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University Teachers' Instructional Practices in relation to Epistemic and Pedagogical Believes

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Abstract: *The study examines if the epistemic and pedagogic beliefs of Pakistani university teachers' have relationship with their classroom instructional practices. 100 teachers conveniently selected from both public and private universities situated in Punjab were approached to conduct quantitative survey. Descriptive and inferential statistics including mean & standard deviation and regression respectively were applied to analyze the collected data through SPSS 21. Beliefs and practices of Pakistani university teachers were explored and relationship between them was discovered. Demographic characteristics were also analyzed to see their effects on teachers' beliefs and practices. Significant relationship was found between the variables.*

Key Words: Pedagogic, Epistemic, Instructional Practices

Introduction

Research indicates that teachers have variety of beliefs including epistemic and pedagogic beliefs. Epistemic beliefs are referred to as teachers' personal assumptions about what is knowledge and how it is acquired (Berger et al., 2018). Baytelman et al., (2020) described epistemic beliefs as personal assumptions regarding knowledge and the way of learning or development for self and others. Whereas pedagogic beliefs are a teacher's individual beliefs about how to impart knowledge (Parker et al., 2016). These are described as a teacher's preferred ways of teaching and are mainly categorized into either transmission of knowledge or construction of knowledge.

As regards instructional practices, they are the methods adopted by teachers to guide interactions in the classroom and such practices are supposed to be best if motivate the students to move forward to learn (Shepard et al., 2018).

Studies reveal that teachers in higher education institutions believe in two types of instructional practices. One is teacher-centered practices which is usually making teacher leading the session while students are passive listeners (Kazmi et al., 2021) whereas the other one namely student-centered practices involve in motivating the students to become actively participate in order to build knowledge and become responsible of their own learning. (Kazmi et al., 2021).

It is strongly believed that teachers' epistemic and pedagogical beliefs shape their attributes, influence their behaviors in the classroom and hence open a window to understand their instructional practices.

Although a number of researches have been conducted on teachers' epistemic and

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pedagogic beliefs and their influence on teachers' instructional practices in the developed countries, but a lack of such researches exist in Pakistani context.

An important reason to know teachers' beliefs and their instructional practices revealed by literature review is that a teacher is likely to select and use instructional methodology consistent with his/her beliefs (Kaipnazarova, 2020). Since, teachers' epistemic and pedagogic beliefs have not got any attention in Pakistan and their relationship with teachers' instructional practices has never ever been focused to date. The present study is being conducted with the intention of filling this gap.

Statement of the Problem

For decades, numerous philosophers have conveyed their ideas about the relationship among beliefs and conduct of a person. Thomas Hobbes, an English philosopher, claimed in 1651, that the men act according to their thoughts and same is the case with teachers (Landfester & Metelmann, 2020).

It is strongly believed that teachers' preferred instructional practices are rooted in their believes which are highly influenced by their epistemic and pedagogical beliefs (Solis, 2019).

Teachers' epistemic and pedagogical beliefs need to be investigated because Greene, (2020) asserts that these beliefs are supposed to be the influencing factors for teachers' concepts regarding acquiring and imparting knowledge and a window to understand their instructional practices.

This article intends to explore teachers' epistemic and pedagogical beliefs and their relationship with teachers' instructional practices in Pakistani universities.

Research Objectives

To unfold teachers' epistemic and pedagogic beliefs in Pakistani universities.

1. To find out the teachers' instructional practices in Pakistani universities.
2. To explore the relationship between teachers' epistemic and pedagogic beliefs and their instructional practices in Pakistani universities.

Research Questions

1. What are teachers' epistemic and pedagogic beliefs in Pakistani universities?
2. What are teachers' instructional practices in Pakistani universities?
3. What is the relationship between teachers' epistemic and pedagogic beliefs and their instructional practices in Pakistani universities?

Review of Related Literature

Beliefs are emotional tendencies that constitute a person's understanding and guide his/her decisions and drive him/her to realize those decisions (Mazzocco et al., 2019). Research suggests that what teachers' believe has close association with their classroom instructional decisions (Leem & Sung, 2019).

Teachers have variety of beliefs including epistemic and pedagogic beliefs. Epistemic beliefs are teachers' personal conventions about what the knowledge is and how is it acquired (Berger et al., 2018). Chan and Elliott (2002, 2004) presented a model of epistemic beliefs and their study disclosed four constituting factors: innate/fixed ability, learning effort/process, expert knowledge/authority/criticizing authority, and certainty knowledge (Ekinci, 2017).

Where Innate/fixed ability describes that we are born with fixed believes and ideas. It bars us from doing anything new and we cannot make ourselves smarter as our abilities are fixed at birth. It is believed that knowledge is unchangeable and one's ability for gaining or reshaping knowledge is limited (Heider, 2019). Secondly, **Learning Effort/Process** intimates that learning is not fixed and depends mostly on one's own effort. Whatever one wants to learn depends upon his/her effort. It is believed that knowledge is reshapeable and changeable (Ott, 2018). Thirdly, Criticizing Authority

(Authority/Expert Knowledge) shows one's belief that an authority is there which transfers the knowledge but at the same time enables him/her to challenge the facts even given by that authority and lets one to question the advice from experts (Laniuk, 2020). Lastly, Certainty knowledge explains that one has no logical ground of doubting his/her knowledge as it is acquired through some process of hard work (Reva, 2018).

Sheehy et al., (2019); Bahcivan et al., (2018) and Dorsah et al., (2020) claim that pedagogical beliefs are derived from the teachers' epistemic beliefs. These are divided in two categories: (a) Knowledge transfer (b) kn (Kazmi et al., 2021).

Knowledge transfer is thought as traditional method usually refers to teacher-centered and content-centered approach making students as passive listeners. (Kazmi et al., 2021). They believe that it is best for teacher to exercise maximum authority in the classroom and good teaching occurs when students are provided with knowledge instead of encouraging them to discover it. They further assert that learning occurs only when students listen to teacher without putting up any questions and absorb as much information as possible. Other approach refers to the active participation of student to build knowledge and to be self- reflective and independent self-learners. (Kazmi et al., 2021). They believe that a good classroom has a democratic atmosphere where students are full liberty to stimulate and interact and learning happens when students are given opportunities in abundance for expression and discussion of ideas. Further, understanding students' feeling is important for teachers and emphasis of teaching should be to help students to build knowledge through their own leaning experiences.

Talking about instructional practices, we know that teachers have to impart knowledge in the classroom with a sole objective of motivating students towards taking interest in learning activities and their epistemic and pedagogic beliefs play vital role to decide about adoption and application of suitable instructional methods to create a conducive learning environment in the classroom. These methods are referred to as teachers' instructional practices (Rice & Foster, 2016). Literature review advocates three type of interrelated instructional practices:

1. Contemporary practice known as traditional popular instructional practices
2. Focused instruction refers to teacher centered where teacher leads and build the rationale of the lesson.
3. Flexible grouping practice is a student-centered approach where teacher motivates students. for taking responsibility of their own learning and achieve required milestone (Kazmi et al., 2021).

Teachers' epistemic and pedagogic beliefs have strong effects on their teaching abilities and play vital role in their instructional practices (Wu et al., 2020). Sheehy et al., (2019) narrated in their research that teachers epistemic and pedagogic beliefs influence their instructional practices. Yang et al., (2020) claimed that teachers' epistemic and pedagogical beliefs and their inclination towards particular instructional practices are significantly related with each other. Beliefs of teachers about knowledge, knowing and students' learning have direct influence on their classroom tasks and practices (Tamir, 2020).

Although the researches indicate that teachers' epistemic and pedagogic beliefs strongly affect their classroom instructional practices, they have some departmental restrictions and have to teach certain things which may be contrary to their beliefs. Teachers' personal beliefs and ground realities may not be compatible with each other and their classroom instructional practices may be quite different from their beliefs (Ovbiagbonhia et al., 2020).

Further, teachers' beliefs are supposed to change with social change, training and change in education but their practices do not (Vogt et al., 2020). They may not be able to apply their beliefs in the classroom due to legal restrictions. Therefore, teachers' beliefs are still

to be examined to clarify that how they play role in development of their classroom instructional practices (Lane & Ríordáin, 2020).

This article is intended to find out the epistemic and pedagogic believes of university teachers and its relation with the instructional practices.

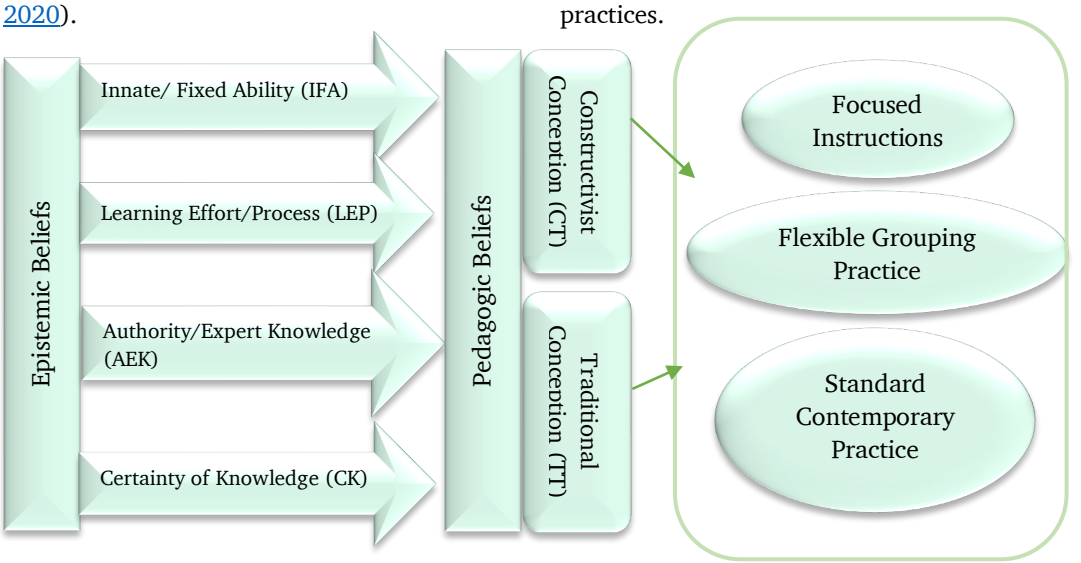

Figure 1: Below sis conceptual representation of the study.

Methodology

Out of 29 universities in Punjab, both public and private inclusive, 05 and 04 were selected from public and private sectors respectively using proportionate sampling method. 100 teachers were selected conveniently from social sciences, natural sciences and business sciences to conduct a quantitative survey and were contacted both personally and electronically to collect desired information.

Descriptive statistics was used for demographic variables. ANOVA, sample t-test, and Regression analysis was used to analyze the data and answer the research questions.

Instrument For Data Collection

Researcher adapted an instrument, developed by Lee et al., (2013) to measure teachers' epistemic and pedagogic beliefs and their instructional practices. Part I of the tool collected demographic information and part II with 45 items and a Likert-type scale was used.

Data Analysis and Interpretation

Table 1. Mean scores and standard deviations of variables' dimensions

Variables	Dimensions	Means	SDs
Epistemic Beliefs	Innate/Fixed Ability	2.15	.428
	Learning Effort/Process	3.19	.445
	Criticizing Authority (Authority/Expert Knowledge)	2.76	.292
	Certainty Knowledge	2.82	.445
Pedagogic Beliefs	Constructivist Conception	3.41	.428
	Traditional Conception	2.19	497
Instructional Practices	Standard Contemporary Practice	3.19	.413

Variables	Dimensions	Means	SDs
	Focused Instruction	3.06	.394
	Flexible Grouping Practice	2.94	.456

Table 1. provides means & standard deviations of different dimensions of variables of study. The teachers adopting standard contemporary practice (mean=3.19) and believing in Learning Effort/Process (mean=3.19) with pedagogy of Constructivist Conception (mean=3.41) were found in majority whereas least of them bothered for flexible grouping practice (mean=2.94) with Innate/Fixed Ability (mean=2.15) and pedagogy of traditional conception (mean=2.19)). Remainders were moderate.

Table 2. Comparisons of epistemic beliefs, pedagogic beliefs and instructional practices by age

Factor: Age		SS	df	MS	F	Sig.
IA	Between Groups	1.140	3	.380	2.091	.101
	Within Groups	62.906	346	.182		
	Total	64.047	349			
LE	Between Groups	.312	3	.104	.523	.667
	Within Groups	68.912	346	.199		
	Total	69.225	349			
CA	Between Groups	.478	3	.159	1.881	.132
	Within Groups	29.285	346	.085		
	Total	29.762	349			
CK	Between Groups	4.637	3	1.546	8.300	.000
	Within Groups	64.427	346	.186		
	Total	69.064	349			
CC	Between Groups	1.156	3	.385	2.127	.097
	Within Groups	62.698	346	.181		
	Total	63.854	349			
TC	Between Groups	1.664	3	.555	2.266	.081
	Within Groups	84.707	346	.245		
	Total	86.371	349			
SCP	Between Groups	.924	3	.308	1.818	.143
	Within Groups	58.599	346	.169		
	Total	59.523	349			
FI	Between Groups	.855	3	.285	1.852	.137
	Within Groups	53.264	346	.154		
	Total	54.120	349			
FGP	Between Groups	2.226	3	.742	3.651	.013
	Within Groups	70.314	346	.203		
	Total	72.540	349			

Table 2 showed that all dimensions of pedagogic beliefs and instructional practices had value of p> .05 which meant that respondents falling in different qualification brackets had no significantly different views regarding pedagogic beliefs and instructional practices.

Table 3. Comparison of epistemic beliefs, pedagogic beliefs and instructional practices by experience

Factor: Experience		SS	d.f	MS	F	Sig.
IA	Between Groups	1.315	4	.329	1.808	.127
	Within Groups	62.732	345	.182		
	Total	64.047	349			
LE	Between Groups	.669	4	.167	.842	.499
	Within Groups	68.555	345	.199		
	Total	69.225	349			
CA	Between Groups	1.519	4	.380	4.639	.001
	Within Groups	28.243	345	.082		
	Total	29.762	349			
CK	Between Groups	3.370	4	.843	4.425	.002
	Within Groups	65.693	345	.190		
	Total	69.064	349			
CC	Between Groups	1.467	4	.367	2.028	.090
	Within Groups	62.387	345	.181		
	Total	63.854	349			
TC	Between Groups	1.253	4	.313	1.270	.282
	Within Groups	85.118	345	.247		
	Total	86.371	349			
SCP	Between Groups	.548	4	.137	.802	.525
	Within Groups	58.974	345	.171		
	Total	59.523	349			
FI	Between Groups	1.292	4	.323	2.110	.079
	Within Groups	52.827	345	.153		
	Total	54.120	349			
FGP	Between Groups	.993	4	.248	1.197	.312
	Within Groups	71.547	345	.207		
	Total	72.540	349			

Table 3 has compared respondents' views regarding their epistemic and pedagogic beliefs and their instructional practices making experience of teaching the basis of comparison. Showing significant difference on their views on standard contemporary practice, the respondents expressed insignificantly different views on all other dimensions of beliefs and practices.

Table 4. Analysis of Variance Table for knowing the effect of independent variables on dependent variable

Model	SS	df	MS	F	Sig.
Regression	1004.118	2	502.059	30.149	.000[b]
Residual	1615.332	97	16.653		
Total	2619.440	99			

a. Dependent Variable: Instructional Practices
b. Predictors: (Constant), Epistemic Beliefs, Pedagogic Beliefs

Table 4 containing ANOVA predicts that the regression equation suitably fits the data and reveal that epistemic and pedagogic beliefs of teachers have similar effects on their

instructional practices. The significance value rests at .000 showing a relationship between the three variables. F ratio in the table tests whether overall regression model is a good fit for the data. The table shows that the independent variables statistically significantly predict the dependent variable, F (2, 97) = 30.149, p=.000 i.e. the regression model is a good fit of the data.

Table 5. Regression analysis showing an effect of epistemic. and pedagogic beliefs on instructional practices of university teachers Coefficients *

Model	Unstandardized Coefficients		Standardized Coefficients	t	Stg
	B	Sid Error			
(Constant)	7.173	5 158		1 390	168
Epistemic Beliefs	.386	099	146	3 895	000
Pedagogic Beliefs	.625	145	313	4 311	000

Table 5 provides us with the necessary information to predict effect of epistemic and pedagogic beliefs on instructional practices. Unstandardized coefficients indicate how much the dependent variable varies with an independent variable. The unstandardized coefficient, B for epistemic beliefs is equal to .386, which means that for every one unit change in epistemic beliefs, the instructional practices will be changed by .386 unit and every one unit change in pedagogic beliefs will bring .625 unit change in instructional practices. It can also be concluded that both epistemic and pedagogic beliefs with values of p .000 < .05 and .000 < .05 respectively have significant effects on instructional practices.

Discussion

Since teachers' epistemic and pedagogic beliefs and their instructional practices have never been discussed in Pakistan, the present study was conducted with the intention of filling this gap. Findings of the study explained teachers' epistemic and pedagogical beliefs and instructional practices.

It was further disclosed that age, qualification and experience of participants have no effect on their epistemic and pedagogic beliefs.

Regression analysis allowed researcher to conclude that independent variables have strong effect on dependent variable and epistemic and pedagogic beliefs of participants play a vital role in developing their instructional practices and it was revealed that all three variables of study namely epistemic beliefs, pedagogic beliefs and instructional practices have a significantly positive relationship with each other.

Mahasneh (2018) proved in his study that learning effort/process and constructivist conception respectively were most common epistemic and pedagogic beliefs respectively among teachers which exactly matches with the finding of this study which depicts that Pakistani university teachers strongly believe in students' learning effort/process. They were found to be believing that students' ability is not fixed and that it can be polished and flourished with students' efforts. The students should be motivated to actively participate in the classroom to explore, discuss and express their ideas and construct knowledge from their own leaning experiences.

This study defensed the narration of Heider et al., (2019) for innate ability and learning effort being repellant to each other and proved that teachers believing in students' innate/fixed ability, don't believe that students' learning effort can make any difference and that one may not have any belief in the authenticity of knowledge attained through his/her own hard work.

Conclusions

Epistemic and pedagogic beliefs of the study participants with their instructional practices were explored in the study and direct or indirect influence of participants' beliefs was found on their instructional practices. The

study findings are supposed to be of great help to understand participants' epistemic and pedagogic beliefs along with their instructional practices which may prompt an awareness among them to either rectify or modify their beliefs, if possible, as their beliefs have been influencing their instructional practices in a positive or negative way. Professional competence of the participants may be enhanced due to such rectification or modification.

Recommendations

The education system of Pakistan is a rotted one and nothing regarding teachers' beliefs and practices is seen in our syllabi or in teacher education programs at university level. Such programs need drastic change with high weightage to teachers' beliefs and practices enhancing their critical skills and expertise.

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