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EXPLORING THE ATTITUDE AND COMPETENCE OF TEACHERS WHILE USING INSTRUCTIONAL TECHNOLOGY

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ABSTRACT

The study was designed to explore the attitude and competence of teachers in using instructional technology (IT). For this purpose, the study aimed at; identifying the attitude of teachers towards using IT, determining the teacher's competence in using IT during teachers' training programs, and comparing the opinion of teachers and students about attitude and competence of teacher educators in using IT. Survey as a research design was used to execute the present study. The population of the study was 383 teachers and 2724 students of 33 Government Colleges for Elementary Teachers (GCETs) in the Punjab (Pakistan). Through the process of multistage sampling 231 teachers and 495 students were selected as a sample of the study. Questionnaire was used as an instrument of the study. Percentages, mean, standard deviation and t-test were applied for analysis of the data. It was found that the teachers working in teacher training colleges have highly positive attitude towards using IT in their teaching. They were also competent enough about the use of the technological tools such as computer, internet, and they used these tools for active participation of their students, collaborative

learning and feedback purposes. As compared to students, these teachers were more positive towards 'attitude and competence' in using instructional technology in teachers training programs... Training programs may be organized to promote the use of innovative technological tools in the teacher training institutions. The outcome of these sessions may be the Low-Cost material developed by the students during their teaching practice under the guidance of their supervisors.

INTRODUCTION

Teacher training is a process of acquiring knowledge, attitude and technical competence. Teacher educators provide training to improve the knowledge, attitude and skills of pre-service teacher. The students are required to obtain innovative knowledge and new skills for quality teaching. To achieve this objective, trained, competent and committed teacher educators are required to train teachers. . The institutions related to teacher training are required to prepare and provide skillful teachers for innovative and rapidly changing technological world. To fulfill this innovative demand, the leadership role of teacher educators and teacher training institutions is important. The key objective of Directorate of Staff Development (2007) comprises, "to provide quality training to pre-service and in-service teachers in their teaching career". The innovative pedagogies and technologies for teacher training is the requirement for improving the professional competence of pre-service and in-service teachers. Teacher training programs provide guidance to the teachers for the use of new technologies according to the needs and requirements The major aim of teacher training programs is to make efforts to adapt the attitude of teachers towards technology and to enhance their professional competence by using specific technology... Davies &West (2014) found that these efforts were criticized due to not providing emphasis on skill practices based on context and pedagogy. Teacher training institutions in the context of Pakistan need to discover opportunities of using innovative technology and techniques at vast level. Current pre-service and in-service teacher training programs are also needed to be revised. Krishnamurthy (2003) describes that there are few empirical research evidences on how and why teachers use technology. Teacher education programs are required to be upgraded by using innovative techniques and technologies in order to train the teachers and enhance their professional competence.

Moyle (2007) found that the teachers' competence was improved when they integrated technology into their teaching practices and resultantly learning of students also improved. The technologically competent teacher having positive attitude towards technology is more effective and successful than the teacher having the knowledge of only content and pedagogical skills. Hussein (2009) investigated that the teachers of today are lacking of competencies to use technology in instructions and face challenges related to technology. The teachers are required to improve their professional competence as well as positive attitude towards technology. The teachers' competence and attitude towards teaching are the basic and important components for teaching profession. So, the professional development to improve the competence and attitude of teachers is the center of attention for researchers working in the field of education.

The relevant teachers training strategies/tactics for improving the attitude and competence are needed to be explored and imparted amongst teacher educators. In the light of these perceptions, evidences based on researches are essential for exploring the attitude and competence level of teacher educators in using instructional technology in teacher training programs. The problem for investigation was stated as, "exploring the attitude and competence in using instructional technology: A perspective of teacher educators"

The objectives of study were to;

1. identify the attitude of teachers in using IT
2. determine the teachers' competence in using IT
3. comparison between opinion of teachers and students about attitude and competence of teachers in using IT

The hypotheses formulated for this study were;

1. There is no significant difference between the attitude of teachers towards the use of IT
2. There is no significant difference between the opinion of teachers regarding their competence in using of IT
3. There is no significant difference between the opinion of teachers and students towards attitude and competence of teachers in using IT

This study was delimited to;

1. 33 Govt. Colleges for Elementary Teachers in the Punjab, Pakistan
2. Session 2012-13

REVIEW OF RELATED LITERATURE

The technology is a term used in the classroom for effective teaching. Rashid (2009) stated that technology is a logical technique which is designed by human beings to produce efficient and effective results. Educational technology is concerned with organized application of the resources for learning of individuals. The instructional media and technological tools are used to improve and sustain effective learning experiences. Cuban (1986) describes instructional technology as, "tools used by teachers for instructions in classes for effective teaching and learning". There is a difference between the term's media and methods/techniques of instructional technology. Media as a vehicle is used to communicate information, and instructional methods/techniques are embedded in the media to improve learning. Rashid (2009) views that the emergence of new media has required development in teaching methods for better cost-effectiveness value of academic programs.

The unique innovations in instructional technology are impacting the educational field. Majumdar (2005) stated that, "the rapidly changes in technology are creating unique opportunities in educational field and affecting significantly teaching methodology and students' learning". From writing board to the internet, there are number of instructional tools, such as audio tapes, overhead projector, television, and multimedia available for teaching. The

teachers can use these tools in instructions, if they are professionally competent in technology. Proficiency in technology that includes skills and its applications in instructions is important aspect of teacher competence. Professional competence represents a base-line for teaching effectiveness. Bjekic & Zlatic (2006) states that, "the professional competence of teachers is the system of knowledge, abilities, skills, and disposition that is necessary for effective teaching." Teachers use their knowledge and skills for lesson planning, classroom practices and student assessment. The skills and competencies of teachers are related to production and performance in the shape of learning outcomes. The competence of teacher educators about the technology enables students to construct connected and deep knowledge that can be used in multiple situations. Ertmer & Ottenbreit-Leftwich (2010) recommended that, "there is need to support teachers to be aware of the technology usage, which is helpful for active learning". Teacher educators should explore strategies to promote creative abilities and enhance professional competence of students by using technology. Taffe & Gwinn (2007) found that PowerPoint promotes creativity in presenting the information and contributes to active engagement at the end of audience. Teacher educators need to use IT tools in teaching for students' active learning. Suitable selection and integration of technology increases interest motivation and engagement in the lesson. Prasek, Schwartz & Vorst (2009) suggested that "careful planning of lesson by the teachers to use technology is essential to integrate technology for effective teaching". Effective teaching is required to organize the external factors for construction of knowledge and skills. For solving problems and projects, students want to work in groups rather than individually. Students can maintain two-way communication with teachers and peers with the help of instructional technology. The instructional technology is available at broader level that allows students to communicate through multiple ways. Lock (2002) stated that "to generate interaction or engagement without effective communication is not possible". Communication between teachers and students helps the formation of relationship, which promotes sharing of knowledge. Deal (2009) found that good assessment provides students the chances to demonstrate and practice the skills and knowledge and offer to teachers the targeted feedback that can help for further learning. He indicates that in classroom settings the feedback that is provided immediately can create a positive effect on the behavior of students. For immediate feedback the use of instructional technology is very effective. Moeller & Reitzes (2011) concluded that, "technology provides high-quality, ongoing feedback to teachers and students and is helpful to improve learning process". When technology is used by competent professionals, it can enhance learning achievements. Yusuf & Balogun (2011) have suggested that there is a need to acquaint students with maximum courses on technology because hands-on experiences is required in order to promote effective integration of instructional technology throughout the curriculum by students. Furthermore, there is dire need for teachers to 'model good use of instructional technological tools in their teaching. Technology is becoming an integral part of professional education and trainings. Ertmer & Ottenbreit-Leftwich (2010) suggested that, "the need is to support teachers to be competent to use instructional technology to promote active and meaningful learning". Computer access and the facilities of internet are not always effective significantly to increase learning. Davies & West (2014) investigated that "the researches related to technology's potential

for improving learning not simply depend on technological access but also on other factors such as teachers' attitude." Feldman (2011) defines attitude as the, "evaluation of a particular person, belief, behavior, or concept". The definition of attitude suggests that it determines reaction to life and experiences of individuals. These experiences, feelings and beliefs are reflected in behavior. Eteokleous-Grigoriou, Anagnostou & Tsolakidis (2012) concluded that to measure the students' attitude towards instructional technology, their responses can be grouped into three parameters which affect their attitudes to use technology i.e their beliefs about pedagogy, views towards tools' usefulness and problems related to the use of tools in education. There are limited studies about attitude of teachers towards instructional technology, however some studies are found in the literature throwing light on attitudes of teachers towards computer usage or instructional technology. Fisher (2000) recommended that, "to design teacher trainings' curriculum, the prerequisite is to realize the aspects that affect attitudes of students towards technology". Teacher educators are developing curriculum for students to face the challenges in the technological age.

The main objective for teachers' training is to make efforts to change their attitudes and competence towards integration with technology and to improve their skills to use specific technology in teacher trainings. The availability of instructional technology in the institutions or classrooms is not the guarantee for its effective use. The important key is how the teachers use these tools in their classes. According to Kadel (2005) "the teachers have the positive attitude and competence towards these technologies". Different researchers have found close relationship between the attitude of teachers and use of instructional technology in their instructions. Teo (2008) found that high 'positive attitudes towards technology were related with the more experience of technology. The teachers' attitude influences the confidence of students on technology. Derbyshire (2003) investigated that teachers' attitude is directly linked to the behavior and attitude of students towards technology because the teachers are the 'role model' for students. Teachers' training, experience and confidence are important factors, which stimulate the teachers' attitude to use technology in the classrooms.

METHOD

The present study was descriptive in nature and survey research design was used to execute the study.

Participants

The population of the study was consisted of three hundred and eighty-three (383) teacher educators of thirty-three (33) GCETs in the Punjab, Pakistan and two thousand seven hundred and twenty four (2724) B.Ed students enrolled in session 2012-13 of GCETs in the Punjab, Pakistan. Seven out of 383 teacher educators from each GCETs were selected as a sample of the study. So, 231 teacher educators took part in this research study, which was 60% of total population. In second category, 15 students of B.Ed class from each GCETs were taken as a sample. So, the total number of the students was 495 which was 18% of total population. For this research study, the sampling process was multistage sampling. At 1st stage, 33 GCETs were selected through census

sampling. Thus in 2nd stage, 15 students of B.Ed class from each GCET was selected on the basis of non-proportionate stratified sampling. For the selection of teacher educators, 07 teacher educators out of 383 from each GCET were selected randomly.

Instrumentation

The questionnaire having two parts and 20 items were developed as a research tool of the study. The 1st part of the questionnaire (1 to 10 items) was related to attitude. The 2nd part of the tool (11 to 20 items) was associated with competence. The format used for instrument of the study was Likert type scale having five-points including strongly agree = 5, agree = 4, undecided = 3, disagree = 2, and strongly disagree = 1 to the statements. The instrument was reviewed by the panel of experts (five in number) to ensure its validity. Its reliability was calculated through Cronbach Alpha, which was 0.94. The Kaiser-Meyer-Olkin test was used to measure the Sampling Adequacy having 0.81 value. This high value shows that the collected data for the study is adequate. The Bartlett's Test of Sphericity value 0.000 shows that the responses were appropriate for further analysis and draw conclusions for this research. The questionnaires were sent through mail under prepaid postal cover to the principals of the thirty-three (33) GCETs, for the administration to relevant samples i.e. teachers and students. The principal of each GCET himself/herself got the questionnaires filled by the teachers and students. For teacher educators, 231 questionnaires were administered. Only 10 questionnaires were not responded and 219 teacher educators returned the properly filled questionnaires. The rate of return was 95%. The questionnaires for students were 495 in number. Four hundred and eighty-one (481) students returned the filled questionnaires and rate of return was 97%. The filled questionnaires were delivered to the researcher by the respective principals of GCETs through registered post. Analysis of the data was done through Statistical Package for Social Science (SPSS). Percentage, mean score and standard deviation were the statistical techniques applied on the data. Moreover, t-test was implemented to find the significant relationship between the opinion of teachers and students.

RESULTS

This section contains the results of the study.

Table 1: Opinions of Teachers and Students about the attitude of Teacher Educators in using IT

Sr. No.	Statements	Respondents	SA	A	UNC	DA	SDA	M	SD
1	Use of Instructional technology is important for effective teaching in teachers' training.	Teachers N=219	72 32.9%	111 50.7%	28 12.8%	02 0.9%	06 2.7%	4.1	0.85
		Students N=481	219 45.5%	196 40.7%	36 7.5%	19 4.0%	11 2.3%	4.23	0.91
2	Teacher educators prefer to use instructional technology in teachers' training classes.	Teachers N=219	126 57.5%	86 39.3%	05 2.3%	00 00%	02 0.9%	4.52	0.63
		Students	175	188	72	30	16	3.98	1.03

		N=481	36.4%	39.1%	15.0%	6.2%	3.3%		
3	Teacher educators use instructional technology to improve the quality of learning.	Teachers N=219	163 74.4%	51 23.3%	04 1.8%	00 0%	01 0.5%	4.71	0.53
		Students N=481	358 74.4%	96 20.0%	19 4.0%	06 1.2%	02 0.4%	4.66	0.65
4	Teacher educators often use instructional technology for effective communication.	Teachers N=219	144 65.8%	71 32.4%	03 1.4%	00 00%	01 0.5%	4.63	0.56
		Students N=481	175 36.4%	188 39.1%	72 15.0%	30 6.2%	16 3.3%	3.98	1.03
5	Teacher educators develop their own low-cost instructional tools.	Teachers N=219	142 64.8%	72 32.9%	04 1.8%	00 00%	01 0.5%	4.61	0.57
		Students N=481	148 30.8%	166 34.5%	110 22.9%	31 6.4%	26 5.4%	3.78	1.11
6	Teacher educators are eager to present instructional material through technology.	Teachers N=219	141 64.4%	72 32.9%	05 2.3%	01 0.5%	00 0%	4.61	0.55
		Students N=481	274 57.0%	146 30.4%	44 9.1%	07 1.5%	10 2.1%	4.38	0.87
7	Teacher educators help their colleagues to use technology in instructions.	Teachers N=219	103 47.0%	106 48.4%	08 3.7%	01 0.5%	01 0.5%	4.41	0.63
		Students N=481	347 72.1%	90 18.7%	26 5.4%	12 2.5%	06 1.2%	4.58	0.80
8	Teacher educators regularly use instructional technology for professional development.	Teachers N=219	100 45.7%	108 49.3%	10 4.6%	00 0%	01 0.5%	4.39	0.62
		Students N=481	325 67.6%	122 25.4%	24 5.0%	07 1.5%	03 0.6%	4.57	0.71
9	Teacher educators frequently use instructional technology for enhancing students' interest. .	Teachers N=219	132 60.3%	80 36.5%	06 2.7%	00 0%	01 0.5%	4.56	0.59
		Students N=481	278 57.8%	172 35.8%	21 4.4%	06 1.2%	04 0.8%	4.48	0.71
10	Teacher educators have positive attitude towards using instructional technology.	Teachers N=219	132 60.3%	75 34.2%	10 4.6%	01 0.5%	01 0.5%	4.53	0.65
		Students N=481	248 51.6%	168 34.9%	46 9.6%	13 2.7%	06 1.2%	4.32	0.85

It was revealed from the values of above-mentioned table that the majority of the teacher educators and students agreed about using instructional technology in teachers' training programs. The mean score (above than 04) of teacher educators on all the statements depicted their favorable opinion in using instructional technology during teaching. The mean score (above than 04 in all statements except three i.e. statement No. 02, 04 and 05) of students viewed their satisfactory behavior in using instructional technology during teaching. However, in rest of the three statements the mean value near to 04 showed their favorable attitude regarding instructional technology. It was concluded that the teacher educators (94.5%) and students (86.5%) have positive attitude towards using instructional technology in teachers' training programs.

Table 2: Opinion of teachers and students about the competence of teacher educators in using IT

Sr. No.	Statement	Respondents	SA	A	UNC	DA	SDA	M	SD
11	Teacher educators are able to use technological resources for collecting instructional materials.	Teachers N=219	72 32.0%	70 58.0%	127 7.8%	04 1.8%	01 0.5%	4.19	0.69
		Students N=481	268 55.7%	159 33.1%	32 6.7%	11 2.3%	11 2.3%	4.37	0.88
12	Teacher educators are able to use different technological tools to present instructional material in their classes.	Teachers N=219	98 44.7%	102 46.6%	13 5.9%	05 2.3%	01 0.5%	4.32	0.73
		Students N=481	233 48.4%	181 37.6%	49 10.2%	16 3.3%	02 0.2%	4.30	0.81
13	Teacher educators guide students to use IT during teaching practice.	Teachers N=219	133 60.7%	72 32.9%	09 4.1%	02 0.9%	03 1.4%	4.50	0.74
		Students N=481	298 62.0%	135 28.1%	33 6.9%	10 2.1%	05 1.0%	4.47	0.79
14	Teacher educators have ability to use internet in teaching learning.	Teachers N=219	37 16.9%	81 37.0%	45 20.5%	39 17.8 %	17 7.8%	3.37	1.18
		Students N=481	67 13.9%	120 24.9%	147 30.6%	77 16.0 %	70 14.6 %	3.07	1.24
15	Teacher educators frequently use PowerPoint presentations in classes.	Teachers N=219	59 26.9%	116 53.0%	35 16.0%	05 2.3%	04 1.8%	4.0	0.82
		Students N=481	106 22.0%	180 37.4%	112 23.3%	39 8.1%	44 9.1%	3.56	1.16
16	Teacher educators are competent to plan learning activities with the help of technology.	Teachers N=219	55 25.1%	119 54.3%	27 12.3%	16 7.3%	02 0.9%	3.95	0.86
		Students N=481	159 33.1%	157 32.6%	93 19.3%	32 6.7%	40 8.3%	3.75	1.21
17	Teacher educators are able to use technology for active participation of students.	Teachers N=219	57 26.0%	120 54.8%	30 13.7%	11 5.0%	01 0.5%	4.0	0.80
		Students N=481	157 32.6%	166 34.5%	73 15.2%	47 9.8%	38 7.9%	3.74	1.23
18	Teacher educators are competent to use computers for collaborative learning.	Teachers N=219	48 21.9%	122 55.7%	33 15.1%	16 7.3%	00 0.0%	3.92	0.81
		Students N=481	238 49.5%	138 28.7%	65 13.5%	24 5.0%	16 3.3%	4.16	1.05
19	Teacher educators are competent to use technology for providing feedback to students.	Teachers N=219	52 23.7%	96 43.8%	49 22.4%	20 9.1%	02 0.9%	3.80	0.93
		Students N=481	129 26.8%	190 39.5%	104 21.6%	36 7.5%	22 4.6%	3.76	1.06
20		Teachers	126	86	05	01	01	4.52	0.61

	Teacher educators are competent to integrate technology in their instructions.	N=219	57.5%	39.3%	2.3%	0.5%	0.5%		
		Students N=481	287 59.7%	167 34.7%	18 3.7%	05 1.0%	04 0.8%	4.51	0.69

The values against the responses of teacher educators and students mentioned in this table depicted that both the parties agreed that the teachers are able to use technological resources during their teaching. The opinion of teacher educators and students against almost all the statements showed that the respondents are in favor that the teacher educators used instructional material during their instructions. Only in one statement 'ability of teacher educators to use internet in teaching learning' the students were confused and do not give their exact response (agree or disagree). In a nutshell, the views of both teacher educators and students indicated that the teacher educators are competent enough to use instructional technology during their instructions in teacher trainings.

Table 3: Comparison of teacher educators and students' responses

Variable	**Respondents**	**N**	**Mean**	**SD**	**t**	**Sig.**	
Attitude of Teachers	Teachers	219	4.49	0.41	-4.49	0.00	
	Students	481	4.31	0.53			
Competence of Teachers	Teachers	219	4.11	0.67	3.96	0.00	
	Students	481	3.91	0.49			

df = 698

The analyzed data in the last table showed that the teachers were higher in their opinion than the students regarding attitude towards the use of instructional technology as indicated by their mean score (M=4.49). The mean score (M=4.31) of students also showed their positive views regarding attitude of teachers in using instructional technology. However, the significant difference at $p < 0.05$ was found in the opinion of both parties. The teachers have more positive attitude as compared to students regarding positive attitude of teachers in using instructional technology in teacher training institutions.

Next, the values in the table depicted that the teachers have high mean score (M=4.91) than that of the students (M=3.91) about the competence of teachers in using instructional technology. Nevertheless, the significant difference was observed in the opinion of teachers and students. It revealed that the teachers had more favorable views as compared to pre-service teacher regarding competence of teachers in using instructional technology. In short, the significant difference was found in the opinion of teacher educators and students regarding 'attitude and competence' of teacher educators in using instructional technology. The teachers have more positive views as compared to students regarding the 'attitude and competence' of teachers about using instructional technology in teacher training programs.

DISCUSSION

This study investigated the attitude and competence of teachers in using instructional technology. Results of the study revealed that teachers have positive attitude about using instructional technology in teachers' training. This result shows the willingness of teachers for effective integration of instructional technology in the curriculum of teacher education programs. This study showed the significant difference found in the opinion of teachers and students regarding 'attitude and competence' of teachers in using instructional technology. The teachers indicated their more positive views as compared to students regarding the 'attitude and competence' of teachers about using instructional technology in teachers' training programs. The results of the study indicated that majority of the teachers and students agreed about the use of instructional technology for effective teaching, communication and quality of learning in teachers' training. They also prefer to use it for teachers' training classes. This indicated their highly positive attitude towards the use of instructional technology. Roach (2010) conducted study on technology from a teacher's perspective in teaching and found that a positive attitude, teacher training, and administrative support lead to effective use of technology. This shows that teachers are aware of the significance of instructional technology in instructions of teachers' training classes. The teachers and students agreed to the statement that teachers develop their own low-cost instructional tools. This result indicated positive attitude of teachers, because to use time for collecting and then developing low-cost material shows positive attitude of teachers. The low %age of students than the teachers revealed that the teacher educators develop low-cost material with low participation of students in this task. The results also indicated that the teachers were eager to present instructional material through technology and help their colleagues to use technology and also use it for the interest of their students. Teachers use instructional technology for their professional development and show highly positive attitude toward using instructional technology. Further exploration of teacher's competence in using instructional technology indicated that majority of the respondents agree to the statement that teachers are able to use technology resources for collecting instructional materials. The teachers and students agreed that teachers are able to use different technology tools to present instructional material in their classes. These results show that the teachers are competent to use different tools, such as multimedia, computer, and overhead projector in the classes. These results indicated that teachers are realizing the importance of the use of computer and other tools for enhancing the learning of their students.

Majority of respondents agree that the teachers do guide the pre-service teacher to use technology in their teaching practice and teachers are also able to use internet and PowerPoint presentations. A vast majority of teachers and students responded that the teachers are able to plan learning activity, to make use of technology for active participation of students, for collaborative learning of students and providing feedback to students. The teachers and students agree that teachers are competent to integrate technology in their instructions. This result is closely related with Gorder (2008), he reported that integration of technology in instructions is due to some factors, but the most important is the teachers' own abilities and competence. When teachers' and students' opinions were compared, it was concluded that at factors "attitude of teachers" and factor

"competence of teachers" were significant in favor of teachers as compared to students.

CONCLUSION

From the discussion above, it was concluded that majority of the teacher educators working in teachers' training colleges have highly positive attitude towards instructional technology. The results showed that the teachers were competent about the use of the technology tools such as computer, internet, and they use these tools for active participation of students, for collaborative learning and for feedback. In other words, teachers were proving themselves to be competent to use the instructional technology in teachers' training classes.

RECOMMENDATIONS

The authorities of curriculum development may design the curriculum integrated to technology for teachers' training programs. The tools of instructional technology may be available and accessible to the teachers as well as students in the teacher training institutions. Training programs about the use of innovative tools may be organized in the teachers' training institutions. Low-cost material may be developed by the students during their teaching practice under the guidance of their supervisors.

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