

The Teachers' Perceptions of Technology Integration in EFL Classes

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Abstract

This study implemented Rogers' Diffusion of Innovation model (1995) to explore the Iranian teachers' perceptions of integrating technology in their EFL classes. In this study a mixed method design was used. In quantitative part of this study, Rogers' (1995) Diffusion of Innovation questionnaire (20 items) was implemented; and in qualitative phase, semi structured interviews were conducted. The participants of this study were 60 EFL teachers who worked in English language institutes in Shiraz, Iran. The results of this study showed that, there was not any significant difference between the perceptions of male and female teachers about integrating technology in their EFL classes. Additionally, in this study, there was a significant difference between the five attributes (relative advantage, compatibility, complexity, trialability, and observability) of the Rogers' Diffusion of Innovation. Moreover, among five attributes of Diffusion of Innovation, the relative advantage and observability had the highest mean scores. The results of semi structured interview also indicated that there were some similarities and differences between the perceptions of male and female teachers about integrating technology in their EFL classes.

Keywords: teacher, perception, technology, integration, EFL classes

1. Introduction

The development of technology has influence on different aspects of society. Moreover, along with increasingly technological developments, learning expectations of students have changed. For example, in the technological society, students may need to search the Internet, find a large amount of information, examine it and make choices. Besides, they may need to learn something in collaborative learning environments. Therefore, technology integration in the classroom has become an important issue which has triggered many scholars to explore various aspects of such integration (e.g., Kotrlik & Redmann, 2005; Bauer & Kenton, 2005; Judson, 2006; Totter et al., 2006; ChanLin et al., 2006; Zhao, 2007; Gulbahar, 2007; Anderson & Maninger, 2007; Abbit & Klett, 2007). This is because through appropriate use of technology, students can learn more in less time and schools can focus on global learning environments (Almekhlafi, 2006a, 2006b). Additionally, technology can be considered as an effective teaching tool which can be used for engaging all students in the learning process (Almekhlafi, 2006a, 2006b). ; besides, technology integration can make teaching and learning more practical (Dwyer, Ringstaff, & Sandholtz, 1991; Sheingold & Hadley, 1990; Warschauer, 2000). However, as Baylor and Ritchie

(2002) state, regardless of the amount of technology and its complexity, technology will not be used unless faculty members have the skills, knowledge and attitudes required to integrate it into the curriculum. That is, teachers are important agents which affect technology integration in their classes. Therefore, due to the role of teachers in technology integration in the classroom, this study attempts to explore the Iranian teachers' perceptions of technology integration in their EFL classes.

2.Literature review

Generally, technology integration in instruction can be considered as one of innovations in educational setting .Rogers (1995) proposed five attributes of diffusion of innovation which is about successful and wide adaptation of an innovation or its failure. These five attributes are relative advantage, compatibility, complexity, trialability, and observability. According to Rogers (1995), relative advantage refers to “the degree to which an innovation is perceived as better than the idea it supersedes” (p. 15). Compatibility is defined to be “the degree to which an innovation is perceived as being consistent with the existing values, past experiences, and needs of potential adopters”(p.15). Furthermore, complexity is “the degree to which innovation is perceived as difficult to understand and use” (p. 16). However, trialability is explained as “the degree to which innovation may be experimented with on a limited basis” (p. 16). Finally, observability refers to “the degree to which the results of an innovation “the degree to which the results of an innovation are visible to others” (p. 16).

Moreover, one of factors which can affect technology integration in instruction is teachers' beliefs. Teachers' personal beliefs in the benefits of technology integration in instructions have effects on their decision regarding technology use (Lam ,2000). Similarly, as Atkins and Vasu (2000) state, teachers' attitudes or concerns significantly influence their use of computers in their classes. However, Egbert, Paulus and Nakamichi (2002) contend that the teacher's positive attitude toward computer technology does not guarantee that he/she can integrate technology in the classroom.

Furthermore, teacher's training programs, instructional support, facilities, beliefs, attitudes and capacities of teachers are factors which influence technology integration in the language instruction (Albirini, 2004; Chen , 2007). Similarly, according to results of different studies(e.g., Atkins & Vasu, 2000; Egbert, Paulus & Nakamichi, 2002; Jung, 2001; Lam, 2000; Lee & Son, 2006; Shin & Son, 2007; Suh, 2004; Yildirim, 2000) teacher training , computer facilities, teachers' attitudes toward computers and prior ICT teaching experiences are factors which are strongly associate with the success or failure of CALL in the classroom. Additionally, the variables like teachers' personal confidence, their interest in using ICT and their willingness to try something different can have effects on ICT integration in the classroom (Redmond, Albion & Maroulis ,2005).

Therefore, different variables can have different impacts on teachers' technology integration. For example, as a result of teachers' training programs, teachers' technological literacy will be improved, their confidence regarding technology use will be increased, and their attitudes toward technology will be affected positively (Lam, 2000; Oh & French, 2007; Yildirim, 2000). These findings are in line with the results of Egbert, Paulus and Nakamichi's (2002) study. Egbert, Paulus and Nakamichi's (2002) found that teachers who had previous experience regarding the use of technology were more likely to use CALL activities in the classroom.

However, financial problems, lack of time, lack of technical support and inflexibility of curriculum are reported to be important barriers which influence CALL practices (e.g., Atkins & Vasu, 2000; Egbert, Paulus & Nakamichi, 2002; Jung, 2001; Lam, 2000; Lee & Son, 2006; Shin & Son, 2007; Suh, 2004; Yildirim, 2000). Similarly, as Brinkerhof (2006) contends, resources, institutional and administrative support, training and experience, and attitudinal or personality factors are four main barriers which hinder technology integration.

3. The present study

Although different scholars have studied on teachers' and faculty members' concerns and perceptions of technology integration (Barboza, 2010; Palmore, 2011; Tondeur et al., 2008; Yang & Huang, 2008), there is a need to investigate teachers' perceptions of integrating technology in Iran setting. Therefore, this study attempts to explore the Iranian teachers' perceptions of integrating technology in their EFL classes. In this study, the research questions are formulated as follows:

1. Is there any significant difference between the perceptions of male and female teachers about integrating technology in their EFL classes?
2. Is there any significant difference between the five attributes of the Rogers' Diffusion of Innovation in this study?
3. What types instruction technologies do teachers prefer to use in their EFL classes?
4. What are the perceptions of teachers about the possible barriers related to technology integration in their EFL classes?
5. What are the perceptions of teachers about the effects of classroom technology integration on their teaching?
6. What are the perceptions of teachers about the effects of classroom technology integration on their students' learning?

4. Methodology

In this study a mixed method design was used. In quantitative part of this study, Rogers' (1995) Diffusion of Innovation questionnaire (20 items) was implemented; and in qualitative phase,

semi structured interviews were conducted. Moreover, in this study all of the participants were interviewed.

4.1 Participants

The participants of this study were 60 EFL teachers who worked in English language institutes in Shiraz, Iran. Thirty of the participants were male teachers and the rest were female teachers. Besides, their age ranged from 22 to 35 years old. Additionally, their teaching experience ranged from 2 to 10 years.

4.2 Instrument

In quantitative part of this study, the Diffusion of Innovation questionnaire developed by Rogers (1995) was implemented. It is a 20-item questionnaire used for exploring the perceptions of the teachers regarding technology integration. Besides, in this questionnaire, a five-point Likert scale is used ranging from Strongly Disagree to Strongly Agree (Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree). In this questionnaire, each 4 successive questions indicate one of the attributes of the diffusion model (e.g. relative advantage, compatibility, complexity, trialability, and observability). Before administering the questionnaire, the reliability and validity were assessed. The content validity of the instrument was checked by 3 different scholars and Cronbach alpha was used to determine the reliability of questionnaire. The Cronbach alpha value was 0.86 for the overall scale.

Moreover, in qualitative phase, 30 male teachers and 30 female teachers were interviewed. During the semi-structured interviews, the following questions were asked:

1. Do you consider technology integration within instruction as an advantage or disadvantage?
2. What types instruction technologies do you prefer to use in your EFL classes?
3. What are the possible barriers related to technology integration in your EFL classes (administration, facilities, computer literacy of instructors/ students, time, peer feedback factors in your respond)?
4. What are the effects of classroom technology integration on your teaching? (More efficient – easier record keeping – more collaboration with peers/reduced isolation – more fun teaching? – changed role from expert to facilitator? – more creative/adventuresome with curriculum – more individualized instruction? – access to better resources)?
5. What are the effects of classroom technology integration on your students' learning? (More motivated? – more engaged? – better cooperative learners? – more effective “reward” for completing work – more distracted).

4.3 Data Analysis

In this study, a mixed method design was employed. Therefore, the data was analyzed both qualitatively and quantitatively. The data obtained from the survey questionnaires was analyzed quantitatively. On the other hand, the data collected through semi-structures interviews was analyzed qualitatively.

5. Results

5.1 Quantitative results

In this study, the Diffusion of Innovation questionnaires were scored and analyzed. For this purpose, descriptive statistics , the one –way analysis of variance (ANNOVA) , and independent sample t-test were used to analyze the questionnaire data.

Table 1.
Mean of attributes of Diffusion of Innovation

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Relative advantage	60	18.4167	1.85300	.23922	17.9380	18.8953	16.00	20.00
Compatibility	60	17.1000	2.69148	.34747	16.4047	17.7953	12.00	20.00
Complexity	60	13.0833	1.73001	.22334	12.6364	13.5302	10.00	17.00
Trialability	60	14.5000	3.36230	.43407	13.6314	15.3686	10.00	20.00
Observability	60	17.9833	2.02937	.26199	17.4591	18.5076	15.00	20.00
Total	300	16.2167	3.17121	.18309	15.8564	16.5770	10.00	20.00

In this study, among five attributes of Diffusion of Innovation, the relative advantage (mean= 18.41) and observability (mean=17.98) have the highest mean scores(Table1).

Table 2.
ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1290.367	4	322.592	55.439	.000
Within Groups	1716.550	295	5.819		
Total	3006.917	299			

Furthermore, as table 2 shows, there is a significant difference between the five attributes of the Rogers' Diffusion of Innovation (sig=.001).

Table 3.
Group Statistics

	group2	N	Mean	Std. Deviation	Std. Error Mean
Score	male	30	82.8000	7.75220	1.41535
	female	30	79.3667	7.98483	1.45782

Table 4.
Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means							
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference		
								Lower	Upper	
Score	Equal variances assumed	.006	.941	1.690	58	.096	3.43333	2.03186	-.63388	7.50055
	Equal variances not assumed			1.690	57.949	.096	3.43333	2.03186	-.63396	7.50062

Additionally, according table 4, there is not any significant difference between the perceptions of male and female teachers about integrating technology in their EFL classes (sig=.096).

5.2 Qualitative results

In qualitative phase of this study, the data collected through semi-structures interviews was coded and analyzed. The results showed all of the teachers had positive attitudes toward technology integration in their classes. Furthermore, in EFL classes, male teachers used CD/DVD(93/33% of the male teachers), mobile Phones(76/66% of the male teachers), Internet(73/33% of the male teachers), e-male(30% of the male teachers), computer software(16/66% of the male teachers), and overhead projector(10% of the male teachers); besides, female teachers used CD/DVD(100% of the female teachers), Internet(96/66% of the female teachers), mobile Phones(70% of the female teachers), e-male(40% of the female teachers), computer software(40% of the female teachers), and overhead projector(16/66% of the female teachers) in their classes.

Besides, male teachers stated that facilities(96/66% of the male teachers), time(50% of the male teachers), administration(33/33% of the male teachers), computer literacy of instructors/students(16/66% of the male teachers) were the barriers related to technology

integration in their EFL classes ; moreover, female teachers contended that facilities(100% of the female teachers), time(73/33% of the female teachers), administration(30% of the female teachers), computer literacy of instructors/students(10% of the female teachers), and peer feedback(6/66% of the female teachers) were the barriers associated with technology integration in their EFL classes .

Additionally, male teachers asserted that the integration of technology in their instructions resulted in a change in their role from expert to facilitator(63/33% of the male teachers), more individualized instruction(60% of the male teachers), more adventuresome with curriculum(53/33% of the male teachers), access to better resources(40% of the male teachers), more collaboration with peers(33/33% of the male teachers), more fun teaching(30% of the male teachers), easier record keeping(16/66% of the male teachers), and more efficient teaching(13/33% of the male teachers); besides, female teachers declared that the integration of technology in their instructions resulted in access to better resources (73/33% of the female teachers), a change their in role from expert to facilitator(66/66% of the female teachers), more adventuresome with curriculum(60% of the female teachers), more individualized instruction(40% of the female teachers), more efficient teaching(33/33% of the female teachers), easier record keeping(23/33% of the female teachers), more collaboration with peers(20% of the female teachers), and more fun teaching (20% of the females teachers).

Furthermore, both male and female teachers claimed that the integration of technology in their instructions had several effects on their students' learning. According to the teachers, as a result of technology integration, their students became more engaged learners (90% of the male teachers and 96/66% of the female teachers), better cooperative learners (70% of the male teachers and 76/66% of the female teachers), and more motivated learners (33/33% of male teachers and 60% of the female teachers).

6. Discussion and conclusion

This study implemented Rogers' Diffusion of Innovation model (1995) to explore the Iranian teachers' perceptions of integrating technology in their EFL classes .The results of this study showed that, there was not any significant difference between the perceptions of male and female teachers about integrating technology in their EFL classes. The results of this study are in line with the studies conducted by Gressard and Loyd (1986), Woodrow (1992), and Mollaei and Riasati (2013). In these studies, the researchers did not observe any significant differences between the attitudes of male and female teachers towards technology integration. However, the results of Yüksel and Kavanoz's (2011) study indicated that female teachers had more negative attitudes toward technology integration than male teachers. Similarly, the results of other studies showed that female teachers had computer anxiety than male teachers (Sadik, 2005; Samak, 2006).

Additionally, in this study, there was a significant difference between the five attributes

(relative advantage, compatibility, complexity, trialability, and observability) of the Rogers' Diffusion of Innovation. Moreover, among five attributes of Diffusion of Innovation, the relative advantage and observability had the highest mean scores. However, the results of Sayadian's(2012) study on attitudes of Malaysian teachers toward WBI integration in their instructions showed that trialability and complexity were their attitudes about WBI integration. Besides, the results of Ashrafzadeh and Sayadian's(2015) study on university instructors' concerns and perceptions of technology integration revealed that among the five attributes of Diffusion of Innovation, relative advantage and the complexity attribute had the highest mean scores respectively.

Furthermore, regarding the effects of five attributes the Rogers' Diffusion of Innovation , Zhang (1999) asserted that relative advantage, compatibility, trialability, and observability have a positive impact on technology integration and complexity has a negative impact on it. Therefore, in this study, the teachers' high mean scores in the relative advantage and observability showed that institute teachers perceived innovation as advantageous; besides, the results of an innovation were possibly visible to them and they thought innovation was trailable; additionally, they were more likely to adapt innovation. Moreover, it can be inferred from the results, teacher's age can be an important factor which can affect his/her technology integration. In other words, the participants of this study were young adults; therefore, they had positive attitudes toward technology integration. The results of Rahimi and Yadollahi's (2011) study also showed, the older and more experienced teachers used ICT in their instruction lower than younger ones; besides, the computer anxiety of older teachers was higher than younger ones.

Additionally, the results of semi-structured interview indicated that male teachers highly used CD/DVD and mobile phones in their EFL classes; however, female teachers mostly used CD/DVD and Internet in their classes. Besides, both male and female teachers agreed that facilities, time, and administration were the possible barriers of technology integration in their instructions. Furthermore, male teachers mostly asserted that the integration of technology in their instructions resulted in a change in their role from expert to facilitator and more individualized instruction. Besides, most of the female teachers declared that the integration of technology in their instructions resulted in access to better resources and a change in their role from expert to facilitator. Moreover, both male and female teachers claimed that as a result of technology integration, their students became more engaged learners, better cooperative learners, and more motivated learners.

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Appendix A: Questionnaire

The purpose of this part is to identify the factors that influence your adoption and integration of technology (e.g., email, Websites, audio/video conferencing, etc) in regular teaching. For the following items (1-20), please indicate to what extent you agree or disagree with each of the following statements by circling the appropriate number.

		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	Integrating technology makes it easier for me to do my instruction.	1	2	3	4	5
2	Integrating technology improves my instructional performance.	1	2	3	4	5
3	Integrating technology gives me greater control over my instructional performance.	1	2	3	4	5
4	Integrating technology increases my teaching productivity.	1	2	3	4	5
5	Integrating technology is completely compatible with all aspects of my academic work.	1	2	3	4	5
6	Integrating technology is completely compatible with my current situation.	1	2	3	4	5
7	I think that integrating technology fits well with the way I like to teach.	1	2	3	4	5
8	Integrating technology fits into my teaching style.	1	2	3	4	5
9	I believe that technology is difficult to integrate.	1	2	3	4	5
10	Integrating technology is often frustrating.	1	2	3	4	5
11	I believe that technology is easy to integrate.	1	2	3	4	5
12	Learning to integrate technology is easy for me.	1	2	3	4	5
13	I have had a great deal of opportunity to try various technology applications.	1	2	3	4	5
14	I know where I can go to satisfactorily try out various uses of technology.	1	2	3	4	5
15	Before deciding whether to integrate technology applications, I was able to properly try them out.	1	2	3	4	5
16	I was allowed to integrate technology on a trial basis long enough to see what it can do for instruction.	1	2	3	4	5
17	I would have no difficulty telling others about the results of integrating technology.	1	2	3	4	5
18	The results of integrating technology are apparent to me.	1	2	3	4	5
19	I have seen what others do when integrating technology in their teaching.	1	2	3	4	5
20	It is easy for me to observe others using technology in my university.	1	2	3	4	5

Appendix B: Interview Questions

1. Do you consider technology integration within instruction as an advantage or disadvantage?
2. What types of instruction technologies do you prefer to use in your EFL classes?
3. What are the possible barriers related to technology integration in your EFL classes (administration, facilities, computer literacy of instructors/ students, time, peer feedback factors in your response)?
4. What are the effects of classroom technology integration on your teaching? (More efficient – easier record keeping – more collaboration with peers/reduced isolation – more fun teaching? – more changed role from expert to facilitator? – more adventuresome with curriculum individualized instruction? – access to better resources)?
5. What are the effects of classroom technology integration on your students' learning? (More motivated? – more engaged? – better cooperative learners? – more effective “reward” for completing work – more distracted)?