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Teachers Conception, Attitude and Practices of Educational Technology

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Abstract

Purpose of this study was to investigate teachers' conceptions, attitude and practices of educational technology. Mixed-methods approach was adapted for this study. Sample of the study was 300 secondary school teachers. Self-designed questionnaire containing 15 items was administered for quantitative data, while interview was conducted with ten teachers. The questionnaire was properly validated statistically. Content analysis was applied which shows that teachers have misconceptions about educational technology that revolves only around material things. t-test analysis shows that practice and attitude towards educational technology was also not satisfactory and most of the teachers were found with poor attitude towards technology. Result shows that male had better conception than their female counter parts. Similarly, interaction effect calculated using generalized linear model and results showed that effect was significant in the practices of using technology only where rural female had good score while the other two aspects were not significant. In-service training is therefore suggested for improvement of teachers' status in this particular area.

Keywords: Educational technology, teachers' conception, attitude, practice

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Introduction

Learning is the pivotal goal of education and anything that helps in learning is always desirable in education. Educational technology is one of the factors that enhance learning and therefore is always emphasized. Educational technology means integrating technology in such a way that leads enhancement of learning process (Sheingold, 1990). Educational technology is a practice by which the learning and teaching process can be improved (Richey et al, 2008). Educational technology is used to improve the teaching learning process. Technology facilitates and cooperate the students. So the way by which facilitation and cooperation is provided is called the educational technology (Fulton, 1997). Educational opportunities can become more diverse with the use of Educational technology. They found that teachers were highly educated and skilled but they did not use the technology in the teaching learning process (Bauer & Kenton, 2005). Jaffee (1997) suggested four highly quality educational principles practiced in the classroom where technology is included: *active learning, mediation, collaboration, and interactivity*. *In a*ctive learning the students are involved while using technology I contact with the content that allows knowledge building and creating. The other one is the Mediation it is the contact between the students and the teacher to explain a problem, the answer to question and talk about the topic related to the course. Educational technology is also perceived by Luppicini (2005) as a goal oriented problem-solving approach operating tools, techniques, theories, and methods from multiple knowledge domains, to design and developa variety of resources to enhance learning efficiently. The history of educational technology is full of innovation starting from various hardware, e.g. CDs, DVD players, calculators, notebook PCs, pocket computers, MP3 players, iPods, video cameras etc. most of products i.e., software and hardware that were primarily developed for other purpose like entertainment, was adopted in teaching learning purposes(Palmer & Devitt, 2007).

Dogruer, Eyyam and Menevis (2010) conducteda research that is "An examination of English primary school teachers' attitudes towards the use of educational technology in their classrooms". The respond of the study verified that although teachers agreed that the use of educational technology has a positive impact on their experience; teachers needed more information about the use of educational technologies in their classes.

Ozdamlı, Hursen, Ozcinar (2009) in their study of "Teacher trainees' attitudes toward educational technology" founded that the teacher

trainees said in the positive effects of educational technology. In addition, it was found that there were no gender differences in attitudes toward educational technology. Another significant finding point out that there were no extraordinary differences between the participants' fields of study and all majors showed positive thinking about the effects of educational technology.

Kabadayi (2006) conducted a study on preschool teachers and part-time teachers to study the attitudes of the teachers when they are using the educational technology. He concluded that 75% of the teachers attitude is positive when they are using the educational technology during teaching learning process in classroom and the remaining of them were not clear.

The concept of educational technology is different from one group of people to the another. The National Council of Educational technology as "the development, application and evaluation of system, techniques and aids to improve the learning process". So educational technology develops and evaluates the system and use of techniques and aids which causes the improvement of learning (Gagne, 1968, p.7). According to wood "Educational technology is concerned with the application of modern skills and techniques to the requirement of education and training. It facilitates the learner by media and methods and controls the environment to reflects on learners"(Wood,1982).

Zanguyi (2011) in a study under the title of"Examination the teachers' attitudes towards the use of educational technology in the instruction process" conducted the teachers' attitudes towards the use of new educational technologies in teaching learning process. The findings of the study show that, the teachers attitude is positive towards the use of educational technologies in teaching learning process. He also adds the results of Chi-square test showed no statistically significant difference between teachers' gender, their level of education, and their attitudes towards the use of new technologies in the instruction process. But he noted a significant difference was noted between teachers' workplace, their teaching experience, and their attitude towards application of new educational technologies in the teaching learning process.

Rostami (2010) in a research on "The employment of Information and Communication Technology (ICT) by teachers of basic science in guidance and high schools" concluded that most teachers under study have stated that they rarely (weekly) use different ICT tools in their classes, demonstrating irregular application of these tools by the teachers.Yalcin, Kahraman and Yilmaz (2011) in their study on "The levels of teachers' self-efficacy in using educational technology in

elementary schools" examined teachers' self-efficacy in elementary schools through benefitting educational technology. He prepared a questionnaire (containing 28items)was managed to 43 elementary school teachers in Arzinkan. In this study, he analyzed the data through SPSS Software. He found that the self-efficacy of the elementary school teachers regarding to educational technology is very high. The teachers know that the using of educational technology is very beneficial in teaching learning process.

Without integration of technology quality education cannot be achieved therefore ground must be prepared for such integration at pre-service teacher's level. Technologically literate teachers enable them to adjust their instructional strategies (Zhang & Espinosa, 1997). Teacher educators must know the dimensions of teacher training that can mould pre-service teachers' attitudes towards technology in general and computers in particular to benefit well in this age of information (Fisher, 2000).Concepts are the fundamental building blocks of our thoughts and beliefs. They play an important role in all aspects of cognition.

Practice

The implementation of educational technologies for teaching learning process is important to the transformation of school learning and teaching from face-to-face delivery models and distance education models for more student-centered model that merge the advantages of different modes and media within a flexible learning framework. The implementation of learning management systems and associated educational technologies took hold in Australian Universities in the 1990s in part due to peer pressure amongst the Vice Chancellors (Pratt, 2010).

There is an important role of strategies and action in education to make a systematic change in it. But the teacher also can play an important role because the teacher is a central and a responsive part of sociocultural settings at school, motivating to educate pupils, but on the other hand, according to the national curriculum, also influenced by his internal motivation abilities and area of interest. Integration of ICT in teaching, studying and learning processes is a difficult and multi-dimensional task as well as many dynamics such as ICT tools, teachers, students, school administration, educational programs and school culture (Sutherland, 2004).

Objective of the Research

The main purpose of this work was to find the conception, attitude and their practices regarding educational technology. Furthermore, gender wise and location wise comparison among teachers were also made.

Methodology

Qualitative approach was used for data collection using interview. For quantitative data a researcher made questionnaire was used while in qualitative part ten teachers were interviewed in different schools and responses were recorded. Data was rechecked where researcher was not sure about clarity of responses. Interviews focused on three dimensions i.e., conception, attitude and practices of teachers towards educational technology.

Population was all secondary school teachers in district Sawabi. There are 74 high schools in district Sawabi having around 1500 teachers. Stratified random sampling was used to select 270 teachers (male 220, female 150; urban 200, rural 170) from both genders and proportionately distributed in urban and rural areas.

Validity of Questionnaire

For content validity, questionnaire was reviewed by experts and necessary revision was made. The questionnaire consists of 15 items, distributed in three constructs of conception, attitude and practices. Factor analysis was used for construct validity. Scree plot in figure 1 below confirms the composition of questionnaire in three constructs.

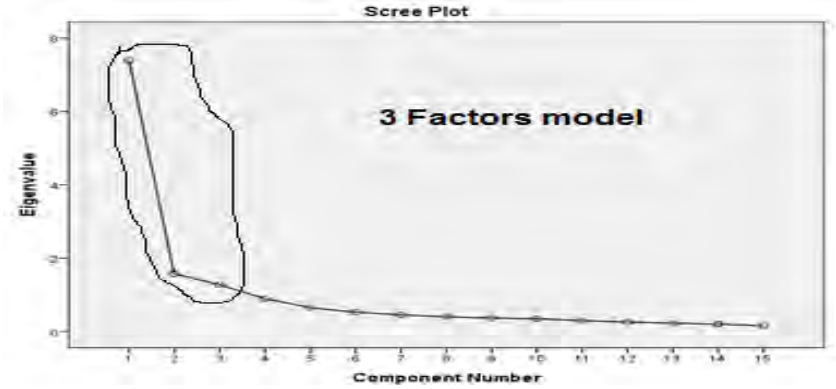

Figure 1: Scree plot

All 15 items were put to varimax rotation and table 1 below shows that all items were found to be loading fairly onto their respective construct. There was cross loading as well of some items to other constructs, but it was not more than their respective construct in terms of percentage loading.

Table 1

Factor analysis

	Component		
	Conception	Attitude	Practices
C1	.601		.433
C2	.675		.431
C3	.618		.356
C4	.613		
C5	.604		
A1		.692	
A2		.662	
A3		.562	.439
A4		.621	
A5		.407	
P1			.827
P2	.366		.740
P3			.737
P4	.361		.702
P5			.619

Analysis

The objective of the research was to find genderwise comparison of the teachers regarding all three constructs under investigation i.e. conceptions, attitude and practices of educational technology. T test was used to find weather there is any significant difference in the mentioned constructs across gender or not.

Table 2

Gender comparison of teachers

Subscales	Mean		Standard Deviation		T	df
	Male	Female	Male	Female		
Conception	14.70	7.86	5.89	5.60	0.265	269
Attitude	10.90	6.09	5.35	5.48	0.373	269
Practices	10.27	5.18	5.19	5.62	0.034	269

Sig 0.00

Table 2 above shows in all three constructs mean score of the male teachers regarding educational technology was found better than female teachers. Moreover, t value shows that this difference was significant for all three constructs.

Similarly, location was comparison of the teachers i.e., urban/rural comparison was also investigated, regarding all three constructs under investigation i.e. conceptions, attitude and practices of educational technology. T test was used to find weather there is any significant difference in the mentioned constructs across gender or not.

Table 3

Location wise comparison of teachers' responses

	Mean		Standard Deviation		T	df	Sig
	Rural	Urban	Rural	Urban			
Conception	9.761	11.50	6.59	6.70	1.265	269	0.014
Attitude	7.09	8.50	5.95	5.78	1.373	269	0.189
Practices	5.81	8.76	5.46	5.92	4.034	269	0.000

Table 2 above shows in all three constructs mean score of the urban teachers regarding educational technology was found better than rural teachers. Moreover, t-value shows that this difference was significant for all three constructs.

Further analysis was done to find any interaction effect between gender and location.

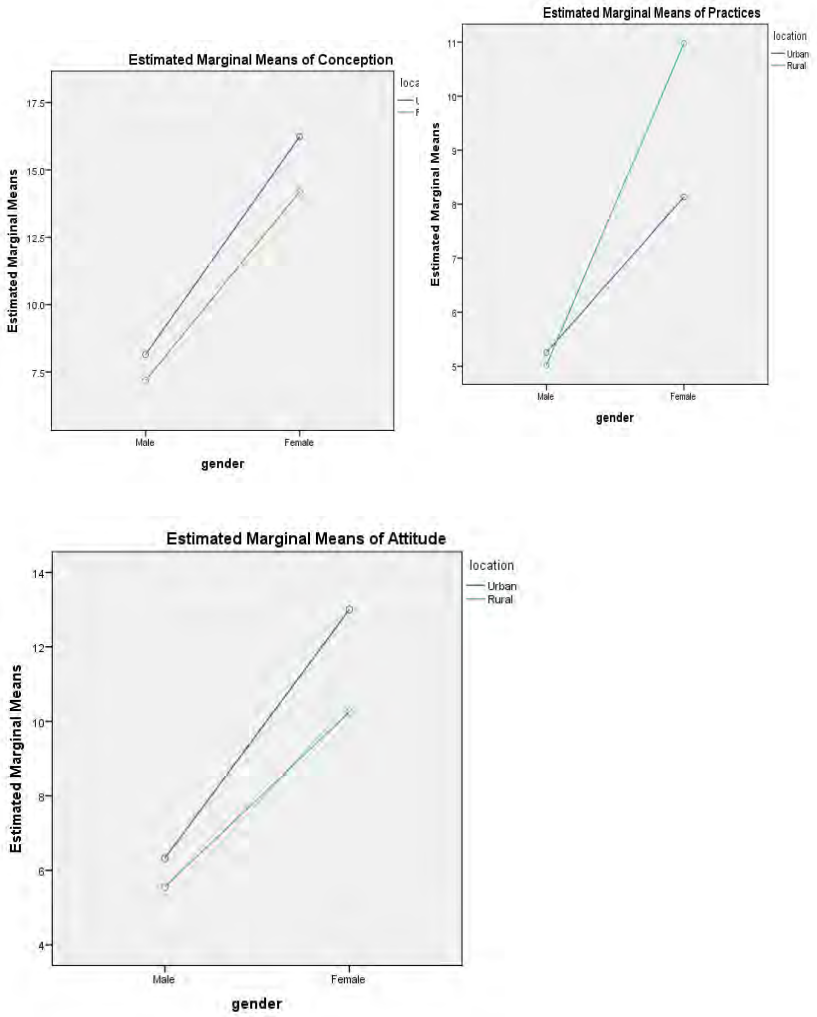

Figure 2: shows the picture of the interaction effect.

Interaction graphs showing interaction effect between location and gender Interaction effect was significant in the practices of using technology only where rural female had good score while the other two aspects were not significant.

Interview data was analysed using thematic analysis. Here is the responses of the teachers in the table below.

Table 4

Thematic analysis of teachers interview

Teacher	Conception	Attitude	Practice
Teacher1	Use of scientific instrument	Use of ET is good	Use only in theory but Not available
Teacher2	Modern AV aids	Good	Yes but in low level, available but enough
Teacher3	Systematic and interactive process	Good	Resources are not available
Teacher4	Not clear	Good	Use but in some extent
Teacher5	Use of different electrical devices	Good for some extent	Use in laboratory and Low cost materials
Teacher6	Use of scientific instrument	Good	Do not use because not available
Teacher7	Not clear	Good	Use in laboratory only for science students
Teacher8	Use of AV aids	Beneficial	Partially because not available
Teacher9	Apply techniques, method and approaches	Good	Use in very low level
Teacher10	Use for teaching purpose	Good	Do not use

Table above shows that teachers lacked a clear concept of educational technology and therefore different teachers came up with different statement, mostly originated from hardware origin with the exception of teacher9 who replied that educational technology is to apply techniques, method and approaches. His response was rechecked by calling him back and he replied with the same response. Attitude of the teachers were found indifferent and all responded that using educational technology is effective for learning. Regarding use of educational technology results are not satisfactory with mostly unavailability of facilities.

Discussion and Conclusion

Results shows that in all three constructs i.e., conception, attitude and practices mean score of the male teachers was significantly better than female. This is possibly due to our socioeconomic structure of

society where male have better opportunities and exposer than their female counter parts. Similarly, previous education and in-service training also matters which is more frequently available to our male segment of the society.

Similarly, location wise comparison of the teachersi.e., urban/rural shows that in all three constructs mean score of the urban teachers regarding educational technology was found better than rural teachers. More over t-value shows that this difference was significant for all three constructs. The obvious reasons seem better opportunities available in the urban areas and their social capital as well. On the hand,rural teachers also utilize most of their time in household activities and farming, therefore do not have much time to learn about technology.

Interview analysis shows that teacher's conception of educational technology is limited to material things only. Therefore, all responded that using material things for enhancing teaching is education technology. Only one teacher responded that educational technology is to apply techniques, method and approaches in class rooms. His response was unusual from other teachers' responses therefore was cross checked by contacting him again weather his conception was the same or not. It was found that his conception was the same as replied in interview.

Attitude of all teachers regarding educational technology was positive and they all thought that it is helpful in teaching learning process. They reported that when we are using educational technology the students also take interest in such classes. So the student's attitude is also positive. Only one teacher responded about the educational technology that it is good for some extent when he was prompted he responded that for some extent mean in this the students are passive and it made a teacher lazy because in this the readymade things are taught and the student look and only listen the presentation so by this the students are passive.

Some teachers responded that the educational technology is not available in schools so we do not use the education technology. Some teachers responded that we use the educational technology at very low level for example blackboard charts chalk, etc. some teachers responded that we used handmade or low cost materials only and some teachers responded that we use the educational technology only in the science laboratory.

References

Bauer, J., & Kenton, J. (2005). Toward technology integration in the schools: Why it isn't happening. *Journal of Technology and Teacher Education, 13*(4),519-546.

Carey, S. (1991). *Knowledge Acquisition: Enrichment or Conceptual Change*? In S. Carey & R. Gelman(Eds.), *The Jean Piaget Symposium Series. The epigenesis of mind: Essays on Biology and cognition* (pp.257-291). Hillsdale, NJ, US: Lawrence Erlbaum Associates, Inc.

Carey & Gelman. R. (Eds.), *The Epigenesis of mind: Essays on Biology and cognition*, 257-291. Hillsdale, NJ: Lawrence Erlbaum Associates.

Dogruer, N., Eyyam, R., Menevis, I. (2010). The attitudes of English preparatory school instructors towards the use of instructional technology in their classes. *ProcediaSocial and Behavioral Sciences, 15*(2), 5095-5099.

Jaffee, D. (1997) Asynchronous learning: Technology and pedagogical strategy in a distance learning course. *Teaching Sociology, 25(4),* 262-277.

Fisher, M. (2000). Computer skills of initial teacher education students. *Journal of Information Technology for Teacher Education, 9*(1), 109-123. http://www.informaworld.com/smpp/431329001-80367837/ftinterface~content=a739084579~fulltext=713240930

Fulton, K. (1997). The Skills Students Needs for Technological Fluency. Learning in a Digital Age: Insights into the Issues. The Journal (Technological Horizons in Education, *25*(7), 60.

Gagne, R. M. (1968). Educational technology as technique. *Educational Technology*, *8*(21), 5-13.

Kabadayi. (2006). An analysing pre-school teachers and their teachers cooperating attitudes towards the use of educational technology. *Educational Technology,5*(1), 1303-6521.

Luppicini, R. (2005). A systems definition of educational technology in society. *Educational Technology & Society*, *8*(3),103-109.

Ozdamli, F., Hursen, C., & Ozcinar, Z. (2009). Teacher candidates' attitudes towards the instructional technologies. *Procedia Social and Behavioral sciences,1*(1), 455-463.

Palmer, E.J., & Devitt, P.G. (2007). A method for creating interactive content for the iPod, and its potential use as a learning tool: Technical Advances. *BMCMedical Education*,*7*(32). Retrieved from http://doi.org/10.1186/1472-6920-7=32.

Pratt, J. G. (2010). The Antecedents and Consequences of Adopting Learning Management Systems in Selected Australian Universities. In Angela T. Rogura *Interaction in Communication Technologies and Virtual Learning Environments: Human Factors: Human Factors*, (73-98). Herchey, PA: IGI Global.

Richey, R., Ely, D., & Silber, K. (2008). Reflection on the 2008 AECT definitions of the field. *TechTrends*, *52*(1), 24-25.

Rostami, M. (2010). Utilization basic science's teachers' grades guidance school and high school of information and communication technology. *Educational Technology*, 6, 127-134. [Persian].

Sheingold, K., & Tucker, M. S. (1990). Restructuring for Learning with Technology. New York: National Centre on Education and the Economy.

Sutherland, R. (2004). Designs for learning: ICT and knowledge in the classroom. *Computers & Education, 43*, 5–16.

Wood, W.A. (1982). Educational technology towards a definition. *Innovation. 33*, 5-6.

Yalcin, S.A, Kahraman, S., Yilmaz, Z.A. (2011). Primary school teachers of instructional technologies self-efficacy Levels. *Procedia Social and Behavioral Sciences,* 28, 499- 502.

Zanguyi, S. (2011). Review of teachers' attitudes towards the use of educational technology in teaching process. *Educational Technology,6*, 165-159. (Persian)

Zhang, Y. & Espinoza, S. (1997). Affiliations of computer self-efficacy and attitudes with need forlearning computer skills. *Journal of Educational Computing Research, 17*(4), 371-383.

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