]. Section three consisted of ten items of the perceived usefulness scale. Items on perceived usefulness were adapted from the instrument developed by Davis [18]. The section four

consisted of ten items of the perceived ease of use ICT scale. Items for the perceived ease of use were adapted from Davis [18]. The attitude scale of this study consisted of 15 items. In this instrument, each item used a five-point Likert-type scale. The attitude towards the use of ICT scale was developed by Albirini [19]. The questionnaire was validated by three experts. Pilot testing administered on 30 student teachers, the reliability for the questionnaire was follows: 0.86 (Utilization of ICT), 0.84 (Attributes of ICT), 0.87 (Perceived Usefulness of Use ICT) 0.85, (Perceived Ease of Use ICT) and 0.85 (Attitude towards ICT use).

#### 4.4. Data Analysis

The data of the study was analysed employed the SPSS Version 22 inferentially and descriptively using standard deviation mean, frequency, percentage, to explain the respondents' utilization of ICT level, level of perceived attributes of ICT, level of perceived usefulness of ICT, attitude towards the use of ICT, and the level of ease of use of ICT perceived by the student teachers.

### 5. Findings

Numerous interesting results appeared from the present research which managed to provide some visions to the utilization of ICT by student teachers for learning. Following are the findings of the present study:

#### 5.1. Utilization of ICT by Student Teachers for Learning

The Utilization of ICT questionnaire consisted of to the 15-item utilization of ICT Scale. Data gathered for this section of the instrument indicated how frequently the student teachers used ICT for learning purposes: "1 = never, 2 = once a semester, 3 = once a month, 4 = once a week, 5 almost every day". The most frequently used ICT, which student teachers reported using in almost every day, use ICT to

communicate with their classmates (56.8%,  $n = 191$ ,  $M = 4.30$ ,  $SD = 0.95$ ), use ICT to writing documents (e.g. using Word) (55.7%,  $n=187$ ,  $M = 4.39$ ,  $SD = 0.78$ ) and use ICT to facilitate use of relevant Internet resources (43.2%,  $n=145$ ,  $M = 4.19$ ,  $SD = 0.83$ ). The last used ICT, with student teachers reporting they never used them, used ICT to develop web page design for learning purposes (15.8%,  $n = 53$ ,  $M = 2.43$ ,  $SD = 0.97$ ), use ICT to watch educational CD. (13.4%,  $n = 45$ ,  $M = 3.20$ ,  $SD = 1.39$ ) and, use ICT for developing multimedia for learning (10.7%,  $n = 36$ ,  $M = 2.77$ ,  $SD = 1.13$ ). Approximately half of the respondents reported once a week using ICT to make presentations (e.g., PowerPoint) (46.4%,  $n = 156$ ,  $M = 3.60$ ,  $SD = 1.16$ ), while about one-third of the student teachers replied that they once a month used ICT to download learning materials (32.4%,  $n = 109$ ,  $M = 3.43$ ,  $SD = 1.15$ ).

The findings of this study also revealed that the items "I use ICT for writing documents (e.g., using Word)" ( $M = 4.39$ ,  $SD = 0.78$ ), and "I use ICT to communicate with my classmates" ( $M = 4.30$ ,  $SD = 0.95$ ) were scored the highest mean, while two items with the lowest mean score were "I use ICT to develop web page design for learning purposes" with a mean value of 2.34 ( $SD = 0.97$ ), and "I use ICT for developing multimedia for learning purposes" with a mean value of 2.77 ( $SD = 1.13$ ). The descriptive statistics suggest that the most frequent uses of ICT by the student teachers were Word documents, use to communicate, Internet research, and online discussion. The analysis of the results also indicated that less than 50% of the student teachers use ICT once a semester or did not use ICT, like web page design, multimedia for learning, watch educational CD. This result indicated that most student teachers use ICT as a productivity tool to complete simple tasks. The overall mean score of ICT use for learning purposes was found to be 3.58 ( $SD = .418$ ), and the majority in frequencies were "once a month", "once a week", and "almost every day", that indicates ICT use is moderate among student teachers; therefore, ICT use is practiced in most universities.

Table 1. Descriptive Statistics of ICT Utilization among Student Teachers.

ICT utilization Scale	Percentage					Mean	SD
	Never	Once a Semester	Once a Month	Once a Week	Almost Every Day		
I use ICT to make presentations (e.g., PowerPoint).	10.4	4.8	18.8	46.4	19.6	3.60	1.16
I use ICT for writing documents (e.g. using Word).	0.0	2.1	12.2	30.1	55.7	4.39	0.78
I use ICT to download learning materials.	0.0	26.2	32.4	13.7	27.7	3.43	1.15
I use ICT to prepare spreadsheets (e.g., MS Excel).	2.1	20.5	25.3	25.0	27.1	3.54	1.15
I use ICT to create graphics (e.g., Paint).	4.8	11.0	19.6	40.5	24.1	3.68	1.10
I use ICT to communicate with my classmates.	0.0	7.7	11.3	24.1	56.8	4.30	.95
I use ICT to facilitate use of relevant Internet resources.	.6	.9	20.2	35.1	43.2	4.19	.83
I use ICT to develop web page design for learning purposes.	15.8	40.5	33.6	5.7	4.5	2.43	0.97
I use ICT for developing multimedia for learning purposes.	10.7	37.5	24.4	19.0	8.3	2.77	1.13
I use ICT to access e-journals for learning purposes.	0.0	30.4	20.8	31.3	17.6	3.36	1.09
I use ICT to online discussion groups for learning purposes.	2.1	8.9	8.9	38.7	41.4	4.08	1.02
I use ICT to do academic online assessment.	2.1	21.1	21.4	42.0	13.4	3.43	1.03
I use ICT to databases/ storage academic tasks (uses to create, read, update and delete data from a database).	0.0	17.9	25.0	40.8	16.4	3.56	0.96

ICT utilization Scale	Percentage					Mean	SD
	Never	Once a Semester	Once a Month	Once a Week	Almost Every Day		
I use ICT to watch educational CD.	13.4	24.1	15.5	23.2	23.8	3.20	1.39
In General, I use ICT for learning purposes.	1.8	11.9	34.2	22.3	29.8	3.66	1.08
Overall						3.58	0.42

Note: Low (Below 2.33); Moderate (2.34 to 3.66); High (3.67 to 5.00)

### 5.2. Level of ICT Attributes Perceived by the Student Teachers

Table 2. Mean Scores and Standard Deviation of Student Teachers' Responses of the Attributes of ICT.

Attributes of ICT	Mean	SD
Relative Advantage	4.05	0.60
Trialability	3.94	0.57
Observability	3.86	0.58
Complexity	3.72	0.60
Compatibility	3.42	0.65
Overall Mean/SD	3.80	0.60

Respondents were asked to answer to their perceptions about the relative advantage of ICT (items 1–5), compatibility (items 6–9), Triability of ICT (items 10–14), their observability (items 15–18), and their perceptions about the complexity of ICT (items 19–23). Overall, respondents' perceptions of ICTs' attributes were positive with an overall mean score of 3.80 ( $SD = 0.60$ ). The mean scores and the standard deviations of attributes of ICT from the highest to the lowest. As indicated in the table, the attributes of ICT as reported by student teachers with the highest mean score is "Relative Advantage" ( $M = 4.05, SD = 0.60$ ) followed by "Trialability" ( $M = 3.94, SD = 0.57$ ), "Observability" ( $M = 3.86, SD = 0.58$ ), and "Compatibility" ( $M = 3.42, SD = 0.65$ ), while the "Compatibility" had the lowest mean score on the subscale of attributes of ICT ( $M = 3.42, SD = 0.65$ ). The result indicated that participants' positive perceptions varied across the five ICT attributes examined in this study. Student

teachers' responses were most positive about the relative advantage of ICTs ( $M = 4.05; SD = 0.60$ ) and were negative about the complexity of ICTs ( $M = 2.68, SD = 1.26$ ).

### 5.3. Level of Usefulness of ICT Perceived by the Student Teachers

As indicated by the results, student teachers overwhelmingly agreed and strongly agreed with all statements related to perceived usefulness. For example, many of the student teachers agreed and strongly agreed that academic tasks would be difficult to perform without using ICT (90.1%,  $M = 4.29, SD = 0.79$ ). This item reported the highest percentage on this scale with more than half responding as agree and strongly agree on the related items i.e. "Overall, I find Using ICT is useful for my learning" (84.2%,  $M = 4.16, SD = 0.88$ ), "Using ICT improves the quality of the work I do" (79.4%,  $M = 4.04, SD = 0.85$ ), and "Using ICT improve my academic performance." (71.1%,  $M = 4.02, SD = 0.91$ ). The results on this scale based on the data indicated that the highest mean score is 4.29 ( $SD = 0.79$ ) and the overall mean was 3.99 ( $SD = 0.91$ ). Thus, the student teachers reported that using ICT improves the quality of the work they do and it was useful since it allowed them to improve their academic performance, and ICT enables them to learn more quickly. These results also showed that student teachers reported a greater control over their work when they made use of ICT, as it increases their academic achievement.

Table 3. Descriptive Statistics for Perceived Usefulness Scale.

Statement	Percentage					Mean	SD
	SD	D	N	A	SA		
My academic tasks would be difficult to perform without using ICT.	1.8	3.6	4.5	46.1	44.0	4.29	0.79
Using ICT gives me greater control over my academic performance.	1.5	5.7	16.4	45.2	31.3	3.99	0.91
Using ICT improve my academic performance.	1.8	4.20	22.9	34.5	36.6	4.02	0.91
Using ICT saves me time.	3.0	3.2	19.1	35.1	39.6	4.07	0.94
Using ICT enables me to learn more quickly.	2.4	3.6	21.4	42.3	30.3	4.03	0.90
Using ICT enhances my effectiveness on the learning.	1.8	6.8	14.9	33.6	42.9	4.09	1.00
Using ICT improves the quality of the work I do.	1.8	3.0	15.8	47.9	31.5	4.04	0.85
Using ICT increases my academic achievement.	3.0	3.6	23.5	31.5	38.4	4.02	0.94
Using ICT makes it easier for me to learn at university.	1.5	3.6	17.6	35.1	42.3	4.13	0.92
Overall, I find Using ICT is useful for my learning.	2.1	3.6	10.1	44.9	39.3	4.16	0.88
Overall						4.08	0.41

Scale: "SD=Strongly Disagree, D=Disagree, N=Neutral, A=Agree, SA=Strongly Agree M = Mean; S. D. = Standard Deviation"

### 5.4. The Level of Ease of Use of ICT Perceived by the Student Teachers

Majority of the student teachers (91%) agreed and strongly agreed that the ICT provides helpful guidance in

performing academic tasks (91.1%,  $M = 4.19, SD = 0.82$ ). Most of the student teachers (90%) agreed and strongly agreed in their report that it easy to recover from errors encountered while using ICT (90%,  $M = 4.20, SD = 0.80$ ).

A big portion of the student teachers also reported agreeing and strongly agreeing that they found it easy for them to remember how to use ICT for learning (88.4%,  $M = 4.03$ ,  $SD = 0.86$ ), also about 88% of the student teachers agreed and strongly agreed with the statement “Overall, I find ICT is easy to use.” (88.4%,  $M = 4.15$ ,  $SD = 0.90$ ). However, about 73% of the student teachers’ reported disagreeing and strongly disagreeing with the statement “Use of ICT requires a lot of my mental effort” (73.8%,  $M$

$= 3.79$ ,  $SD = 1.03$ ), and “I often become confused when I use ICT” (67.3%,  $M = 3.60$ ,  $SD = 1.07$ ). The overall mean score was 3.93 with a standard deviation of 0.43, and this indicated that the student teachers’ report on their perceived ease of use was high. This means that student teachers participating in this study would mostly likely use ICT either for academic purpose when they perceive that they might use such tools relatively free of effort and if such tools were easy to use for their learning.

**Table 4.** Descriptive Statistics for Perceived Ease of Use Scale.

Statement	Percentage					Mean	SD
	SD	D	N	A	SA		
I often become confused when I use ICT.	16.1	51.2	15.5	11.3	6.0	3.60	1.07
I make errors frequently when using ICT.	12.5	49.7	12.8	19.6	5.4	3.44	1.10
Use of ICT requires a lot of my mental effort.	23.5	50.3	10.1	13.4	2.7	3.79	1.03
I find it easy to recover from errors encountered while using ICT.	1.5	3.6	4.2	54.8	36.0	4.20	0.80
Learning to use ICT is easy for me.	2.7	4.2	6.8	58.9	27.4	4.04	0.86
The ICT often behaves in unexpected ways.	3.9	3.0	20.2	50.0	22.9	3.85	0.93
The process of using ICT for learning is easy for me to understand.	4.5	5.4	12.8	53.0	24.4	3.88	0.98
It is easy for me to remember how to use ICT.	3.0	4.5	4.2	63.4	25.0	4.03	0.86
The ICT provides helpful guidance in performing academic tasks.	2.4	2.7	3.9	55.4	35.7	4.19	0.82
Overall, I find ICT is easy to use.	2.7	4.8	4.2	51.2	37.2	4.15	0.90
Overall						3.93	0.43

Scale: “SD=Strongly Disagree, D=Disagree, N=Neutral, A=Agree, SA=Strongly Agree M = Mean; S. D. = Standard Deviation”

## 6. Attitude Toward the Use of ICT for Learning

The findings on attitude towards the use of ICT revealed that student teachers agreed and strongly agreed that ICT is a fast means of getting information. The responses to this item recorded the highest percentage (91.1%,  $M = 4.23$ ,  $SD = 0.88$ ), followed by items such as “ICT saves time” (88.4%,  $M = 4.30$ ,  $SD = 0.93$ ), “I am glad there are more ICT options these days” (87.8%,  $M = 4.20$ ,  $SD = 0.82$ ), “ICT would motivate students to do more study” (84.6%,  $M = 4.04$ ,  $SD = 0.86$ ) and “Using ICT is enjoyable” (84.5%,  $M = 4.23$ ,  $SD = 1.02$ ). Also, almost 74% of the student teachers agreed and strongly agreed with the statement “Students must use ICT in all subject matters” (74.4%,  $M = 4.08$ ,  $SD = 1.07$ ). Further, several other items on the attitude scale also scored high percentages on disagree and

strongly disagree among the student teachers in their response to “I dislike using ICT in learning” (82.8%,  $M = 4.07$ ,  $SD = 1.13$ ), “University would be a better place without ICT” (79.1%,  $M = 3.88$ ,  $SD = 1.18$ ), “Learning about ICT is a waste of time” (75.3%,  $M = 3.80$ ,  $SD = 1.27$ ), and “I do not like talking with others about ICT” (73.5%,  $M = 3.85$ ,  $SD = 1.23$ ). Based on the results, these student teachers responded most favorably to the item, “ICT saves time” which recorded the highest mean score of 4.30 ( $SD = 0.93$ ), and the least favorable to the items, “ICT makes me feel uncomfortable” ( $M = 3.77$ ,  $SD = 1.23$ ) and “ICT does not scare me at all” ( $M = 3.74$ ,  $SD = 1.15$ ). The total mean score on this scale is 3.99 with a standard deviation of 0.53. Student teachers’ responses were most positive about ICT helping them to do their academic work faster and makes them feel comfortable. Results also suggest that student teachers had positive attitudes with regard to the use of ICT as learning tools.

**Table 5.** Descriptive Statistics for Attitude towards ICT Use Scale.

Statement	Percentage					Mean	SD
	SD	D	N	A	SA		
ICT does not scare me at all.	7.1	9.8	10.4	47.6	25.0	3.74	1.15
ICT makes me feel uncomfortable.	32.4	38.1	12.8	7.7	8.9	3.77	1.23
I am glad there are more ICT options these days.	2.1	1.5	8.6	50.3	37.5	4.20	0.82
I do not like talking with others about ICT.	32.1	41.4	11.3	9.8	5.4	3.85	1.23
Using ICT is enjoyable.	3.0	6.5	6.0	33.3	51.2	4.23	1.02
I dislike using ICT in learning.	42.9	39.9	4.2	7.1	6.0	4.07	1.13
ICT saves time.	3.6	1.8	6.3	37.8	50.6	4.30	0.93
University would be a better place without ICT.	32.1	47.0	5.4	7.1	8.3	3.88	1.18
Students must use ICT in all subject matters.	2.7	7.1	15.8	28.0	46.4	4.08	1.07
Learning about ICT is a waste of time.	32.7	42.6	8.9	3.6	12.2	3.80	1.27
ICT would motivate students to do more study.	2.4	4.2	8.9	56.3	28.3	4.04	0.86
ICT is a fast means of getting information.	2.4	2.1	4.5	50.0	41.1	4.23	0.88

Statement	Percentage					Mean	SD
	SD	D	N	A	SA		
I do not think I would ever need ICT in my classroom.	30.7	41.4	11.9	9.2	6.8	3.80	1.17
I would rather do things by conventional method than with ICT.	44.3	17.0	19.9	13.7	5.1	3.82	1.27
I would avoid ICT as much as possible.	52.7	19.6	7.4	12.8	7.4	3.97	1.33
Overall						3.99	0.53

Scale: "SD=Strongly Disagree, D=Disagree, N=Neutral, A=Agree, SA=Strongly Agree M = Mean; S. D. = Standard Deviation"

## 7. Discussion

The results of the present research are consistent with past studies and literature that explored student teachers' utilization of ICT. The findings from this study show that since these student teachers' utilization of ICT was at the midpoint; they regularly use ICT tools for learning. This finding is similar to Gülbahar [20], who reported pre-service teachers was in favor of using technology in and out-of-class activities. The preservice teachers most favored technology as "Computer-Aided Instruction", "Internet Browsers", "word-processors" and most favored software as electronic presentation. Due to the fact that "...the incorporation of technology in the classroom does enhance actual student learning and that this relationship is moderated by student characteristics" (p. 35). Moreover, the findings from this study showed the most frequently used ICT, which student teachers reported in this study using in almost every day, use ICT to communicate with their classmates. This result is in agreement with the research reports of Onwuagboke et al. [21] stating that pre-service teachers mostly use the Internet as an avenue for chatting and social networking; Lei [22] reported social networking as the major purpose for pre-service teachers' use of the Internet; Birgin, Çoker, and Çatlıoğlu, [23] found that pre-service teachers mostly use the internet for leisure and for communication such as sending and receiving e-mail.

The findings of the correlation coefficient analysis indicated that utilization of ICT was significantly correlated with four attributes in the ICT attributes subscale, relative advantage, trialability, complexity, and observability. However, student teachers' perceptions of the ICT compatibility with their current learning methods were not as positive. On the relative contribution of each of the ICT attributes to the utilization of ICT by student teachers, the relative advantage had the highest relationship, which consent with the finding of Wong et al. [13] that indicated pre-service teachers were already positive about the relative advantage of ICTs in elementary classes. This finding was congruent with the study by Mirzajani et al [24] indicating that teachers' responses were most positive about the relative advantage of computers as an educational tool. According to Lu, Yao, and Yua [25] more innovative people are more positively inclined to perceive the relative advantage of ICTs. Research consistently found that

the perceived relative advantages positively affected users' intention to use the system across different participants.

The positive and significant contribution of relative advantage that was found in this study is consistent with previous research conducted by Agbonlahor [26] who revealed that relative advantage significantly influenced the number of IT applications used by participants. This finding also was consistent with the previous study by Alhawiti [27], who found that relative advantage was most an important attribute and the main barriers preventing faculty members from accepting online education were technical skill, substructure, and planning issues. Therefore, relative advantage has been found to have a significant relationship toward utilization of ICT. However, findings in this study indicated that complexity and utilization of ICT had a negative and low linear relationship. This finding is in congruence with Ntemana and Olatokun [17] and Lee, Hsieh, and Hsu [28]. Empirical studies provided evidence indicating that complexity of ICT had a significantly negative effect on the intention to use [25]. This finding is in congruence with the study by Teo [29] that indicated if ICT is perceived to be difficult to learn and use, it is likely to be perceived to be so tedious and time-consuming that a lot of effort has to be expended in order to benefit from it.

The findings of study indicated that there is a relationship between perceived usefulness, perceived ease of use, and attitude toward the use of ICT and utilization of ICT for learning by student teachers. The results seem similar to research done by Teo et al. [29] that discovered perceived usefulness and ease of use, attitude towards computers were key determinants of student teachers' intended computer use. However, the finding of the study revealed a strong positive relationship between student teachers' attitude towards the use of ICT and utilization of ICT for learning. The strong relationship between student teachers' attitude towards ICT use and utilization of ICT implied that students' teachers with positive attitudes are more motivated to utilize ICTs. This finding clearly supports prior research that found a strong relationship between ICT attitude and utilization of ICT [30]. The strong relationship of attitudes towards the use of ICT and utilization of ICT in education has been documented in many studies. For example, Gulbahar [31] found a positive correlation between pre-service teachers' experiences with ICT, their attitudes towards ICT, and their

confidence in using ICT in the classroom. Another study was conducted by Singh and Subramaniam [32] found that the majority of the respondents have the positive attitude towards using ICT in learning activities. This finding is congruent with the study by Luan et al. [33] that found pre-service teachers with more positive attitudes toward internet use had stayed online longer than those with less positive attitudes.

## 8. Conclusion

The findings of this study showed that student teachers who hold positive attitude toward the use of ICT may implement ICT. Another point which should be considered is the importance of training in ICT use such as workshops, seminars, and courses. These types of training are important especially for student teachers [34]. However, findings from the study revealed that student teachers need to ICT efficient training courses and workshop in their universities. It is important for student teachers to foster their experience in using ICT in order to integrate it into their curriculum. In fact, using technology in student teachers training courses develops this habit in them which subsequently results in further use of it in their future teaching career. Training on ICT utilization can teach students how to use ICT in their learning activities, and make students more familiar with the advantages of ICT. Therefore, it seems holding this type of ICT efficient training for encouraging ICT use in the future career of student teachers is necessary.

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