



COMPUTER SELF-EFFICACY AND INTEGRATION INTO THE CLASSROOM: MATCHING TEACHERS BELIEFS WITH THEIR PRACTICE

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Abstract

The existing high-tech concentration in tutoring is demanding from instructors to grow into computer literate so that they can integrate computer-based technology in their classes. The present study is an endeavor to examine teachers' computer self-efficacy to check if there is a correlation with computer self-efficacy and technology integration in the classroom. Sample of the study was conveniently selected 318 teachers (213 male and 105 female) from 50 secondary schools (20 female and 30 male) of District Nankana Sahib. Two tools were used for data collection; A questionnaire and Kerlin scale of computer self-efficacy. A questionnaire was developed to check the integration of ICT into the classroom. Kerlin scale of computer self-efficacy was used to check the self-efficacy of teachers for computer. The findings of the research show the strong level of correlation between the computer self-efficacy and ICT integration into the class room teachings. This study found that the high level of computer self-efficacy does not mean that the teachers are integrating the computer in classroom teachings.

Key Words: Computer self-efficacy, ICT integration, secondary school teachers.

Introduction

The teaching and learning process has undergone different changes and adopt the technological, instructional and pedagogical advancements of the time. All the educational systems of the world demand from teacher to practice Instructional and Communication Technology (ICT) in their classrooms (Haydn & Barton, 2008) and expect that the teachers should integrate ICT in classroom teaching. Technological advancements change the structure of learning system. There is no denial that the technological advancements change the arena of modern education but these developments added many challenges in the teaching learning process. Aladejana (2007) argued that,

“ICT can promote students’ intellectual abilities through higher order thinking, problem solving, improved communication skills, and deep understanding of the learning tools and concepts to be taught. ICT can promote a supportive, interactive teaching and learning environment, create broader learning communities, and provide learning tools for students” (p.114).

Teachers are integrating technology in the teaching and learning process; they use it to improve the learning and to produce a better working environment (Butzin, 2000). Computer self-efficacy is connected with the assertiveness on the road to computer technologies. Computer self-efficacy is person's confidence and trust on his ability to use the computer. (Campeau & Higgins, 1995). Extraordinary computer self-efficacy may lead the teacher to spend maximum time on computer to learn new concepts. Computer self-efficacy is helpful to increase perseverance in using computing. (Bingimlas, 2009)

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Background of the Study

Teo (2008) has rightly indicated the attitude of teachers is important. Its common perception that teachers resist to use computers despite the availability and the knowledge of computer use. Although teachers have knowledge that the computers have positive effect on their teaching and learning of their students but unfortunately, they are reluctant to practice this technological expertise in the classes. It is maybe because of their stumpy self-reliance in their capabilities and aptitudes to practice computers that shows their stumpy computer self-efficacy. So teachers might be uneasy with technology, or they merely do not have concern in technology (Alfred, Rovai & Marcus, Childress, 2002). Due to the rapid technological progress society expects from teachers that they have knowledge of technology and know how to use in the classroom teachings. School teachers facing fretfulness with the practice of computers in their teaching, the anxiety may be due to the fear of damage of computers, inefficiency of using computers. Teachers feel that the anxiety of use of computer can be reduced when they become expert to use a computer in the class. They have fear to be known as computer illiterate (Russell, Bradley, 1997). Sometime people develop negative feelings and emotion about computer, for example, learning of hardware and software takes time and serious effort of people (Korunka, 1997). Developing countries facing lot of challenges to added the technological advancements into the classrooms (Richardson, 2011). In Pakistan the use of ICT is very common in the daily lives of teachers and students but in their teachings these teachers are reluctant to practice ICT. Several reasons are forecasted by experts for this reluctance such as attitudes of teachers towards technology, less confidence and competence discourage the teachers to integrate (Youssef & Dahmani, 2008). This study is an effort to provide evidence about the frequency of teachers' efforts to integrate computer into classroom tutoring and their computer self-efficacy. The ICT is chosen because of its importance in education and its potential, to revamp the ways in which schooling is supported in the class.

Objectives of the Study

The purpose of this study is to identify teachers' efforts to adopt and integrate ICT in teaching and learning process. Following objectives were decided:

1. To identify the secondary school teacher's computer self-efficacy.
2. It also aims to identify the teacher's efforts to integrate computers in their classroom practices.
3. To identify the relationship between computer self-efficacy and ICT integration.

Review of Related Literature

Self-efficacy, a psychological concept initially identified by Bandura in 1977, It is written off as as ones' belief on his abilities to complete a certain task (Eggen & Kauchak, 2007). Efficacy beliefs effect the expectations that form the behavior of individual (Albion, 2001). Many research studies confirm that people have positive and negative ideas about any object, those ideas form their behaviors and course of action. (Bandura, 1986; Albion, 2001) Successful experiences to use computers and common integration of it have been correlated with computer self-efficacy (Hakverdi et al., 2007). Computer self-efficacy has found strong connection with that positive attitudes toward use of computer (Aşkar & Umay, 2001; Akkoyunlu & Orhan, 2003; Hakverdi et al., 2007; Yılmaz et al., 2006).

The integration of technology into learning has become a major school reform. Giving space to the technology implementation in the school has strong connection with the school improvement. Findings of researches shows that technology implementation is not possible

without the willingness of teachers and instructor's choice to incorporate computer knowledge in his teaching is pretentious by several reasons (Fullan & Miles., 2006; Galligan, 1995). Since the binging of computer era the teacher training institutions add the technology component into its curriculum. The technology inception into curriculum could not promote the wide speared use of technology into schools. (Meerza, & Beauchamp, 2017).

Teachers' inclination to adopt computer in their class teaching is influenced by several factors. Usually it is affected by attitude of student and teachers, teaching experience and teachers age and willingness to learn computer (Hirschbuhl & Faseyitan, 1994). Chou, at al., (2019) finds that prefer style of learning may distract the use of computers. The teachers' behavior and ability to be fluent with technology use is a major hindrance in utilization of technology. Continuous advancement and changes in technology make its use tuff for teachers. Teaching philosophy of a teachers also contribute as a hindrance for technology adaptation (Meerza, & Beauchamp, 2017). Use of computers as a learning tool in teaching enhances the effectiveness of pedagogy. However, inclination of teachers to use computers is important in this regard. Use of technological knowledge in schooling education is usually determined by teachers' attitude and beliefs to use technology (Milbrath & Kinzie, 2000; Aşkar & Umay, 2001; Bitner & Bitner, 2002).

Methodology of Study

The population of this research projected was female and male secondary schools of District Nankana Sahib. Sample of five male and five female secondary schools were conveniently selected for the collection data.

Description of the Locality

The district of Nankana is located 80 km away in south west of Lahore and about 75 km from Faisalabad. (Riaz & Javaid, 2012). There are 212 (male) 100 (female) secondary schools in district Nankana Sahib. District wise Educational Ranking for 2017 published by private organization Alif Ailaan shows that District Nankana Sahib stands at 26th position in educational index of Pakistan. Schools of Nankana Sahib are facing shortage of teachers and teachers are facing problems of transport to reach their schools located in for of areas. With these problems and less facilities, it is necessary to know the teacher's efforts to use technology in their classrooms.

Sample

Sample of the study was conveniently selected 318 teachers (213male and 105female) from 50 schools secondary schools (10 female and 20 male) of District Nankana Sahib. These teachers are teaching different subjects e.g. math, science, languages, social study, computer etc.

Instrumentation

Two scale were used for the collection of data. One for the self-efficacy and the other for the ICT integration.

- **Questionnaire about Integration of ICT:** Questionnaire was developed to check the integration of ICT into the classroom. Questionnaire consisted on 10 statements about the use of computer for; instruction, learning, graphical presentation, and learning of information technology.
- **Selection of a Computer Self-Efficacy Scale:** Kerlin scale of computer self-efficacy was used to check the self-efficacy of teachers for computer. This scale was developed by Bobbi A. Kerlin to evaluate the users' confidence on their abilities for effective use of computers. Kerlin's scale also examine the confidence and abilities in a way that explore

problems and easiness of people in using computers. The scale has 22 statements regarding beliefs about liking, anxiety, confidence and knowledge of computer use. Teachers’ opinion was taken on five-point Likert scale i.e. strongly agree, agree, not decided, disagree and strongly disagree.

Data Analysis and Interpretation

Data was analyzed by applying the descriptive and inferential statistics. In inferential statistic Pearson coefficient of correlation were applied to examine the relationship among computer self-efficacy and ICT integration into classroom teachings. The questionnaires were distributed personally among the secondary school teachers. The collected data was examined and interpreted.

C h a r a c t e r i s t i c s o f R e s p o n d e n t s

In the study total number of respondents were 318. Out of them 213 were males and 105 were females. Ratio of males to females was 67% and 33% respectively. Respondent’s frequency and percentages about gender are given in table 1.

Table 1

Characteristics of Respondents

	Frequency	Percent
Male	213	67
Female	105	33
Total	318	100

Figure 1:
Respondents

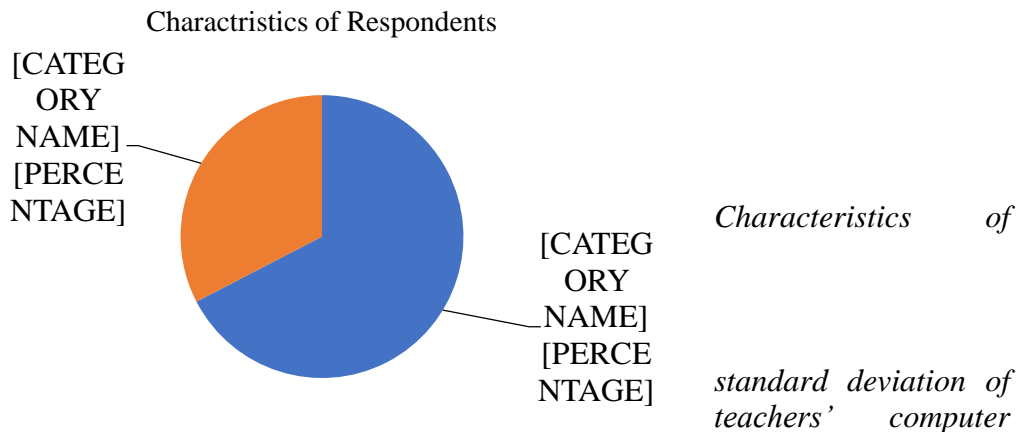


Table 2

Mean and scores of self-efficacy

	N	Mean	Median	SD	Min	Max
Liking	318	4.07	3.03	.63	2.00	5.00
Anxiety	318	3.03	3.00	.73	1.71	4.43
Confidence	318	3.86	0.72	.49	2.00	4.80
Knowledge	318	3.35	1.71	.63	1.75	4.75

Mostly teachers have high level of liking (mean=4.07, close to agree option). Teachers have a moderate level of anxiety (mean=3.03, close to undecided option). Teachers have a high level of confidence to use computer (mean=3. 86, close to agree option). Teacher have low level of

knowledge (mean=3.35, close to un decided option). Teachers’ don’t have a comprehensive knowledge about computer.

Table 3

Mean and standard deviation of scores of teachers’ ICT integration in classrooms

	N	Mean	Median	SD	Min	Max
Use of computer for instruction	318	3.95	4.01	.76	1.33	5.00
Use of computer for learning	318	4.01	4.00	.72	1.00	5.00
Graphical use of computer	318	3.39	0.72	.95	1.00	5.00
Learning of information technology.	318	3.43	1.00	.84	1.00	5.00

Mostly teachers have high level about the use of computer (mean=3.95, close to agree option). Maximum teachers have a high level of computer learning (mean=4.01, close to strongly agree option). Some teachers have a moderate level of graphical use of computer (mean=3.39, close to undecided option). Teachers don’t have experience about the graphical use of the computer. Some of the teachers have a moderate level of learning of information technology (mean=3.43, close to undecided option). They don’t have idea about the effects of information technology on learning.

Table 4

Relationship between Computer Self-Efficacy and ICT Integration in to Classroom

	1	2	3	4	5	6	7
1 Liking	1						
2 Anxiety	-.256**	1					
3 Confidence	.243*	.047	1				
4 Knowledge	.116	.423**	.100	1			
5 Instruction	.372**	-.149	.154	.223*	1		
6 Learning	.412**	-.030	.232*	.156	.565**	1	
7 Graphical	-.065	.359**	.111	.221*	.186	.202*	1
8 IT	.009	.202*	-.091	.328**	.219*	.100	.082

*P<0.05, **P<0.01

Table 4 show the relationship between ICT and self-efficacy of secondary school teachers. Self-efficacy has four factors Liking, anxiety, confidence and Knowledge. ICT have also four factors instruction, learning, graphical presentation and IT. Liking significantly correlated with learning (r=.412, p<0.01) and liking significantly correlated with instruction (r=.372, p<0.01) which is comparatively week relationship as compare to learning. Liking have a negative relation with anxiety and positive relation with learning.

Anxiety significantly correlated with knowledge (r=.423, p<0.01) and anxiety significantly correlated with graphical use of computer (r=.359, p<0.01) which is comparatively week relationship as compare to knowledge. Confidence significantly correlated with learning (r=.232, p<0.05). Anxiety has positive relation with knowledge, use of computer and learning.

Knowledge significantly correlated with information technology (r=.328, p<0.01) and significantly correlated with graphical presentation (r=.221, p<0.05).and it is significantly correlated

with instruction ($r=.223, p<0.05$), which is comparatively weak relationship as compared to information technology.

Instruction significantly correlated with learning ($r=.565, p<0.01$) and significantly correlated with IT ($r=.219, p<0.05$). Which is comparatively weak relationship as compared to learning. Learning significantly correlated with IT ($r=.202, p<0.05$).

Findings and Conclusion

In this age of technology children starts using computers at very early age. So, it is quite evident if teachers are not using computers in their teaching, they might not be able to grab the attention of their students. It is essential to integrate technology in the teaching as a learning tool to make the teaching interesting for students. The findings of the in the light of objectives are as:

1. *To identify the secondary school teacher's computer self-efficacy.*

Mostly teachers have high level of liking for computers. Teachers have a moderate level of anxiety although they like computer. Teachers' anxiety in use of computers is might be due to the absence of understanding of computers. Because findings show that teachers have less knowledge of computers use. Teachers' don't have a comprehensive knowledge about computer. However, teachers have a high level of confidence to use computer.

2. *It also aims to identify the teacher's efforts to integrate computers in their classroom practices.*

Mostly teachers have a high level of computer learning. Some teachers have a moderate level of graphical use of computer. Teachers don't have experience about the graphical use of the computer. Some of the teachers have a moderate level of learning of information technology. They don't have idea about the effects of information technology on learning. Dominant majority of teachers are agreed that they find computers useful in the way of learning and they enjoy working with computers. Teachers feel confident in their abilities to use computer and agreed that they make learning more interesting by computers and computers-art good aids to learning. A study conducted by Özçelik and Kurt (2007) also concluded that self-efficacy of teachers who use computers is higher than those who are reluctant to use computers. It means frequent use of computers increase the sense of computer self-efficacy.

• *To identify the relationship between computer self-efficacy and ICT integration.*

Self-efficacy has four factors; liking, anxiety, confidence and knowledge. ICT have also four factors instruction, learning, graphical presentation and IT. Liking have a positive statistically significant relationship with learning & instructions. Anxiety have a positive statistically significant relationship with knowledge and graphical use of computer. Liking have negative relationship anxiety. Confidence have positive statistically significant with learning. Knowledge have a positive statistically significant with IT, graphical presentation and instruction. Instruction have positive statistically significant with learning and IT. Results shows that the self-efficacy have strong level of correlation with ICT

Self-efficacy	ICT	Results
Liking	Instruction	Liking have a Strong Level of relationship with learning and instructions

Anxiety	Learning	Anxiety have strong level of relationship with knowledge and graphical use of computer
Confidence	Graphical presentation	Confidence have positive statistically significant with learning.
Knowledge	IT	Knowledge have a positive statistically significant with IT, graphical presentation and instruction

Recommendations

Information communication technology (ICT) is becoming gradually significant for our learning system. There is a growing demand of modern age to adopt and integrate ICT into teaching and learning. It will provide more opportunities for teachers and students to work better in a globalized digital age. Computer self-efficacy of teachers can play a better role in increasing the use of ICT in the classrooms. There are many ways and strategies that can help us in this regard. Short courses related to computer are necessary to increase the use of ICT in classrooms. Lectures, refresher courses must be the part of teachers' service to enhance computer self-efficacy of teachers. Parents and teachers should buoy up their teenagers by joining them into ICT programs. School management may include computer packages and training as a obligatory subject in their schools for teachers and also for the students. Facilities must be provided to students which is affordable. Computer course should be on cheap rates. Computer labs should be available in all schools and comprehensive training courses must be planed for the teachers and also for the students. Training program should be according to the needs of the faculty members.

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