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Technology Training Courses in Iran and their Effectiveness in Helping Teachers to Use Technology in their Classrooms: A Study

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ABSTRACT

The quality of how technology is integrated in teacher training courses is essential for the application of technology by teachers in their classes. In this respect, this study aimed to investigate the status of technology integration in teacher training courses in Iran and teachers' attitude toward it. It also investigated if the teachers applied the technological knowledge gained during these courses in their classes. For this purpose, a sample of 50 in-service teachers (25 males and 25 females) attending in-service teacher training courses held by Research and Planning Organization of Ministry of Education were selected from among the related population based on stratified sampling. A researcher-made questionnaire was used to collect the related data. Findings of this study clearly indicated that integration of technology in teacher training courses held by Research and Planning Organization of Ministry of Education was not at a proper level and was limited to the use of some common technologies such as printed materials, computers and LCD projects. The technology expertise of the teachers must also be improved to be more proficient in this area.

Keywords: *Teacher Training, Teacher Training Courses, Technology Training, In Service Courses, Ministry of Education*

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1. Introduction

Recent decades have witnessed the emergence of information and communication technologies and consequently their inclusion in various domains, the education sector is among which. Therefore, teachers of 21st century have responsibility to help the learners for better learning by integrating information and communication technologies of the day. Teacher training programs and courses have to provide the condition for the teachers-to-be to learn how to apply technology in their classes. That is, there is a crucial need for systematic educational programs for teacher training on information and communication technologies (Donnelly, 2010). Incorporation and integration of information and communication technology in classrooms for the purpose of teaching and learning is challenging the classical views dominating the area for a long time. It is also challenging the teachers who have to be capable of using technology in the most effective way. The efficient use of technology is a complex task requiring

institutional support, equipment, time and positive attitude (Ertmer, 1999). Teachers have to gain sufficient technological skill and knowledge at both low and high levels (You, 2010). The quality of addressing technology in education programs is one of the essential conditions for application of technology in classrooms (Tondeur et al, 2012). However, technology has received little attention in teacher training and education programs regarding how it can be used in classes and support pedagogy (Davis, 2013). However, just paying more attention to technology in teacher training courses is not sufficient and it is the "quality" and "how" that is important.

Iran as a developing country is also affected by technological changes in various domains, the educational system of which is not an exception. In recent years, some efforts are made by the Ministry of Education and teacher training institutions to enhance technology use and bring forth teachers equipped with sufficient knowledge of educational technology and its application to make significant changes in education

sector including schools. Computers have been used for educational purposes in most of Iranian schools for about two decades. Fathi and Saadatalab (2014) stated that Ministry of Education started the development of integration, design and implementation of informatics systems after 1990 to automate the application procedure and modern information tools at curriculum.

Iran is not the only country struggling with this problem. Many other reports and surveys have shown the insufficiency and failure of teacher education programs in the field of educational technology training. For example, a report from a national survey in Sweden in 2006, presented how teacher candidates within teacher education programs are being prepared to use educational technology once they enter the field. The findings showed that despite the universality of the computers, internet access, and other forms of technology within the schools, many teachers feel ill-prepared to employ these tools effectively in their instruction (Wells and Lewis, 2006). This shows the importance of planning efficient and rich technology training courses for teachers and why it should be paid attention.

Despite the importance of integrating technology in teacher training courses and development of technological knowledge for teachers which in turn leads to integration of technology by teachers at their profession, the studies in Iran have only focused on technology use in classes for students (Rahimi, 2010, 2011; Sabzi, 2013; Dehqan, 2017; Gilakjani, 2015; Rezaei, 2017). There is no study on integration of technology in teacher training courses, the quality and teachers attitude toward using technology in these courses. Accordingly, the present study evaluates if technology is addresses in teacher training courses, how and to what extent and if teachers are satisfied.

2. Review of Related Literature

Research on the integration of technology at educational context goes back to the emergence of technology and its penetration as an inseparable part of modern life. Educational system as the most crucial and important component of human life has been also affected by technological advances and various studies have been conducted assessing implementation of technology in this context. Earlier studies on integration of technology in curriculum and training teacher how to apply technology showed lack of knowledge among American teachers in this regard (Brooks and Kopp, 1989). Other studies have focused on

application of technology by in-service teachers than considering integration of technology in pre-service teacher training courses, evaluation of teachers attitudes toward the use of technology and their satisfaction with the current condition.

Kromohout and Butzin (1994), in their study on receiving technology training at education colleges for pre-service and in-service teachers, found that teachers were not satisfied. Carey (1994) also pointed to the fact that teacher training programs must include models of teaching, designing syllabus and curriculum with technology. Wiburg (1994) found some factors affecting the outcome of integrating technology into teacher training courses including pedagogical orientation of teachers and the courses; leadership and support of the administration; participation with other agencies; planning technology integration; and quality of the technology integration courses.

Shelley (2004), in a study on proper teacher training using technology, listed about eleven criteria of effective use of technology including a) creation of relationship between active learning and teaching; b) development of an appreciation and an understanding of the potential of technology; c) learning to be authors of multimedia software; d) development of leadership skills and becoming a role model for successful integration; e) understanding the power of technology integration; f) designing integrated curriculum activities; g) learning the benefits of technology in the classroom; h) development of ownership of technology through authentic experiences; i) learning to motivate students with technology; j) achieving success by get informed decision makers; and k) becoming advocates for technology integration (Pp 610-611).

Zhao and Bryant (2006) also studied the issue of technology integration for teacher education and concluded that mere use of technology in teacher education is not sufficient to make positive changes and instructional applications should also be taken into account. Hattangdi and Ghosh (2008) in a study of technology-integrated teacher training courses in India found that despite the potential radical changes technology can bring in teaching process, most of the teaching-learning institutes use the traditional methods.

Singh (2013) argued that effective integration of technology in education by both in-service and pre-service teacher



depends on four factors including a) teachers' proficiency in use of various technological applications for teaching purpose; b) frequency of technology integration by teachers; c) teachers' attitude toward the effectiveness of technology integration on learning; and d) the interaction between these three factors. Bang and Luft (2013) also found that a few beginning teachers could use technology in different ways to create learner-centered learning condition. In other words, teachers have to cope with the fast pace of technology development on their own and actually learn how to apply technology in their classes during working at schools and classes.

Many researches have focused on pre-service teachers' computer use in educational contexts (e.g., Chai, 2010; Hsu, 2010; Niederhauser & Perkmen, 2008). For example, Zogheib (2015) investigated pre-service teachers' computer use for purposes outside the educational context and its effect on their technology use in their classrooms. The result was that teachers' prior computer experience was the most significant predictor of their computer use in class. In another study, Alt (2018) assessed several ICT practices entered in classrooms and suggests that teachers should be exposed to these practices such as e-portfolio, blogs, wikis, podcasts, and other powerful web tools for classrooms that might help supporting students' and teachers' 21st century learning skills.

Admiraal et al (2014) examined the quality of how technology is integrated and addressed in teacher training courses as being conditional and necessary for the application of technology by teachers in their classes. They found two important factors influencing the development of technological knowledge in pre-service teachers as: a) teaching practice to implement what was learned in teacher training course and receiving feedback from students; and b) modeling of teachers and teacher educators in school.

To achieve the stated aims of the study, following research questions are formulated:

- 1) What is the status of technology integration in teacher training courses in Iran?
- 2) How is the quality of technology integration in teacher training courses?
- 3) What is the attitude of Iranian teachers toward the integration of

technology in teacher training courses?

- 4) Are Iranian teachers satisfied with the way technology is integrated in teacher training courses?

- 5) Do the teachers apply the technological knowledge gained during these courses in their classes?

3. Methodology

3.1 Design

This is a mixed-method descriptive study conducted on teacher training classes held by Research and Planning Organization of Ministry of Education. This institute was selected based on having the state of the art technology status and thereby assuming that a better picture would be gained about technology integration and usage in teaching training courses and teaching context, respectively.

3.2 Participants

A sample of 50 in-service teachers (25 male and 25 female) attending in-service teacher training courses held by Research and Planning Organization of Ministry of Education from among the related population were selected based on stratified sampling. First the entire population were divided into two groups of male and female teachers and then the equal number of participants (n=25) were selected using simple random sampling method from each group and regarding their consent to participate in this survey.

3.3 Instrument

A researcher-developed questionnaire was used to collect the related data. The questionnaire was constructed based on the criteria of measurement mentioned in previous studies. This questionnaire included five parts to collect the data related to demographic information of the participants (gender, age, educational degree, working experience, technological expertise, received technology training outside the institution); the status of technology integration; quality of technology integration; teachers' attitude toward integration of technology in teacher training course; and teachers' application of technological knowledge in their classes.

4. Data Collection and Analysis

The questionnaires were given to the participants of the study following a session of teacher training course and they were given 30 minutes to fill it. They were also ensured of confidentiality of the data. For this purpose, the copies of the questionnaire were coded and the participants were not

required to write their names. Collected data were analyzed using descriptive statistics of percentage, measure of central tendency, standard deviation and correlation. SPSS was used for data analysis.

5. Findings and Discussion

Once the data was collected, it was observed that 75% of the teachers were 40 years old and above in age. It should be noted that some studies have found that older teacher have weaker belief in technology compared to their younger colleagues which can significantly affect the integration of technology in their classes (Posthuma and Campion, 2009; Reed, Dotty and May, 2005). In terms of working experience, 60% of them had an experience of more than 15 years. Both male and female teachers used technology at average level. However, there was a significant difference between two groups in terms of percentage of advanced users. It was higher for female teachers (48%) than male teachers (25%). More than 40% of male and female teachers reported to have received training in technology integration and use outside the institution while only 12% of male teachers did it. 85% of female teachers accepted receiving training in technology use in this institute while 32% of male teachers denied taking part in these courses before. This finding indicates the teachers' awareness about the significance of technology usage and integration in teaching-learning process. This finding was in line with some research in the literature which used demographics as a principal focus of study. Gender is a factor that has been investigated excessively in the literature (Sadik, 2006; Teo, 2010; Woodrow, 1991). As another example, Almekhlafi, Ismail, and Al-Mekhlafi (2017) in their study about integration of educational technology in K-12 schools showed that female teachers exceeded male teachers in using technology in classes in some aspects. Table 1 shows the related statistics.

Table 1: Demographic Information of the Participants

		Male (%)	Female (%)
Age	<25 yrs.	1	0
	26-35 yrs.	23	16
	36-45 yrs.	46	63
	>45 yrs.	32	21
Working experience	<15 yrs.	38	23
	> 15 yrs.	52	57
Technology expertise	<50%	42	77
	>50%	48	23
Receiving technology training outside the institution	Yes	47	12
	No	43	78
Receiving technology training in the institution	Yes	85	68
	No	15	32
Total		100	100

Research Question 1:

What is the status of technology integration in teacher training courses in Iran?

Table 2: Technology Status

	Female		Male	
	Yes (%)	No (%)	Yes (%)	No (%)
LCD	65	25	53	48
Projectors				
Computers	82	18	81	19
Internet	12	88	11	89
Video	0	100	0	100
Camera				
Interactive Boards	3	97	3	97
Multimedia rooms	0	100	0	100
Printed Materials	95	5	97	3
E-learning materials	34	66	25	75

Availability of technology in teacher training courses was reported by the participants, as shown in table 2. Female and male teachers provided a picture of technology availability where computers, printed materials and LCD projectors dominated. The unclear report about availability of technology indicated low level of technology use in these classes. There is also non-uniformity about technology integration since some participants reported the usage while the others denied the use of technologies listed in table 2. That is, teaching training courses still rely on traditional teaching methods and integrate technology just occasionally in instructional practices. Printed materials are the mostly incorporated learning resources and the use of e-learning material is limited in a few occasions. Therefore, it seems necessary for teaching training courses in Iran to expose teachers to various forms of technology since it is crucial for preparing teachers with technological knowledge to utilize it for supporting the teaching and learning activities in classes (Pan and



Carroll, 2008). Teacher training institutes should also serve as a model for other institutions to train teachers equipped with technological knowledge for future.

Research Question 2:

How is the quality of technology integration in teacher training courses?

Table 3: The quality of technology integration

	Quality (%)			
	High	Average	Low	Very low
LCD	9	26	32	33
Projectors				
Computers	42	23	20	15
Internet	13	16	32	39
Video	0	11	24	65
Camera				
Interactive Boards	0	2	57	41
Multimedia rooms	3	15	43	39
Printed Materials	58	32	7	3
E-learning materials	36	26	23	15

Table 3 shows that all the participants, both male and female rated the quality of technology integration in teacher training courses where the quality of using computers, printed materials and e-learning materials were rated to be at high level. The lowest quality was attributed to video cameras, internet and multimedia rooms. Accordingly, it can be concluded that the usage of technology in these courses are limited to the most available technologies and integration of technology in pedagogical practices has a long way to go.

Research Questions 3 and 4:

What is the attitude of Iranian teachers toward the integration of technology in teacher training courses?

Are Iranian teachers satisfied with the way technology is integrated in teacher training courses?

H0: there is no significant relationship between attitudes of teachers toward the integration of technology and their satisfaction with the way technology is integrated in teacher training courses

Table 4: Correlation between attitudes of teachers and their satisfaction with technology integration in teacher training courses

		Satisfaction	Attitude
Satisfaction	Mean	24.30	-
	Sd.	6.54	-
	N	50	50
	Pearson Correlation	1	0.31*
	Sig. (2-tailed)	-	0.001
Attitude	Mean	-	78.32
	Sd.	-	12.38
	N	50	50
	Pearson Correlation	0.31*	1
	Sig. (2-tailed)	0.001	-

* p<0.01, significant

Table 4 illustrates a highly significant relationship between satisfaction of teachers about usage of technology at teacher training courses and their attitude towards integration of technology in teaching-learning. The null hypothesis is rejected. That is, teachers' attitude toward integration of technology is affected by the fact if they are satisfied with technology usage in teacher training courses. That is, satisfaction with technology usage in teacher training courses positively influences the attitude of them towards integration of technology in curricular practices.

Research Question 5:

Do the teachers apply the technological knowledge gained during these courses in their classes?

About 64% of female teachers and 73% of male teachers reported the application of the technological knowledge gained during these courses in their classes. However, this is in contrast with the statistics and percentages obtained from the first part of the questionnaire. This difference can be due to the use of self-report survey and needs to be studied in more details. This part of the research is in line with some research in the literature. In a similar study, Astrid (2002) discussed why males demonstrated positive perceptions towards computers as well as higher confidence in their own success more than females.

6. Conclusion

Findings of this study clearly indicated that integration of technology in teacher training courses held by Research and Planning Organization of Ministry of Education was not at a proper level and was limited to the use of some common technologies such as printed materials, computers and LCD projects. Technology usage has begun in teacher training institutions but there is a long way to go before reaching the proper level of technology-integrated education. The

technology expertise of the teachers must also be improved to be more proficient in this area. Improving the status of technology integration in teacher training courses would in turn enhance teachers' attitude toward and satisfaction with usage of technology in teaching-learning context. Since this study was conducted on the status of teacher training institute, future studies should extend the issue to the other teacher education institutions including the private ones to provide a better picture about the status of technology usage and integration in the teaching-learning process in Iran. Furthermore, future studies can compare the training courses with in-service teachers with those for pre-service teachers to provide a better analysis of the present and future condition of technology usage in educational system of Iran.

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