VFAST Transactions on Education and Social Sciences
http://vfast.org/journals/index.php/VTESS@ 2021, ISSN(e): 2309-3951, ISSN(p): 2411-0221
Volume 9, Number 1, January-December , 2021 *pp:122-132*

Exploring the Relationship between Instructional Practice and Pedagogic Beliefs of University Teachers

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ABSTRACT
The study examines how the Pakistani university teachers' classroom instructional practices are associated with their pedagogic beliefs. Quantitative survey method was used with 100 teachers, selected using convenient sampling method and working in public and private universities situated all over the Punjab. The data were analyzed using SPSS 21 and descriptive statistics like mean & standard deviation and inferential statistics including Pearson's product moment correlation coefficient and simple linear regression analysis were applied to explore Pakistani university teachers' beliefs and practices and the relationship between them. Further t-test and ANOVA were used to find out the effects of different demographic characteristics of teachers on their beliefs and practices. The resulst demonstrate that classroom instructional practices of teachers are significantly correlated with their pedagogic beliefs.

KEYWORDS
University, Teacher, Instructional Practice, Pedagogic Belief

JOURNAL INFO
HISTORY: Received: July 15, 2021 Accepted: September 15, 2021 Published: September 30, 2021

INTRODUCTION

The education system of Pakistan is under great stress due to continuous criticism from different corners (Nazar, 2021). The critics viewpoint is that Pakistan's higher education institutions are delivering only in terms of degrees and not in terms of knowledge and that Pakistan needs quality education in higher education institutions which is totally lacking at the present moment (Parveen et al., 2021). It is an undeniable fact that teachers have pivotal role to play in any education system (Bayeh, 2016). Only quality teachers can provide quality education and improve both teaching and learning environment which can be explored through research on teacher's instructional methods or teaching approaches (Murphy et al., 2021). Teachers have some personal beliefs regarding the instructional methods to be used in the classroom (Sadaf, & Johnson, 2017) and their individual beliefs about the mode of teaching or how to impart the knowledge are known as pedagogic beliefs (Diehm & Hendricks, 2021).

The relationship between a person's beliefs and conduct is under discussion from centuries. Studies reveal that teachers' personal beliefs highly influence their choice of instructional method in classroom. However, it has been scarcely tried to investigate that why a person does whatever s/he does in the classroom? What is the basis of his/her actions in the classroom?

How s/he decides about the method of teaching? (Wu, 2021). The actual guiding question for this study is that "what is the relationship between the instructional methods and pedagogic beliefs of university teachers" which has rarely been answered in the West but never in Pakistani context.

This study will try to explore the instructional methods used by university teachers in the classroom and their pedagogic beliefs. The study will further try to establish whether or not there is any relationship between the instructional methods and pedagogic beliefs of university teachers.

STATEMENT OF THE PROBLEM

Many philosophers have asserted that conduct of a person is related with his/her beliefs (Murdock et al., 2021). A man's action comes from his opinion (Yu-Wei, 2021) and studies reveal that teachers' personal beliefs highly influence their choice of instructional method in classroom (Parr et al., 2021). Sufficient amount of evidence is found in research telling that teachers possess certain beliefs in connection with the nature of knowledge and how it is imparted in the classroom (Brinkmann, 2019). Teaches' actions in the classroom known as their instructional practices are supposed to be the indicators of their personal pedagogic beliefs (Hamilton, 2021).

Teachers' instructional practices need to be investigated as their teaching style is believed to be in strong association with the pedagogic beliefs they possess (Berger et al., 2018). Such investigation may explore teachers' preferred instructional method leading towards appropriate knowledge about their pedagogic beliefs (Kutluca, 2021). The knowledge of teachers' instructional method is of great concern as every instructional method differently affects the classroom environment (Atiles et al., 2021).

West has given high value to teachers' instructional practices and their pedagogic beliefs (Brinkmann, 2019) but the situation is disappointing in Asian context and especially in Pakistan. The current study would find out university teachers' instructional practices and pedagogic beliefs and the relationship between the two.

RESEARCH OBJECTIVES

The study intended to achieve the following objectives:

1. To discover instructional practices of university teachers in connection with their pedagogic beliefs.
2. To find out connection between different dimensions of instructional practices and pedagogic beliefs of university teachers.
3. To explore the relationship between instructional practices and pedagogic beliefs of university teachers.

RESEARCH QUESTIONS

1. What are preferred instructional practices of university teachers in connection with their pedagogic beliefs?
2. If there are any connections between different dimensions of instructional practices and those of pedagogic beliefs of university teachers?
3. What is the relationship between instructional practices and pedagogic beliefs of university teachers?

REVIEW OF RELATED LITERATURE

The ways of instructions, a teacher follows in the classroom to guide the students or the actions or activities used by him/her to facilitate the students in learning process are known as instructional practices (Tyson, 2021).

In a country like Pakistan, education system is a target of huge criticism for being rotted or obsolete especially at university level where the teachers are inducted in the system without any prior training and the teachers' conduct or attitude in the classroom is under great influence of a set of their personal beliefs (Solomon, 2018). A man's action comes from his opinion (Yu-Wei, 2021) and studies reveal that teachers' personal beliefs highly influence their choice of instructional method in classroom (Parr et al., 2021).

Some of these instructional practices are student-focused or conceptual methods also called "learning focused" methods in which teachers work as facilitators for students to construct knowledge and the others are teacher-focused/information transmission methods also called "content focused" methods in which teachers transmit information to the students (Alpert, 2021). Broad review of previous literature advocates three overlapping instructional practices namely standard contemporary practice, focused instruction and flexible grouping practice (Dart et al., 2019).

Briefly talking; standard contemporary practice means prevailing teachers' instructional practices in classroom either transmitting or constructing the knowledge (Gay, 2021). Secondly focused instruction is a method in which students listen as the teacher provides an introduction and overview of the lesson (Martín del Pozo, 2017). It allows the teacher to establish the learning purposes and the goal of the lesson (Gibbons & Cobb, 2017). It reduces stress and increases productivity (Cohen, 2021). Lastly flexible grouping practice is to motivate students for working together by putting them into groups temporarily for keeping in view their need for the development of desired skills or for completion of a learning activity (Doubet & Hockett, 2017). Changes in the groups can be made on the basis of changes in needs of students' knowledge or skill development (Ökmen & Kılıç, 2021).

Many researchers have contributed to concluding that teachers' personal beliefs have key role in directing them in decision making and behaving (Friedman, 2020). Teachers' beliefs, practices and attitudes have immense importance to understand and improve the process of education (Taimalu & Luik, 2019) and have close link with teachers' tactics they use to cope with their professional life challenges and play vital role in shaping the learning environment in the classroom (Batanero, 2020). Teaches' actions in the classroom known as their instructional practices are supposed to be the indicators of their personal pedagogic beliefs (Hamilton, 2021).

The pedagogic beliefs are beliefs about how the knowledge should be cultivated in schools (Forbes et al., 2021). These beliefs of teachers are referred to as methods of instructions to impart education by teachers in the classroom (Tuzlukova et al., 2017).. Pedagogic beliefs are generally divided into two categories: (a) belief in transmitting the knowledge and (b) belief in constructing the knowledge (Cooke, 2019). Transmitters of knowledge believe in "traditional conception" (Xu, 2021). They use teacher-centered and content-centered methodology in preparing and delivering lecture and keep the students as passive recipients. On the other hand, constructors of knowledge believe in "constructivist conception" (Johansson, 2021). They motivate the students to become active participants in the classroom and

emphasize more student-centered activities facilitating them to actively construct knowledge through self-reflection and peer-interactions (Lin & Hsia, 2019). Teachers' beliefs have received intensive attention especially in the field of educational research (Van Ha & Murray, 2021). The relationship between a person's beliefs and conduct is under discussion from centuries (O'Neal et al., 2017). A man's action comes from his opinion (Yu-Wei, 2021). Studies reveal that teachers' personal beliefs highly influence their choice of instructional method in classroom (Suprayogi et al., 2017).

However, it has been scarcely tried to investigate that why a person does whatever s/he does in the classroom. What is the basis of his/her actions in the classroom? How s/he decides about his method of teaching? The actual guiding question for this study is that "what is the relationship between the instructional methods and the pedagogic beliefs of university teachers" which has rarely been answered in the West (Ahmet, 2019) but never in the Pakistani context. The current paper will provide a literature review on instructional practices of university teachers and the kinds of pedagogic beliefs, they have and will also explore how teachers' instructional practices and the pedagogic beliefs are related with each other. Figure 1 below shows a hypothetical model proposing direct or indirect effect of pedagogic beliefs of teachers on their instructional practices. The results will, however, clarify the exact situation.

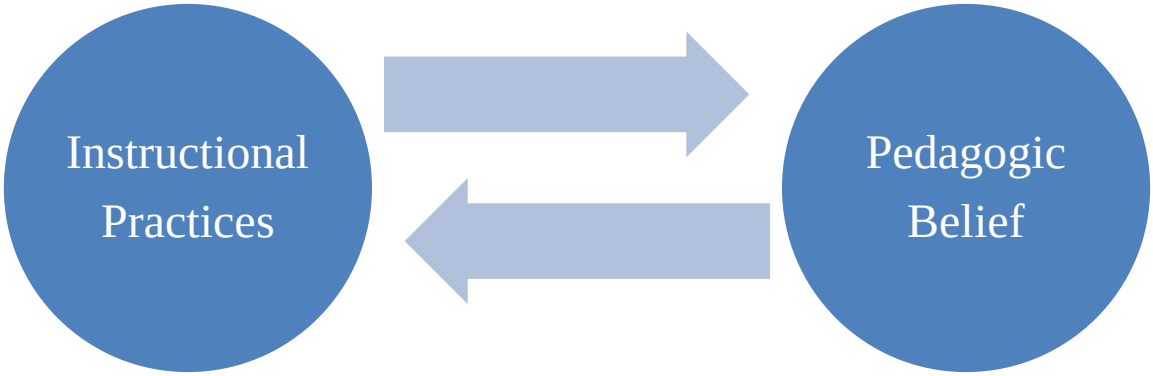

Figure 1: Conceptual Model

METHODOLOGY

Quantitative survey was conducted for data collection. 100 university teachers all over the Punjab province participated in the study. Universities were selected using proportionate sampling method and 05 from Public and 04 from Private sector were selected out of 29 universities imparting general education in Punjab province. The participants were conveniently selected from the departments of Political Science, Economics, Education, Zoology/Life Science, Physics, Chemistry, English and Business Administration working in 09 universities situated in different cities of Punjab and electronically approached for data collection due to COVID 19 protocol. The participants were 44 (43.6%) males and 56 (55.4%) females. Of these, 38, 38, 11 and 13 were aged upto 35, 35-45, 46-55 and 55 & above respectively. Talking about their qualification, only 02 of these teachers were master degree holders whereas 31 and 67 were in possession of MPhil and PhD degrees respectively. As far as their professional position is concerned, they were lecturers, assistant professors, associate professors and professors numbering as 36, 47, 14 and 03 respectively. Out of 100, 05 responded from Political Science; 09 from Economics; 27 from Education; 11 from Zoology/Life Science; 11 from Physics 09 from Chemistry; 12 from English and 16 from Business Administration department respectively. 92 participants were enjoying permanent job status and 08 were on contract. 30 participants had 15 or more years of experience of teaching, whereas 22 were teaching from the last 11-15 years; 23 from 10-15 years; 24 from 1-5 years and only 01 had an experience of less than a year. 71 participants out of 100 belonged to public sector and the remaining 29 from private sector.

Personal approach to the participants was almost impossible due to lock down imposed by Govt. of the Punjab for the reason of high spread rate of Covid-19. The tool was therefore created on google forms and a link of the same was forwarded to the participants via what' app and electronic mail to collect desired information.

The data were analyzed using SPSS 21 software and teachers' instructional practices and pedagogic beliefs were explored to reply to the research question 1. Pearson's product moment correlation coefficient was calculated to find connection between different dimensions of teachers' instructional practices and their pedagogic beliefs to get the answer to research question 2. Finally simple linear regression method was applied to explore the relationship between the instructional practices of the teachers and their pedagogic beliefs and to reply to the research question 3. ANOVA and independent sample t-test were also applied to check the effects of demographic characteristics on participants' responses regarding their instructional practices and pedagogic beliefs and interpretation of the results were made using descriptive statistics.

The participants' identifications were kept strictly confidential as some teachers refused to participate because their universities have developed some protocol for participation in such surveys and they were convinced to participate only based on personal contacts.

INSTRUMENT FOR DATA COLLECTION

Lee et al., (2013) developed a research tool for the measurement of instructional practices and pedagogic beliefs, which was adapted by researcher for data collection. The tool consisting of two parts have demographic information in part I and 45 items with four point Likert-type scale having response options as (i) Strongly Disagree (ii) Disagree (iii) Agree (iv) Strongly Agree in part II. The reliability of the research tool of this study was judged by checking the internal consistency of the items of rating scale. Cronbach's Alpha, also known as reliability coefficient, was applied through SPSS software for this purpose. The value of Cronbach's Alpha (reliability coefficient) appeared to be 0.866 which showed a satisfactory level of reliability of data collection instrument. To check the validity, the tool in its initial form was presented to a few experienced and capable teachers working in both public and private universities. They were requested to see whether the language of the statements/items sounds good and if the statements/items of the tool were appropriate to check the pedagogic beliefs and instructional practices of teachers in affiliation of the domains therein (Innate/Fixed Ability, Learning Effort/Process, Criticizing Authority (Authority/Expert Knowledge), Certainty Knowledge, constructivist conception, traditional conception, standard contemporary practices, focused instruction and flexible grouping practice). After the tool was retrieved, the proposed amendments were incorporated accordingly.

DATA ANALYSIS AND INTERPRETATION

Table1.1: Instructional practices and pedagogical beliefs

Variables	Dimensions	Means	SDs
Instructional Practices	Standard Contemporary Practice	16.0900	2.01055
	Focused Instruction	15.2400	2.02569
	Flexible Grouping Practice	14.5100	2.12486
Pedagogic Beliefs	Constructivist Conception	17.0400	2.10300
	Traditional Conception	11.1100	2.51820

Table1.1. provides means & standard deviations of different dimensions of variables of study. The teachers adopting standard contemporary practice (mean=16.090) and believing in pedagogy of Constructivist Conception (mean=17.040) were found in majority whereas least of them bothered for flexible grouping practice (mean=14.510) with pedagogy of traditional conception (mean=11.110). The rest of them showed moderate feelings.

Table1.2:Inter-correlationsamongdifferentdimensionsofteachers' beliefsandpractices

		1	2	3	4	5
Constructivist Conception	r	1	-.079	.635**	.545**	.411**
	Sig.	.434	.000	.000	.000	.434
Traditional Conception	r	-.079	1	-.094	.268**	.176
	Sig.	.434		.354	.007	.079
Standard Contemporary Practice	r	.635**	-.094	1	.533**	.559**
	Sig.	.000	.354		.000	.000
Focused Instruction	r	.545**	.268**	.533**	1	.544**
	Sig.	.000	.007	.000		.000
Flexible Grouping practice	r	.411**	.176	.559**	.544**	1
	Sig.	.000	.079	.000	.000	.000

** Correlation is significant at the 0.01 level (2-tailed).

Table 1.2. summarizes the correlations among different dimensions of pedagogic beliefs and instructional practices. The two dimensions of pedagogic beliefs were found to be negatively correlated with each other while all three dimensions of instructional practices were significantly correlated with each other. Constructivist conception was significantly related with all dimensions of instructional practices. Traditional conception showed a significant correlation with focused instruction but negative and weak relations with standard contemporary practice and flexible grouping practice respectively. Standard contemporary practice was seen to be negative with traditional conception but found to be significantly correlated with constructivist conception, focused instruction and flexible grouping practice. Focused instruction showed strong positive relations with both dimension of pedagogic beliefs and the two dimensions of instructional practice. Finally, a positive correlation was seen with all dimensions excluding traditional conception.

Table1.3:Comparisons of pedagogic beliefs and instructional practices by age

Factor: Age		Sum of Squares	df	Mean Square	F	Sig.
Constructivist Conception	Between Groups	9.263	3	3.088	.692	.559
	Within Groups	428.577	96	4.464		
	Total	437.840	99			
Traditional Conception	Between Groups	15.328	3	5.109	.801	.496
	Within Groups	612.462	96	6.380		
	Total	627.790	99			
Standard Contemporary Practice	Between Groups	.714	3	.238	.057	.982
	Within Groups	399.476	96	4.161		
	Total	400.190	99			
Focused Instruction	Between Groups	10.254	3	3.418	.829	.481
	Within Groups	395.986	96	4.125		
	Total	406.240	99			
Flexible Grouping Practice	Between Groups	12.812	3	4.271	.944	.422
	Within Groups	434.178	96	4.523		
	Total	446.990	99			

From table 1.3, it can be inferred that the value of p for different dimensions of pedagogic beliefs and instructional practices is > .05, which means that no statistically significant differences were found on the scores of different age groups of respondents. It leads to the conclusion that age actually did not affect respondents' views and they had invariably similar thoughts about beliefs and practices.

Table1.4:Comparison of pedagogic beliefs and instructional practices by qualification

Factor: Qualification		Sum of Squares	df	Mean Square	F	Sig.
Constructivist Conception	Between Groups	8.249	2	4.125	.931	.398
	Within Groups	429.591	97	4.429		
	Total	437.840	99			
	Between Groups					
	Within Groups					
	Total					

Traditional Conception	Between Groups	17.051	2	8.526	1.354	.263
	Within Groups	610.739	97	6.296		
	Total	627.790	99			
Standard Contemporary Practice	Between Groups	5.569	2	2.784	.684	.507
	Within Groups	394.621	97	4.068		
	Total	400.190	99			
Focused Instruction	Between Groups	18.255	2	9.128	2.282	.108
	Within Groups	387.985	97	4.000		
	Total	406.240	99			
Flexible Grouping Practice	Between Groups	11.991	2	5.995	1.337	.267
	Within Groups	434.999	97	4.485		
	Total	446.990	99			

Looking into table 1.4, it came to our knowledge that value of p for all dimensions of pedagogic beliefs and instructional practices was > .05. It means that respondents had insignificant differences on scores falling in different qualification brackets.

Table1.5-Comparison of pedagogic beliefs and instructional practices by experience

Factor: Experience		Sum of Squares	df	Mean Square	F	Sig.
Constructivist Conception	Between Groups	4.829	4	1.207	.265	.900
	Within Groups	433.011	95	4.558		
	Total	437.840	99			
Traditional Conception	Between Groups	19.138	4	4.785	.747	.563
	Within Groups	608.652	95	6.407		
	Total	627.790	99			
Standard Contemporary Practice	Between Groups	20.509	4	5.127	1.283	.282
	Within Groups	379.681	95	3.997		
	Total	400.190	99			
	Between Groups	12.145	4	3.036	.732	.572

Focused Instruction	Within Groups	394.095	95	4.148		
	Total	406.240	99			
	Between Groups	13.601	4	3.400	.745	.564
Flexible Grouping Practice	Within Groups	433.389	95	4.562		
	Total	446.990	99			

Comparing respondents' views by their experience of teaching, we found no statistically significant differences on the scores of respondents falling in different experience brackets, which shows that experience of teaching didn't make any difference in respondents' views about different beliefs and practices.

Table1.6: Intra-variables correlations among pedagogic beliefs and instructional practices

		Pedagogic Beliefs	Instructional Practices
Pedagogic Beliefs	Pearson Correlation	1	.536**
	Sig. (2-tailed)		.000
	N	100	100
Instructional Practices	Pearson Correlation	.536**	1
	Sig. (2-tailed)	.000	
	N	100	100

** Correlation is significant at the 0.01 level (2-tailed).

Table 1.6 clarifies that the variables of the study namely pedagogic beliefs and instructional practices were significantly correlated with each other.

Table 1.7: Regression analysis showing an effect of pedagogic beliefs on instructional practices of university teachers

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	7.173	5.158		1.390	.168
	Pedagogic Beliefs	.625	.145	.383	4.311	.000

a. Dependent Variable: Instructional Practices

The above **coefficients** table provides us with the necessary information about whether pedagogic beliefs contribute statistically significantly to the model (by looking at the "**Sig.**" column). This can be inferred from the coefficients table that there is a heterogeneity between the dependent variable (with p=.168 > .05) and independent variable (p=.000 <.05). This is therefore evident that a relationship exists between dependent variable and independent variable and that teachers' pedagogic beliefs are playing a role in developing their instructional practices.

DISCUSSION

Findings of the study reveal that constructivist conception was significantly related with the three dimensions of instructional practices. It reveals that the teachers who believe in students' constructing knowledge by their own believe in using all three dimensions of instructional strategies. The significant association of focused instruction with every other dimension revealed that teachers following focused instruction also use standard contemporary practice and flexible grouping practice believe in both constructivist conception and traditional conception to impart knowledge to students.

The findings of the study also revealed that gender, age and qualification of the respondents had no effects on their views regarding pedagogic beliefs and practices. Findings about official position/designation revealed that it affects the respondents' views only on constructivist conception and flexible grouping practice while the views on rest of the dimensions remain unaffected. Teachers' relationship with different departments affected their beliefs and practices and varied significantly on standard contemporary practice and flexible grouping practice which gave us an understanding that respondents in most of the departments believe in polishing students' abilities following standard

contemporary practice including traditional or constructivist conception and flexible grouping practice. The factor of job status was seen to be affecting respondents' views regarding standard contemporary practice and flexible grouping practice and contractual respondents showed stronger belief about effectiveness of both dimensions as compared to the permanent ones. Experience of the respondents working in either public or private sector had no influence on their beliefs and practices.

Finally, the findings of correlation and regression analysis revealed that pedagogic beliefs and instructional practices were significantly correlated with each other. It was further explored that a relationship exists between dependent and independent variable of the study and that teachers' pedagogic beliefs are playing a role in developing their instructional practices.

CONCLUSIONS

This study explored university teachers' pedagogic beliefs and their instructional practices revealing that teachers' pedagogic beliefs can directly or indirectly influence their instructional approaches. The findings of this study are helpful in understanding how pedagogic beliefs and instructional practices of university teachers correlate with each other and what is the effect of university teachers' pedagogic beliefs on their instructional practices. The present study would be significant as it is being conducted with the hope that the teachers may provide high volume of information regarding their pedagogical beliefs influencing their instructional practices. As a result, an awareness may be prompted among teachers for rectification/modification in their pedagogical beliefs and improvement in their instructional practices. Such rectification/modification in teachers' pedagogical beliefs may enhance their professional competency and the ultimate beneficiary would be the education system of the country.

Further, due to dearth of studies in this field in Pakistan, it is expected that present study would be a tribute regarding the common pedagogic beliefs among teachers and the role of these beliefs in developing their instructional practices.

Further research in future may also be conducted to find out the effects of teachers' pedagogic beliefs and their instructional practices on learning approaches and learning out comes of students. Research may also be conducted to investigate variations in teachers' pedagogic beliefs and their instructional practices related to specific subject or some age related or some other personal or university-based factors.

RECOMMENDATIONS

A persons' beliefs could be shaped by cultural influences, former parenting and schooling experiences, prior teaching practice and field experience. The complicated linkage between teachers' pedagogic beliefs and their instructional practices demonstrates clear implications for them. The rotted teacher education programs with no weightage to teachers' pedagogic beliefs and instructional approaches should be vanished and new teacher development programs should be launched particularly facilitating teachers' in developing their critical thinking skills enabling them to challenge claims by experts and authorities, making them realize the value of opening students' minds to constructivist conceptions and different instructional strategies. Teachers, in such programs, may be provided opportunities for analyzing ill-defined classroom and educational problems in different settings, engaging them to discuss controversial teaching and learning issues, and helping them for examining their assumptions about knowledge and its impartation modes. Curriculum reforms are need of the present time and in this connection incorporating sufficient amount of material in the curriculum of universities academic programs regarding multiple teaching methods, and different dimensions of pedagogic beliefs and instructional strategies may be helpful in consciousness of both teachers and students. Connecting teaching materials with students' daily experiences may also strengthen teachers' constructivist conception and other beliefs and practices.

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