Students' Perceptions regarding Teaching Effectiveness in Online Learning and Traditional Face to Face Learning Environment

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Online learning approach is relatively new in Pakistan. Rapid increase in the enrolment of virtual students proved it as a suitable approach in the context of a developing country like Pakistan, where majority of students are either working professionals or females of remote areas who cannot join traditional learning system for enhancing their capabilities. This quantitative study compares students' perceptions studying in three universities (two traditional and one virtual) regarding teaching effectiveness in two types of learning environment. Undergraduate Students (N=390) enrolled in different programs (spring semester 2013) of the three universities were selected as sample of the study. Statistical analysis revealed highly significant differences between the two modes of teaching. It was further revealed that orientation and evaluation components were found strong in virtual teaching, whereas traditional teachers were found considerably more effective in monitoring and facilitating course activities.

Key words: online learning, virtual teaching, traditional teaching, orientation, monitoring, evaluation.

Research in the area of higher education has discussed similarities and differences between distance education and traditional education systems (Pioseipio and Gioia, 2007; Wild, 2007). Before the advent of information technology revolution, distance education was carried out by postal service which was proved to be a slow medium of instruction, thus provided space to information technology to bridge the gap. Both learning systems have their own advantages and disadvantages. e-learning provides greater flexibility in study hours for students, and more control over their assessment and learning process. At the same time, this system creates a sense of loneliness while minimizing student-teacher interaction that considered as a hallmark of traditional learning environment. The teaching process in many on-line courses has been "driven by technology rather than by student need" (Curran, 2001, 119). Research studies found that "when similar instructional methods were used, Web-based and classroom instruction were equally effective for teaching declarative knowledge", (Fletcher, Tobias & Wisher,2007, p.99). Similarly, Valle and Duffy (2009) stated that "many students are also attracted to online learning because of the freedom and flexibility in organizing their learning activities and the opportunity to work from any place"(p.130).

On the other hand, research evidence revealed that online mode of instruction "leads to different paradigms for teaching and learning, as compared to teaching in a traditional classroom, with both unique problems of coordination and unique opportunities to support active, collaborative (group or team-based) learning" (Coppola, Hiltz, & Rotter, (2002) p.170). Virtual mode of instruction provides the opportunity "to minimize both the time and cognitive distances between making a choice and experiencing the consequence of that choice" (Wild, 2007, p. 328). Similarly, Pioseipio and Gioia (2007) concluded in their study that the "virtual environment can actually create different and perhaps better opportunities for learning" (p.73).

Goodyear, Salmon, Spector, Steeples and Tickner, (2001) were of the view that "an effective online environment is flexible in mixing technology and human teaching", (p.66). But most of the research studies "focused on technological aspects of e-Learning, with relatively few academic studies written on the human aspects of teaching and learning on the Internet" (Oh, 2003, p.135). One possible reason for this "line of research may be that administrators of higher education tend to view eLearning not from students' perspectives, but from an internal organizational or technological perspective" (Rapp & Poertner, 1992, as cited in Oh, 2003 p.136).

14Tunison & Noonan, (2001) identified the teacher as the "ultimate source of information", (p.504). A research study by Sahin and Gülmez (2000) certified that "teacher qualities have an effect on students' failure or achievement" (p.107). Teachers' effective contribution is key to success for both online and face to face learning environment. Goodyear, et al., (2001) expressed that "good teaching may be very different in the two settings of face-to-face teaching and online teaching", (p.71). Teacher effectiveness is a relative term, and can vary among individual teachers, but in general, a teacher must have to follow some set pattern while teaching and proved him/herself to be "pedagogically

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effective", (Curran,2001, p.113). Research studies also focused on some "global aspects of teaching and on analysing teaching patterns or regimes instead of single teaching acts" (Borko, 2004 as cited in Seidel and Shavelson 2007, p.458).

Research studies have mentioned some general components of teaching that are followed by almost every teacher at certain stage of teaching. Early teaching effectiveness research hypothesized that certain teaching acts and conditions would affect student outcomes (Bolhuis, 2003). "To the degree that these components are present in teaching, student learning is expected to increase" (Seidel & Shavelson 2007, p. 461). Research studies have mentioned the central components of teaching that are conjectured to lead to student learning. The main components of teaching effectiveness cited in the literature are orientation of the course, facilitation provided by the instructor during the course, evaluation, and monitoring (Bolhuis, 2003; Seidel & Shavelson 2007).

Orientation component comprises teaching acts such as "clarifying goals, teaching in a clear and structured way, or activating student pre-knowledge" (Seidel & Shavelson 2007, p. 462). Similarly, teacher facilitates students during the execution of learning activities. Zahorik (1982) was of the view that "learning activities are the means by which teachers bring students into contact with subject matter" (p. 310). While bringing students into contact with subject matter, teaching acts such as "support social interactions between students and provide direct experiences for students, facilitate the basic processing of information (e.g., high language level, thinking-aloud methods)", are important components of effective teaching during the execution of learning activities (Seidel & Shavelson 2007, p. 462). Similarly, Nakayama and Santiago (2004) revealed the fact in their study that teachers "serve as content authority, and create learning courses and teaching materials, thus playing a major role in e-learning" (p.110). In order to explain the process of evaluation of learning outcomes after the execution of learning activities, Dror (2010) endorsed

The indicators of evaluation that are mentioned by Nevo (2006) refer to 'what' is the needed information — and 'what' is the evaluation target; 'who' are evaluated and mainly 'who' are the evaluators and stakeholders; 'why' and what are the 'goals' of the evaluation?; 'how' the data is gathered and what are the 'criteria' of evaluating a school — from its vision to its achievements, via its teachers, students, parents, community etc (p.42).

Fourth component of teaching effectiveness includes "teaching acts such as feedback and support or teaching students strategies of self-regulation and self-monitoring" (Seidel & Shavelson, 2007, p.462). While advocating the monitoring component, Tunison & Noonan (2001) argued in their study that "teachers' physical presence in a

conventional class played an important role to motivate them to finish their school work" (p.506).

This study intends to compare teaching effectiveness with respect to four above mentioned components of teaching in two diverse learning environments. The article starts with an introduction that explained the scope of the research followed by the important components of effective teaching. The next section introduces data, sample for the study, and statistical method used for analysis followed by results and their discussion. The article concludes with providing conclusions, and future research directions.

Method

This study employed quantitative research approach. The empirical data for the study are drawn from undergraduate students studying in various disciplines of three sample universities. Two sample universities follow traditional methods of teaching and one university adopts virtual mode of instruction. In relation to virtual education, Pakistan's first public sector university known as the Virtual University of Pakistan, established in 2002 and has campuses in sixty cities of the country with more than a hundred affiliated institutions providing infrastructural support to the virtual students. Being the only university that is completely associated with e-learning programs, the students of this university was selected for study purpose. In this way, the data is collected from total 265 (135+130) students from two traditional universities, and 135 students of virtual university studying at its five campuses located in two cities. The sample of students from two traditional universities was selected for the purpose of comparing the effectiveness of traditional teachers also. Moreover it also verified the reliability of the scale. In this way, total 390 students were included in the sample.

A 22-item Likert type questionnaire is used for data collection. The items of the questionnaire are related to four main components of effective teaching, i.e. orientation of the course, facilitation during the course, evaluation, and monitoring. The Cronbach's Alpha reliability of this 22- item scale was measured by using SPSS[1] 13.0 with a sample of 48 students from both types of universities, who were not included in the sample later. The reliability level of .88 was attained that was quite near to 1.00 (Perfect reliability) (Ysseldyke, 2004, p.122). The minor confusions revealed by the students' responses during reliability testing were then removed and the scale was finalized for large scale data collection. A demographic section was added with the scale for getting required information related to individual students. The data collected personally from three sample universities. The collected data are then coded and analysed statistically by using One-way ANOVA.

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[1] SPSS, Statistical Package for Social Sciences.

Results

The quantitative data was evaluated by paired comparison of the responses taken from undergraduate students of three sample universities. For the purpose of statistical analysis, null hypothesis is being tested by using inferential statistics, (Wiersma, 2000; Lodico, Spaulding & Voegtle, 2006).

The null hypothesis formulated for statistical analysis is as follows:

There is no difference of teaching effectiveness in traditional and virtual learning environment with respect to four central teaching components as follows:

1. *Orientation of the course*
2. *Facilitation during the course*
3. *Evaluation,*
4. *Monitoring*

"The researcher decides on the statistical test to use in part based on the type of data, type of hypothesis, and the number and type of variables in the study" (Lodico et al., 2006, p.256). In order to test the null hypothesis, One-Way ANOVA was applied to the quantitative data to test the statistical difference among the three groups of students belonged to three different universities (Sirkin, 2006). The results came out from analysis are presented with respect to four central components of teaching effectiveness.

Orientation of the Course

As discussed in introduction section, Seidel and Shavelson (2007) endorsed that clarification of goals by the teacher, structures teaching, and stimulate pre-knowledge of the students are important components of the orientation of the course. The One-way analysis of variance applied to test the statistical difference among the students belonged to three universities (Table 1). The results indicated significant differences between the teachers effectiveness in two different learning environments. The component of orientation of the course was assessed through six dimensions. In response to the item regarding clear (effective) communication of the course outlines by the instructors, highly significant differences between the two learning environment are revealed (F (2, 389) = 229.5, p < .05).

Table 1

Comparison of three groups of students belonged to three universities with respect to orientation of the course as a component of teaching effectiveness. Virtual=135 Traditional 1=135,Traditional2=130

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
clear communication of the course outline	Between Groups	312.911	2	156.455	229.542	.000
	Within Groups	263.779	387	.682		
	Total	576.690	389			
clear communication of course objectives	Between Groups	316.256	2	158.128	289.132	.000
	Within Groups	211.652	387	.547		
	Total	527.908	389			
elaboration of learnin activities	Between Groups	250.737	2	125.368	216.564	.000
	Within Groups	224.033	387	.579		
	Total	474.769	389			
guidance towards course topics	Between Groups	287.541	2	143.770	226.375	.000
	Within Groups	245.782	387	.635		
	Total	533.323	389			
plans creative and innovative activities	Between Groups	292.260	2	146.130	250.566	.000
	Within Groups	225.699	387	.583		
	Total	517.959	389			
activation of students pre-knowledge	Between Groups	297.884	2	148.942	231.167	.000
	Within Groups	249.346	387	.644		
	Total	547.231	389			

Whereas, the responses of second item also revealed significant differences, F (2, 389) = 289.1, p < .05. In response to the item related to elaboration of learning activities, highly significant difference revealed regarding teaching effectiveness in two different learning environments, F (2, 389) = 216.5, p < .05. Highly significant differences were obtained in response to fourth item, F (2, 389) = 226.35, p < .05. Similarly, responses of the fifth item revealed highly significant differences between the three groups of students F (2, 389) = 250.5, p < .05. the responses of the last item related to orientation component also revealed significant differences between the three groups belonged to two different learning environments, F (2, 389) = 231.1, p < .05. The overall results related to orientation component of teaching effectiveness in online and traditional learning environment indicated rejection of Ho (p<0.05) and concludes a significant difference between online and traditional learning environment.

Facilitation during the Course

A teacher can facilitate students during the execution of learning activities by supporting social interactions between students and providing direct experiences for students, and basic processing of information.

The One-way analysis of variance applied to test the statistical difference among the students belonged to three universities (Table 2). The component of facilitation during the course was assessed through six dimensions. The results regarding teachers' facilitation during the course indicated significant differences between the teachers effectiveness in

two different learning environments. The results related to six dimensions of teachers' facilitation during the course are presented in Table 2. In response to the item regarding promotion of critical thinking during instruction by the instructors, highly significant differences between the two learning environment are revealed (F (2, 389) = 200.4, $p <$ .05). Whereas, the responses of second item also revealed significant differences, F (2, 389) = 230.5, $p <$ .05. In response to the item related to instructors' acceptance of students ideas, highly significant difference revealed regarding teaching effectiveness in two different learning environments, F (2, 389) = 186.4, $p <$ .05. Highly significant differences were obtained in response to fourth item, F (2, 389) = 181.3, $p <$ .05. Similarly, responses of the fifth item revealed highly significant differences between the three groups of students F (2, 389) = 216.2, $p <$ .05. the responses of the last item related to facilitation component during the course also revealed significant differences between the three groups belonged to two different learning environments, F (2, 389) = 215.8, $p <$ .05.

Table 2
Comparison of three groups of students belonged to three universities with respect to facilitation during the course as a component of teaching effectiveness. Virtual=135 Traditional 1=135, Traditional 2=130

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
promote critical thinking during instruction	Between Groups	311.029	2	155.515	200.418	.000
	Within Groups	300.294	387	.776		
	Total	611.323	389			
encourages students in productive dialogue	Between Groups	306.718	2	153.359	230.552	.000
	Within Groups	257.426	387	.665		
	Total	564.144	389			
accepts and uses students' ideas	Between Groups	252.034	2	126.017	186.427	.000
	Within Groups	261.596	387	.676		
	Total	513.631	389			
ecourages to explore new concepts	Between Groups	279.800	2	139.900	181.380	.000
	Within Groups	298.497	387	.771		
	Total	578.297	389			
encourages solution of problems in local context	Between Groups	295.627	2	147.814	216.259	.000
	Within Groups	264.516	387	.684		
	Total	560.144	389			
poses problems to increase students' interest	Between Groups	304.849	2	152.425	215.815	.000
	Within Groups	273.328	387	.706		
	Total	578.177	389			

The overall results related to the facilitation component of teaching effectiveness in online and traditional learning environment indicated rejection of Ho ($p<0.05$) and concludes a significant difference between online and traditional learning environment.

Evaluation
Evaluation activities of a teacher assess student achievement of learning goals. The One-way analysis of variance applied to test the statistical difference among the students belonged to three universities, regarding teaching effectiveness in evaluating the students. The component of

evaluation of the course was assessed through five dimensions. The results related to five dimensions of teachers' effectiveness in evaluation of the students are presented in Table 3.

Table 3
Comparison of three groups of students belonged to three universities with respect to evaluation of the course as a component of teaching effectiveness. Virtual=135 Traditional 1=135, Traditional 2=130

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
time frames for assignments clearly indicated	Between Groups	206.471	2	103.235	283.294	.000
	Within Groups	141.027	387	.364		
	Total	347.497	389			
course activities helpful in preparation of exams	Between Groups	345.737	2	172.868	268.187	.000
	Within Groups	249.453	387	.645		
	Total	595.190	389			
returns assignments in timely fashion	Between Groups	291.988	2	145.994	259.941	.000
	Within Groups	217.356	387	.562		
	Total	509.344	389			
fair in students' evaluations	Between Groups	241.998	2	120.999	198.840	.000
	Within Groups	235.499	387	.609		
	Total	477.497	389			
encourages students' ideas	Between Groups	316.559	2	158.280	261.021	.000
	Within Groups	234.671	387	.606		
	Total	551.231	389			

The results indicated significant differences between the teachers' effectiveness with respect to evaluation component in two different learning environments. In response to the item regarding clear indication of timeframes for assignments of the course by the instructors, highly significant differences between the two learning environment are revealed (F (2, 389) = 283.2, $p <$ .05). Whereas, the responses of second item also revealed significant differences, F (2, 389) = 268.1, $p <$ .05. In response to the third item, highly significant difference revealed regarding teaching effectiveness in two different learning environments, F (2, 389) = 259.9, $p <$ .05. Highly significant differences were obtained in response to fourth item, F (2, 389) = 198.8, $p <$ .05. Similarly, responses of the fifth and last item regarding instructors' encouragement of students' ideas, revealed highly significant differences between the three groups of students F (2, 389) = 261.02, $p <$ .05.

The overall results related to evaluation component of teaching effectiveness in online and traditional learning environment indicated rejection of Ho ($p<0.05$) and concludes a significant difference of teaching effectiveness between online and traditional learning environment.

Monitoring

The monitoring component can be assessed through teaching acts such as providing feedback and teaching strategies of self-regulation and self-monitoring to students (Seidel & Shavelson, 2007).

The One-way analysis of variance applied to test the statistical difference of teaching effectiveness revealed through the responses of the students belonged to three universities (Table 4). The component of monitoring and regulation during the course by the instructor was assessed through five dimensions. The results related to five dimensions of teachers' facilitation during the course are presented in Table 4 indicated significant differences between the teachers effectiveness in two different learning environments with respect to monitoring component. In response to the item regarding avoidance of personal criticism by the instructors, highly significant differences between the two learning environment are revealed (F (2, 389) = 253.6, p < .05). Whereas, the responses of second item regarding usage of appropriate vocabulary by the instructor revealed significant differences, F (2, 389) = 212.8, p < .05. In response to the item related to assurance of equitable participation of the students, highly significant difference revealed regarding teaching effectiveness in two different learning environments, F (2, 389) = 217.5, p < .05. Highly significant differences were obtained in response to fourth item, F (2, 389) = 160.3, p < .05. The responses of the students regarding last item related to monitoring component also revealed significant differences between the three groups belonged to two different learning environments, F (2, 389) = 219.6, p < .05.

Table 4

Comparison of three groups of students belonged to three universities with respect to monitoring of the course as a component of teaching effectiveness. Virtual=135 Traditional 1=135, Traditional 2=130

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
avoides personal criticism	Between Groups	302.467	2	151.234	253.670	.000
	Within Groups	230.722	387	.596		
	Total	533.190	389			
uses vocabulary appropriate to students level	Between Groups	300.330	2	150.165	212.860	.000
	Within Groups	273.014	387	.705		
	Total	573.344	389			
ensurance of equitable participation	Between Groups	293.378	2	146.689	217.563	.000
	Within Groups	260.930	387	.674		
	Total	554.308	389			
feedback helpful in understand strength & weaknesses	Between Groups	239.462	2	119.731	160.389	.000
	Within Groups	288.897	387	.747		
	Total	528.359	389			
feedback helpful in focus on subject related issues	Between Groups	310.161	2	155.080	219.692	.000
	Within Groups	273.183	387	.706		
	Total	583.344	389			

The overall results related to monitoring component of teaching effectiveness in online and traditional learning environment indicated rejection of Ho (p<0.05) and concludes a significant difference between online and traditional learning environment.

From the above analysis, the rejection of null hypothesis is evident; the results revealed significant differences among the responses of the students belonged to two different learning environments. It is further investigated the difference of teaching effectiveness among the four components with respect to two virtual and traditional learning environments. For this purpose the analysis is extended by computing the items related to four components of teaching effectiveness. Mean differences of computed variables also revealed differences between the four teaching components in virtual and traditional learning environments, as shown in Table 5 below.

Table 5
Mean Differences of three groups of students belonged to three universities with respect to monitoring of the course as a component of teaching effectiveness. Virtual=135 Traditional 1=135, Traditional 2=130

Students belonged to	Orientation	Facilitation	Evaluation	Monitoring
Virtual University	23.7	13.2	19.8	11.05
Traditional University 1	12.8	24.2	10.7	20.07
Traditional University2	12.7	24.1	11.5	18.2

The mean differences of the responses of the three groups of students presented in Table 5 revealed that the orientation and evaluation components (23.7, 19.8) of virtual teaching are stronger as compared to facilitation and monitoring components (13.2, 11.05). On the other side, in both traditional universities, facilitation and monitoring components of teaching (24.2, 20.07 for traditional university 1) and (24.1, 18.2 for traditional university 2) were found stronger as compared to orientation and evaluation components of teaching (12.8, 10.7 for traditional university 1) and (12.7, 11.5 for traditional university 2).

Discussion

In the present study, teaching effectiveness was compared in two different learning environments i.e. virtual and traditional face to face. The variable of teaching effectiveness was being measured by four main components of teaching. These components included orientation of the course, facilitation during the course, evaluation, and monitoring. These components are interlinked and influence each other also. For the study purpose, data was collected from undergraduate students of two traditional universities and one virtual university, with the help of a 22-item Likert type questionnaire. The results drawn from statistical analysis of the responses of the sample students revealed significant differences of the four dimensions of teaching in virtual and traditional learning environment. The analysis

further revealed that orientation and evaluation components of teaching were more effective in virtual learning environment, whereas facilitation and monitoring components of teaching were found stronger in traditional learning environment. Santhanam, Sasidharan, Webster, (2008) had endorsed same findings regarding component of monitoring. Whereas, Yeh, (2009) endorsed a contrary point of view that "e-learning was limited by its inability to provide immediate feedback and facilitate teaching practice" (p.197). This difference of findings between the four components of teaching effectiveness revealed the importance of physical presence of the teacher in traditional learning environment. Physical presence of teachers is more necessary for both facilitation and monitoring components of teaching. Whereas orientation and evaluation components can be handled effectively through virtual mode of instruction, where the physical presence of the teacher is not ensured. The study also revealed that the success of teaching in cyberspace will be achieved when virtual teachers realize the significance of continuous interaction with students. At the same time the findings showed that orientation and evaluation components of teaching need improvement in traditional mode of teaching.

Further research is recommended that integrate the in-depth interviews of the students with quantitative instruments, such as the questionnaire developed in this study. Through this type of integration some intangible issues related to teaching effectiveness will be revealed that cannot be found with mere use of quantitative instruments.

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