

THE RELATIONSHIP OF TEACHER EDUCATORS' PERCEPTIONS ON INFORMATION AND COMMUNICATION TECHNOLOGY WITH THEIR INTEGRATION IN TEACHING PRACTICES IN EDUCATION DEGREE COLLEGES

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Abstract

This study aims to investigate the relationship of teacher educators' perceptions on information and communication technology (ICT) use with the integration of ICT into their teaching practices in Education Degree Colleges. The study was employed with the descriptive, survey research design. A sample of (217) teacher educators from four Education Degree Colleges was involved. Simple random sampling method was used. The questionnaires were involved teacher educators' perceptions on ICT use that were comprised of four categories with 40 Likert-type items from basis of the questionnaires of Gebremedhin and Fenta (2015) and Mahdum, Hadriana and Safriyanti (2019), 30 Likert-type items of teaching practices from basis of the questionnaires of Aslan and Zhu (2018) and European Schoolnet (2013) and demographic data. The quantitative data was analyzed by using descriptive statistics, inferential statistics such as independent samples *t* test, one-way (ANOVA) and Pearson product-moment correlation. This study indicated that teacher educators have positive perceptions towards ICT use and there was no significant difference between the perceptions of teacher educators towards ICT in terms of gender and in terms of ICT training. And, there was a significant difference between overall perceptions and teaching practices in terms of Education Degree College. Moreover, there was a positively high correlation between perceptions of teacher educators towards the use of ICT and their integration of ICT into teaching practices. Thus, teacher educators should apply ICT related techniques and resource materials to integrate their teaching process.

Keywords: Teacher Educator, Perception, ICT, ICT Integration in Teaching, Teaching Practices

Introduction

Nowadays, everything is changing in accordance with the modern world. Education is also important in shaping the future of our lives. It is a foundation for every country to develop their better situation. It is also essential for the social, personal and economic development of the nation. It empowers people to create better lives. It enables learners to make their life decisions within the knowledge age. Every learner promotes their learning skills according to 21st century skills. Therefore, new curriculum had been developed to get new knowledge, new learning styles and new teaching strategies in classrooms at most countries including Myanmar.

Every educator needs to know what computers can do and what they cannot. In teacher trainings, therefore, both in-service and pre-service teacher trainings, teacher educators need to provide for developing skills of information and communication technology (ICT) and for improving computer competency. It is essentially needed to conduct a research study to explore the perceptions of teacher educators towards ICT use and to survey the integration of ICT into their teaching practices.

Technological integration of teaching and learning process rapidly occurs in today's classrooms. Teachers and students in colleges and universities familiarize using technological tools in today's classrooms. Using ICT such as teaching learning materials can promote better

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teaching and learning process. But there may be many challenges in using ICT for teachers and students. Therefore, it is important to seek the effect of using ICT in teaching and learning process for training teachers in teacher programs.

Teachers need to actively participate in using ICT. But most of the teachers are using social networks and entertainments rather than academic purposes. Using ICT in teaching and learning strongly depends on the attitudes or perceptions of the teachers. Thus, it needs to investigate the relationship of teacher educators' perceptions on ICT use in teaching and learning process with the integration of ICT into their teaching practices.

Purpose of the Study

The main purpose of the study is to investigate the relationship of teacher educators' perceptions on ICT use in teaching and learning process with their integration of ICT into teaching practices in Education Degree Colleges. The specific objectives of the study are as follows:

1. to explore the perceptions of teacher educators on the use of information and communication technology.
2. to examine the use of tools of information and communication technology integration into teaching practices.
3. to investigate the relationship between teacher educators' perceptions of information and communication technology and their teaching practices.
4. to make suggestions and recommendation based on the results of the study.

Research Questions

The research questions for the study are as follows:

1. What are teacher educators' perceptions with regard to the use of information and communication technology?
2. To what extent do teacher educators use tools of information and communication technology in their teaching practices?
3. What is the relationship between teacher educators' perceptions of information and communication technology use and their teaching practices?

Definition of Key Terms

The followings are the definition of key terms in this study.

Teacher Educator -Teacher educator means professional educator who serves as the training arm of the teaching profession (Law Insider, 2013).

Perception -Perception is defined as the thoughts or mental images which teachers have about their professional activities and their students, which are shaped by their background knowledge and life experiences and influence their professional behavior (Papadakis & Kalogiannakis, 2020).

Information and Communication Technology (ICT) -Information and communication technology (ICT) is defined as a diverse set of technological tools and resources used to transmit, store, create, share or exchange information (UNESCO-UIS, 2009).

ICT Integration in Teaching -Integrating ICT in teaching defines the use of communication with computers and technological tools that is implemented into daily classroom teaching processes (Ghavifekr, Athirah & Rosdy, 2015).

Teaching Practices -Teaching practices mean that teachers have specific skills and know-how about the teaching-learning processes and classroom management with digital tools (OECD, 2023).

Scope of the Study

The scope of the study includes the following points.

- The research is intended to study teacher educators' perceptions on the use of ICT and integration of ICT into their teaching practices in Education Degree Colleges.
- Pilot study was conducted in Sagaing Education Degree College.
- The research was conducted and the participants were confined to teacher educators in Mandalay, Meikhtila, Taunggyi and Pakokku Education Degree Colleges.
- The variables involve teacher educators' perceptions about the use of ICT, the barriers to technology use, the perceived usefulness of ICT, the perceived ease of use of ICT and their teaching practices with ICT.

Review of Related Literature

The theoretical framework related to this study and literature review are presented.

Theoretical Framework

The theoretical framework of this study is based on the Technology Acceptance Model (TAM) by Davis (1989). The TAM theory comprises of various parts which is representing the process of ICT acceptance by the users including such as behavioral intension, perceived usefulness and perceived ease of use (Ghavifekr et al., 2015). Besides, Abel, Tondeur and Sang (2022) pointed out that ICT integration can enhance students' learning and play experiences while also presenting opportunities for metacognition and creative growth. They also stated that teachers are shown to hold perceptions about numerous challenges, including perceptions about teaching and teacher perceptions of ICT are important as it forms a tendency that helps them to be favorable or unfavorable towards the use of the most modern technology in the field of education. Aslan and Zhu (2018) described that the use of technology will make a significant contribution to enhancing teaching and learning process. They also indicated that the employment of ICT in the transformation of education needs to be implemented effectively and rationally. Thus, teachers' integration of ICT into teaching practices is also important.

The Concept of Technology

The term technology is widely used in the field of education. There are many definitions for the term technology with the descriptions of many writers. Many people use different forms of technology in everyday lives. Technology is rapidly increasing nowadays. According to Kumar and Shaifali (2011), technology may be defined as an art of application. Bloomer (1973, as cited in Pal, 2013) defined that "Technology is the application of scientific theory to practical ends" (p.2). Besides, Muffoletto (1994, as cited in Roblyer & Edwards, 2000) says that "Technology is commonly thought of in terms of gadgets, instruments, machines, and devices ... most (educators) will defer to technology as computers" (p.5). In education, the term technology is used in various roles for different situations.

Many people are confusing between the meaning of technology of education and technology in education. Technology of education deals with active use of all the systematic

application of the resources of scientific knowledge of the process of learning that each individual has to pass through in order to acquire and use knowledge (Kumar & Shaifali, 2011). They also described that technology in education refers to the use of technological hardware in education. It is mainly concerned with electrical and electronic gazettes which are used to facilitate the teaching and learning process.

Information and Communication Technology (ICT) in Education

Information and communication technology (ICT) is defined as a diverse set of technological tools and resources used to transmit, store, create, share or exchange information (UNESCO-UIS, 2009). ICT is an important tool for teaching as it helps in facilitating teaching and increases better understanding of the subjects for the students (Pal, 2013). Shokeen, Ram and Ruwali (2022) described that ICT refers to the computer and internet connection used to handle and communicate information for learning purposes. Besides, Fu (2013) stated that ICT includes computers, Internet, and electronic delivery systems such as radios, televisions, and projectors among others, and is widely used in today's education field.

The role of ICT in education is important. Shokeen et al. (2022) stated, as ICT provides more opportunities for both students and teachers to adapt learning and teaching to individual needs, society is forcing schools to respond appropriately to this technological innovation. In rapport of Shokeen et al. (2022), the following terms are included ICT in education: WWW, E-learning, group discussion, E-module, and teleconferencing: audio – conferencing, video – conferencing, Web-based conferencing and open and distance learning.

Teacher educators include higher education faculty and school-based practitioners who supervise field experiences, student teaching, and internships (Law Insider, 2013). They are beginning to look at technology resources to help make the new directions at once feasible and motivational to students (Roblyer & Edwards, 2000). In addition, Kivunja (2015) described that they have engaged with ICT and tried to explain how the use of technology, driven by computers and digital technologies, can improve pedagogy and curriculum. Thus, teacher educators can be more opportunity to improve their skills that demand for 21st century skills.

Perceptions of Teacher Educators for Use of ICT

There are several definitions of perception put forward by the researchers. According to McShane and Glinow (2008), perception is the process of receiving information and making sense of the world around us. Davis, Bagozzi and Warshaw (1989) explained that perceived usefulness means the degree to which a person believes that using a technology will enhance his or her job performance, and perceived ease of use means the degree to which a person believes that the use of a technology will be free of effort. In addition, integration required teachers to develop lessons, activities, and data files for students to use with the application packages (Bennett, 1987). Thus, teacher educators' perceptions in this research are the teachers' acceptability of using ICT in their teaching, compile the knowledge about ICT and the barrier that technology use. The indicators used are perceived usefulness and ease of use.

Integration of ICT into Teaching Practices

Teaching practices that rely on ICT require teachers to have specific skills and know-how about the learning process and classroom management with digital tools (OECD, 2023). Law and Chow (2008) described that ICT is important for bringing changes to classroom teaching and

learning so as to foster the development of students' 21st century skills. Teacher educators should have both basic ICT skills and advanced ICT skills to use ICT in their teaching more effectively. OECD (2023) described that ICT can be used to support teachers' activities outside of the classroom. For instance, teachers can use ICT to communicate with colleagues, and to contribute to the development of overarching and transversal pedagogical practices. Thus, teacher educators need to gain the competences necessary to integrate ICT in order to improve their teaching.

In summary, this research is directed towards investigating about the use of ICT and integration of ICT into teaching practices in Education Degree Colleges while considering the teacher educators perceptions and the relation to their teaching practices and adopting a quantitative research approach.

Research Method

This section provides a description of the research design, population and sample size, instruments, data analysis and data collection procedure.

Research Design

In this study, descriptive method and survey research design were used.

Population and Sample Size

The target population for this study is all teacher educators in Education Degree Colleges. Mandalay, Meikhtila, Taunggyi and Pakokku Education Degree Colleges were selected by using simple random sampling method. The sample population is approximately 31%. For descriptive research, it is common to sample 10 to 20 % of the population, although this range will change with the size of the population (Gay & Airasian, 2003). The following Table 1 shows the number of participants.

Table 1 Sample Population and Sample Size

Sr No.	Name of Education Degree College	Sample
1	Mandalay	82
2	Meikhtila	57
3	Taunggyi	51
4	Pakokku	27
	Total	217

Instruments

In this study, a questionnaire for the perceptions of teacher educators on ICT use was constructed based on the questionnaires of Gebremedhin and Fenta (2015) and Mahdum et al. (2019). The questionnaire was divided into three parts. The first part of the questionnaire included demographic questions. The second part of the questionnaire included five points Likert-type scale (Strongly disagree = 1, Disagree = 2, Uncertain = 3, Agree = 4, Strongly agree = 5) with (40) items for four categories: the perceptions of teacher educators about use of ICT, the barriers to technology use, the perceived usefulness of ICT and the perceived ease of use of ICT. The third part of the questionnaire for integration of ICT into their teaching practices was created based on questionnaires of Aslan and Zhu (2018) and European Schoolnet (2013). The questionnaire includes five points Likert-type scale (Never = 1, Seldom = 2, Sometimes = 3, Often = 4, Always = 5) which has (30) items.

Data Collection Procedure

Firstly, the researcher collected the relevant literature concerned with the research. Secondly, in order to get the required data, the researcher constructed an instrument under the guidance of the supervisor. The content validity was determined by experienced teacher educators' judgment. Then pilot testing was conducted with all teacher educators in the Sagaing Education Degree College. Some of the items were revised according to the pilot results with the help of supervisor. After getting the validity and reliability of the instrument, the questionnaire was distributed to the teacher educators in Mandalay, Meikhtila, Taunggyi and Pakokku Education Degree Colleges. The respondents were asked to decide about the questionnaire statements and marked the relevant response category honesty. The questionnaires were returned (71.85%) from the subjects in the sample Education Degree Colleges under the research work. According to Mills and Gay (2016), the rule of thumb for the survey response rate, based on a good sample, is 50%. Anything above 50% will increase the confidence with the findings. Thus, the collected data was analyzed and interpreted. Finally, based on the findings, discussion, suggestions and recommendations were made.

Data Analysis

Descriptive statistics was used to examine the effect that teacher educators' perceptions towards ICT in teaching and learning process. Independent samples *t*-test was used to compare the teacher educators' perceptions towards ICT use in terms of gender and ICT training. In addition to these, ANOVA was used to determine the teacher educators' perceptions towards ICT use and integration of ICT into teaching practices in terms of Education Degree College. And then, the frequencies of teacher educators' use of ICT tools in their teaching practices were expressed. Moreover, Pearson product-moment correlation was used to explore the relationship between teacher educators' teaching practices with ICT and overall perceptions.

Research Findings

This section is concerned with the findings based on the data obtained from the study. Then, the findings of the results were discussed.

Findings on Research Question (1)

The followings are descriptions for findings on research question (1).

Table 2 Means and Standard Deviations of the Perceptions of Teacher Educators towards ICT on each Category

No.	Category	N	Minimum	Maximum	M	SD
1	C1	217	2.60	5.00	4.164	.434
2	C2	217	1.90	5.00	3.897	.610
3	C3	217	2.27	5.00	3.923	.379
4	C4	217	2.22	5.00	4.079	.427
5	Overall	217	2.55	4.85	4.016	.345

Note. C1=Perceptions about the use of ICT, C2=Barrier to technology use, C3=Perceived usefulness, C4=Perceived ease of use.

According to Table 2, the mean for perceptions about the use of ICT was 4.164, the mean for barrier to technology use was 3.897, the mean for perceived usefulness was 3.923 and the

mean for perceived ease of use was 4.079. Among them, it can be found that the mean for perceptions about the use of ICT was the highest and the mean for barrier to technology use was the lowest (See Figure 1).

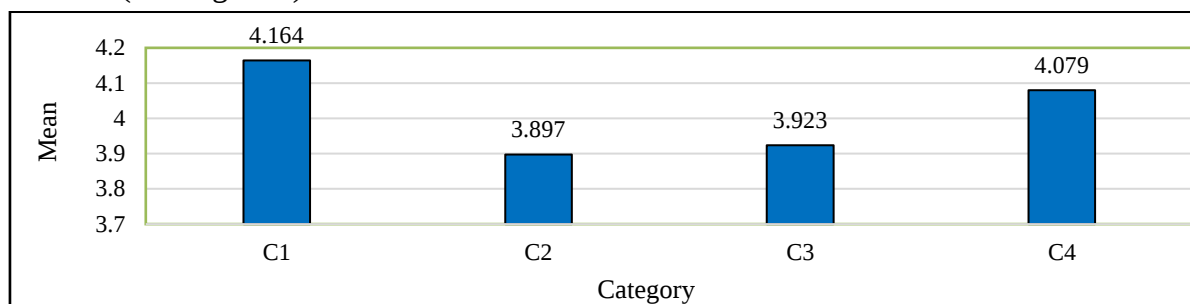


Figure 1. The comparison of means for each category.

Note. C1=Perceptions about the use of ICT, C2=Barrier to technology use, C3=Perceived usefulness, C4=Perceived ease of use.

According to Figure 1, this finding pointed out that teacher educators in four Education Degree Colleges were strong in perceptions about use of ICT, but they have difficulty in technology use. It was also found that they were convenience in perceived ease of use and a little accept in perceived usefulness of using ICT.

Findings on Research Question (2)

The followings are descriptions for findings on research question (2).

Table 3 Means and Standard Deviations of the Integration of ICT into Teaching Practices

	<i>N</i>	Minimum	Maximum	<i>M</i>	<i>SD</i>
ICT integration into teaching practices	217	1.67	5.00	3.752	.777

Based on the results of the means, teacher educators' use of ICT often does with their teaching learning activities in their class. 73.3% of teacher educators especially use search engines (e.g., Google, Yahoo, etc.) to look for information on the Internet, and 15.2% of them never communicate online with parents.

Table 4 represents the types of ICT tools which used by teacher educators during their teaching practices.

Table 4 Frequencies Related to Teacher Educators' Use of ICT Tools during their Teaching Practices

No.	Types of ICT tools	Yes	Percentage (%)	No	Percentage (%)
1	PowerPoint/Slides	178	82.0	39	18.0
2	E-mail or G-mail	93	42.9	124	57.1
3	Educational CD/VCD/DVD	85	39.2	132	60.8
4	Film	37	17.1	180	82.9
5	Online quiz	49	22.6	168	77.4
6	Educational online game	32	14.7	185	85.3
7	Giving task/discussing learning materials using smart-phones	114	52.5	103	47.5
8	Google Classroom	54	24.9	163	75.1
9	Others	50	23.0	167	77.0

By the Table 4, 82% of teacher educators mostly use PowerPoint or slides that including text, graph, image, audio, video or animation. 14.7% of them use educational online game as a tool and 23% of them use other ICT tools and applications in their teaching-learning activities.

Findings Based on Demographic Data

Based on the demographic data, the results were interpreted by Pallant (2016) and Morgan, Leech, Gloeckner and Barrett (2013). Table 5 shows *t* values.

Table 5 *t* Values for the Perceptions of Teacher Educators towards ICT in terms of Gender

No.	Category	Gender	<i>n</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i>
1	Perceptions about the use of ICT	Male	16	3.987	.620	-1.699	215	.091 (ns)
		Female	201	4.178	.415			
2	Barrier to technology use	Male	16	3.756	.536	-.962	215	.337 (ns)
		Female	201	3.908	.616			
3	Perceived usefulness	Male	16	3.704	.613	-1.520	15.79	.148 (ns)
		Female	201	3.940	.351			
4	Perceived ease of use	Male	16	3.847	.716	-1.386	15.72	.185 (ns)
		Female	201	4.098	.393			
5	Overall	Male	16	3.823	.547	-1.498	15.83	.154 (ns)
		Female	201	4.031	.321			

Note. ns = not statistically significant.

* $p < .05$.

When Table 5 was examined, it indicated that there is no significant difference in terms of gender. Both male and female teacher educators are positive perceptions towards ICT and they accept the use of ICT in their teaching-learning activities that can be more effective. Table 6 describes *t* values.

Table 6 *t* Values for the Perceptions of Teacher Educators towards ICT in terms of ICT Training

No.	Category	ICT Training	<i>n</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i>
1	Perceptions about the use of ICT	Yes	185	4.178	.432	1.174	215	.242
		No	32	4.081	.444			
2	Barrier to technology use	Yes	185	3.905	.639	.604	60.61	.548
		No	32	3.853	.411			
3	Perceived usefulness	Yes	185	3.939	.373	1.518	215	.131
		No	32	3.829	.406			
4	Perceived ease of use	Yes	185	4.108	.425	2.362	215	.019*
		No	32	3.916	.410			
5	Overall	Yes	185	4.033	.348	1.714	215	.088
		No	32	3.920	.315			

Note. * $p < .05$.

The Table 6 showed that teacher educators who had attended the ICT training have more positive perceptions about the ease of use of ICT than the teacher educators who did not attend the ICT related training. Therefore, all teacher educators should attend the ICT related training in accordance with the rising digital world. Overall finding indicated that there was no statistically significant difference between teacher educators for three categories ($t = 1.714$, $df = 215$, $p < .05$) except the category perceived ease of use. In order to see at a glance, the comparison of mean values was presented by graph (See Figure 2).

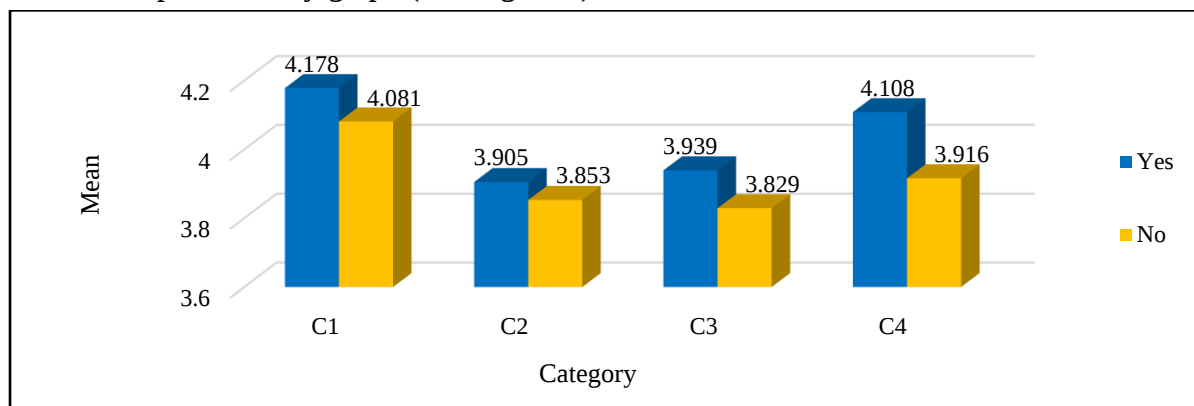


Figure 2. The comparison of mean for the perceptions of teacher educators towards ICT in terms of ICT training.

Note. C1=Perceptions about the use of ICT, C2=Barrier to technology use, C3=Perceived usefulness, C4=Perceived ease of use.

According to Figure 2, this finding described that teacher educators who had attended the ICT training used ICT in learning activities that is quite easy and is not troublesome for them. In here, most teacher educators have basic ICT related knowledge and lack of pedagogical competence with ICT. But teacher educators have difficulty in usage of technology by the above mean values. Thus, they should have technology literacy skills for surviving the educational reform and development. Besides, Table 7 shows the comparison of mean values.

Table 7 Comparison of Mean Values on each Category and Integration of ICT into Teaching Practices in terms of Education Degree College

Groups	No. of participants	M/SD	Category				Overall	Teaching Practices
			C1	C2	C3	C4		
EDC 1	82	M	4.367	4.287	3.946	4.289	4.222	4.302
		SD	.367	.501	.299	.395	.303	.502
EDC 2	57	M	4.059	3.812	3.921	4.031	3.956	3.622
		SD	.434	.465	.411	.291	.302	.615
EDC 3	51	M	4.062	3.462	4.014	3.997	3.884	3.354
		SD	.378	.621	.373	.417	.264	.760
EDC 4	27	M	3.962	3.714	3.683	3.699	3.765	3.104
		SD	.501	.454	.454	.454	.362	.756

Note. C1=Perceptions about use of ICT, C2=Barrier to technology use, C3=Perceived usefulness, C4=Perceived ease of use, EDC=Education Degree College.

The comparison of mean values for each category of the perceptions of teacher educators on ICT and integration of ICT into teaching practices was presented in Figure 3.

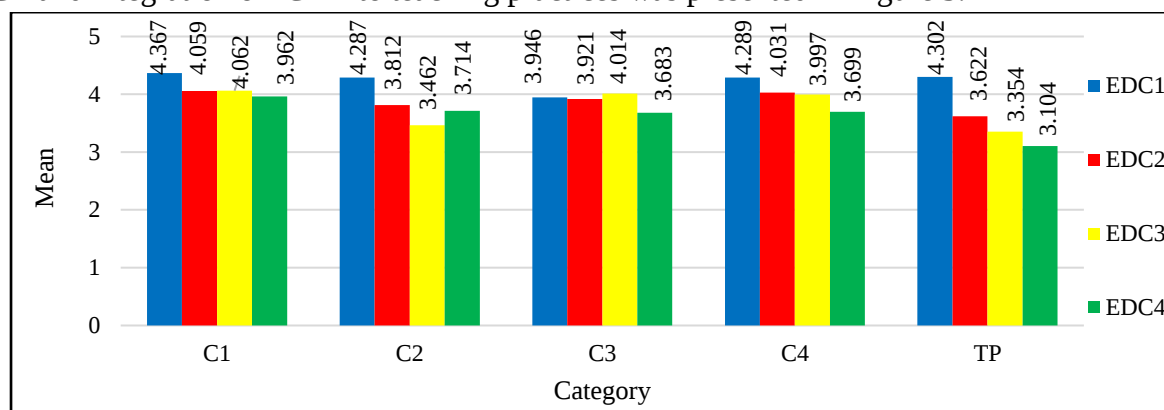


Figure 3. The comparison of mean in terms of Education Degree College.

Note. C1=Perceptions about use of ICT, C2=Barrier to technology use, C3=Perceived usefulness, C4=Perceived ease of use, TP=Teaching Practices, EDC=Education Degree College.

According to Figure 3, teacher educators of Education Degree College 1 use ICT in their teaching and learning activities than other teacher educators of Education Degree Colleges by the mean values. Among them, teacher educators of Education Degree College 4 have lowest mean, it can be supposed that they are weak in applying technology, especially ICT into their teaching practices.

Table 8 ANOVA Results for all Categories in terms of Education Degree College

		Sum of Squares	df	Mean Square	F	p
Perceptions on use of ICT	Between Groups	5.616	3	1.872	11.32	.000*
	Within Groups	35.22	213	.165		
	Total	40.83	216			
Barrier to technology use	Between Groups	23.44	3	7.815	29.12	.000*
	Within Groups	57.16	213	.268		
	Total	80.60	216			
Perceived usefulness	Between Groups	2.02	3	.673	4.924	.003*
	Within Groups	29.12	213	.137		
	Total	31.14	216			
Perceived ease of use	Between Groups	8.00	3	2.668	18.02	.000*
	Within Groups	31.52	213	.148		
	Total	39.52	216			
Overall perceptions	Between Groups	6.295	3	2.098	22.93	.000*
	Within Groups	19.48	213	.091		
	Total	25.78	216			
Teaching practices	Between Groups	45.18	3	15.06	37.55	.000*
	Within Groups	85.44	213	.401		
	Total	130.63	216			

Note. * $p < .01$.

According to Table 8, it was found that there was significantly different among four Education Degree Colleges on all categories; $F(3, 213) = 22.935, p < .01$. This means that the perception towards all categories differs among four Education Degree Colleges. Moreover, there was also statistically significant differences among four Education Degree Colleges on Integration of ICT into teacher educators' teaching practices in terms of Education Degree College; $F(3, 213) = 37.55, p < .01$. This means that the teacher educators' teaching practices with the use of ICT differ among four Education Degree Colleges.

Findings on Research Question (3)

The followings are descriptions for findings on research question (3).

Table 9 Correlation between Perceptions of Teacher Educators towards Use of ICT and their Integration of ICT into Teaching Practices

		Overall Perceptions	Integration of ICT into Teaching Practices
Overall Perceptions	Pearson Correlation	1	.687**
	Sig. (2-tailed)	-	.000
	N	217	217

Note. **Correlation is significant at the .01 level (2-tailed).

According to Cohen (1988), it can be interpreted that there was a positively high correlation between perceptions of teacher educators towards the use of ICT and their integration of ICT into teaching practices. Thus, the more positive perceptions towards the use of ICT are high, the more they use ICT related materials during their teaching practices.

Summary of Research Findings

- On the basis of research findings, teacher educators have positive perceptions towards use of ICT but they have difficulty to technology use. They were convenient in perceived ease of use and a little accept in perceived usefulness of using ICT.
- Teacher educators often use ICT with their teaching-learning activities in their class. They use PowerPoints and smart-phone during their teaching practices.
- It indicated that there was no significant difference in terms of gender. They accept the use of ICT in their teaching learning activities that can be more effective.
- However, teacher educators who had attended the ICT training used ICT in learning activities that is quite easy and is not troublesome for them.
- Besides, there was a positive correlation between perceptions of teacher educators towards use of ICT and their integration of ICT into teaching practices.

Discussion and Conclusion

Discussion

According to the research findings, the mean for perceptions about the use of ICT was the highest and the mean for barrier to technology usage was the lowest. This result is confirmed by the report of Goktas, Gedik and Baydas (2013) that indicated teachers face the barriers in their integration of ICT. The survey results also show that teacher educators perceived the things such as lack of teachers' technical knowledge to prepare materials based on technology, shortage of resources like computer, projector etc., lack of interest of teachers in ICT usage for teaching and learning.

In regard to teacher educators' general use of ICT, the survey found that teacher educators often apply ICT with their teaching-learning activities in their classroom. They especially use search engines for the information. These findings are supported by Aslan and Zhu (2018).

The results of the analysis indicated that there was no significant difference in the perceptions of teacher educators towards ICT in teaching and learning process in terms of gender. It was consistent with the result of Law and Chow (2008), they stated that no statistically significant gender difference was found and it can be due to the fact that both male and female teacher educators had positive perceptions in using ICT within the digital age. Everyone has the gender equity in modern times and modern world.

Besides, in terms of ICT training, the research findings showed that teacher educators' perceptions on ICT are no statistically significant difference except for the category perceived ease of use. Teacher educators who had attended the ICT training used ICT in teaching-learning activities that is quite easy and is not troublesome for them. But they attend that the trainings are chiefly on computer basic rather than on how to integrate ICT to their subjects. Thus, both teacher educators and their students should be made more competent in ICT integration and should attend ICT trainings and programs.

Based on the result of the study, it was found that there was a significant difference between perceptions of teacher educators on ICT and integration of ICT into teaching practices in terms of Education Degree College. Law and Chow (2008) suggested that teachers are more likely to use ICT in their teaching if they feel they and their students are receiving support from the school-support. Thus, every Education Degree College should get the support of ICT related materials, availability of full-time electricity, Wi-Fi and Internet connection in using ICT.

According to the result, there was a positive correlation between perceptions of teacher educators towards the use of ICT and their integration of ICT into teaching practices. As Aslan and Zhu (2018) reported that pedagogical knowledge plays an important role in integrating ICT into teaching practices. Thus, the more teacher educators' perceptions on ICT change to develop in teaching-learning situations, the more they apply ICT in their teaching practices.

For open question that experience in using ICT with their difficulties, teacher educators said that they described the poor internet connection, lack of electricity, lack of technical knowledge, incompetence of using ICT related materials, insufficient of technical resources, lack of pedagogical knowledge, and weak of insufficient time and study of technology.

Finally, several implications can be drawn from the present study's findings. Initially, it is the extent to which 21st century-oriented pedagogical or teaching practices are arising with the use of technology. Secondly, it is proposed that every teacher educator should have a good understanding and applying technology for innovative strategies. Further, teacher educators' perceptions of the contributions that ICT-use make to improve students' interest and motivation for better performance. Thus, teacher educators should be noteworthy to increase their professional development and adopt 21st century-oriented pedagogies and in ICT-using practices.

Suggestions

The research findings give rise to several relevant recommendations and suggestions.

- Teachers should give priority for ICT related professional development with both pedagogical and technical competence and knowledge.
- Teacher educators should attend the ICT related trainings, seminars and forum to improve their ICT related skills and knowledge.
- It should give the ICT related courses and training programs for all teachers to increase their proficiency in using technology in the classroom.
- Policy makers or decision makers should prioritize to support the availability of electricity and Internet connection for schools, colleges and universities. Thus, it can be easy to use ICT in teaching and learning processes.
- Decision makers and school leaders should consider to support the ICT infrastructures facilitating use of ICT in teaching-learning situations.
- It should clearly understand required technology skills for both teachers and students and ICT related education policies.

Conclusion

This study was conducted to investigate the relationship of teacher educators' perceptions on information and communication technology with their integration in teaching practices in Education Degree Colleges. According to the results, the research denoted that teacher educators in selected Education Degree Colleges have positive perceptions on ICT and mostly use PowerPoint or slides that including text, graph, image, audio, video or animation during their teaching learning activities. To conclude, the study found that there was a positive correlation between perceptions of teacher educators towards the use of ICT and their integration of ICT into teaching practices. According to the study, it can contribute to policymakers, administrators, school leaders, teacher educators, teachers and students for using technology in education.

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