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A Study of University Teachers' Approaches to Teaching at Undergraduate Level in Punjab, Pakistan

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Abstract

Teachers' approaches to teaching at undergraduate level in universities have long been considered very significant for students' learning. Teachers can develop critical thinking skills in students at this stage which in turn aid problem solving, that is essential to the social and economic development of a nation. This study aims to explore teachers' approaches to teaching at university level in Punjab, Pakistan through quantitative research and adaptation of the Approaches to Teaching Inventory (ATI), a reliable and valid survey instrument. Cluster stratified random sampling technique was applied to select one hundred and twenty teachers from eight public and private Universities. The results of this study indicate that the teachers use both Conceptual Change-Student Focused (CCSF) and Information Transmission-Teacher Focused (ITTF) approaches. A comparison of approaches to teaching in public and private universities showed no significant difference between them. However, the results of this study indicated that female teachers use ITTF approach more than male teachers. Professional development of university teachers regarding approaches to teaching is recommended based on the findings of this study.

Keywords: University teaching, Teaching styles, Metacognition and Critical thinking

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Introduction

As a developing nation, Pakistan requires individuals who can help it prosper nation through high quality education. This is not possible without the provision of good learning environments and high quality teaching in higher education institutions. Pakistan is in dire need of improvements in both teaching environment and standards of learning; benefits which may be derived from research on teachers approaches to teaching at universities (Trigwell and Prosser, 2004).

Teachers' approaches to teaching are hugely influential in leading student learning and form an essential basis for student approaches to study and learning (Trigwell and Prosser, 2004, Richardson, 2005). Studies on teacher-centered and student-centered approaches reveal that teachers, who concentrate on lecture and the content use a *teacher-centered* approach, realising teaching primarily as the transmission of knowledge (Trigwell, Prosser, Martin, and Ramsden, 2005). Thus, they emphasize structuring, organizing, and delivering the course content to make it easy to understand for students. At the opposite end of the continuum, teachers viewing teaching primarily as a process of actively facilitating students' learning, or supporting attitudinal or conceptual change in students, are categorized as *student-centered*. These teachers concentrate on what students are doing. They activate students (Samuelowicz and Bain, 2001; Trigwell & Prosser, 1996; Prosser and Trigwell, Waterhouse,1999; Vermunt and Verloop, 1999; Kember and Kwan, 2002).

This study explores teachers' approaches to teaching by use of a small-scale survey of teachers' approaches to teaching in higher education and investigates whether or not they use a student-centered approach to prepare students for future professional life.

Literature Review

Approaches to Teaching

Research in higher education has identified two approaches: CCSF- "conceptual change/student-focused" and ITTF- "information transmission/teacher-focused". Such research helps us understand teaching and learning with respect to specific contexts and educational priorities. In this paper, the educational priority of critical thinking is defined as "the intellectually disciplined process of actively and skillfully gathered from, or generated by, observation, experience, reflection, reasoning, or communication, as a guide to belief and action". Tempelaar (2006) sees critical thinking as meta-cognition or "thinking about thinking". Snyder and Snyder (2008, p.94) see critical thinking as "…not

an innate ability that one is born with nor one (that is)taught specifically in schools nor one that one can learn this skill by himself". This position is also held by Ladsman and Gorski (2007) ; Rippen, Booth, Bowie, and Jordan (2002).

In other words, students may be taught critical thinking in order to make them think creatively (Snyder and Snyder, 2008, 94), who add that "critical thinking is a product of education, training, and practice". Moreover, instructional approaches that involve learners' higher order thinking skills help them to develop better critical thinking (Duplass and Ziedler, 2002; Hemming, 2000). Lizzio, Wilson and Simons (2002) established direct and indirect effects of good teaching on three educational outcomes by testing the relationship between students' perceptions of good teaching practices and learning strategies. In their study, they characterized good or effective teaching as a course or program having 'appropriate assessment, clear goals and standards, and emphasis on independence'. In their single institution sample, they found that good teaching has a positive relationship with a deep approach to learning and a negative relationship with a surface approach. The studying approach, in turn, affected grade point average, satisfaction, and self-reported development of generic skills (e.g. problem-solving and collaboration).

Various studies (Al-Zyadat, 2003) were carried out in order to establish how different teaching methodologies affect students' critical thinking skills. These studies appear to suggest that it is possible to teach and develop critical thinking skills. Teachers' teaching approaches are related to students' studying approaches to study.

The majority of students, who have student-focused teachers, tend to take a deep approach (try to make sense of material) instead of surface approach (try to memorize material) (Trigwell, Prosser, and Waterhouse, 1999). A number of studies have revealed that students who take a deep approach gain better learning results, typically in understanding and developing new conceptions of the topics. Thus, in the light of this point trainers attempting to change teachers' approaches expect to improve student learning practices and results. In a comprehensive study of a training program, Ho (2000) has verified this point of influence on student approaches to studying based on teachers' approaches to teaching.

A more significant result was provided in a research study by Ramsden and Entwistle (1981). The study comprised students from 200 British universities with samples from a broad range of 66 departments in social sciences, humanities, sciences and engineering. Some departments did foster adoption of deeper approaches for their students although no relationship between the patterns of variation in student study and learning approaches was established. Such departments had features such as "avoidance of overloading", "good teaching" and "greater freedom in learning".

Ramsden and Entwistle described a teacher as "good" if they were prepared to offer advice and help with study matters, understood student difficulties and supplied material to students that were suitable for them. The authors described "freedom in learning" as allowing students to choose tasks and methods to accomplish requirements. Other features that promoted deeper learning included setting standards and clear objectives for academic work, less importance on formal teaching, and a programme or course which is relevant to student career aspirations together with good relations between students and teachers.

Teaching Beliefs, Practices and Strategies

All teachers hold personal conceptions of approaches to teaching resulting from their experiences as students and teachers and their training (Dall'Alba, 1991; Pratt, 1992; Ramsden, 2003; Samuelowicz and Bain, 2001). As already stated, research on approaches to teaching by teachers has revealed two qualitatively distinct groups. One is the 'learning focused' approach in which student is facilitated to learn and construct knowledge, while the second one, known as "content focused approach", is that in which teaching is regarded as information transmission while learning as grasping and gaining hold on transmitted knowledge (Kember, 2000; Prosser and Trigwell, 1997). Among these, Kember, 2000) established four subcategories of teaching: teaching as transmitting information; teaching as making information accessible to students; teaching as fulfilling learning requirements; and teaching as facilitating process to produce independent students.

Åkerlind (2005) argues that individual academics perceive the sphere of teaching in different ways and therefore have different conceptions about it. She describes teacher-centered focus as a less sophisticated approach of teaching than learner-centered focus and on that is therefore likely to produce low-quality learning results amongst students. She suggests that teacher-centered approaches and student-centered approaches do not constitute two different categories, but rather that they relate to each other, just as so too do conceptions of learning and teaching (Åkerlind, 2003).

Some studies have investigated the correlation between teachers' conceptions and student learning (Hanbury, Prosser, and Rickinson, 2008; Trigwell, Prosser, and Waterhouse, 1999) other studies here explore the teaching environment or discipline in relation to approaches to teaching. Prosser and Trigwell, (1997) argue that changes in learning environment prompt changes in teaching practices. Gibbs and Coffey (2004) explored the effects of teachers' initial training to teaching and learning approaches. They agree that teaching approaches are a manifestation of the teachers' conceptions, practices and beliefs, mainly in interaction with their students but also as a reflection of their attitudes and skills when working with other colleagues, at a particular period of time and given a specific context. Teachers' educational beliefs also influence and determine their teaching behaviour.

According to Marcelo (1987), some teachers experience conflicts between their beliefs and behaviour in class as their behaviour does not correspond to their beliefs and vice versa. This view is supported by Samuelowicz and Bain (2001), who state that teachers have 'working' conceptions of teaching and 'ideal' conceptions of teaching. Therefore, even if they believe that student-centred approaches are best, they may not act on this belief. It is likely that during the first years of teaching, educational beliefs and classroom behaviour may conflict. Over time, teachers are likely to strengthen their beliefs, which may also result in an increased consistency with their teaching behaviour. Consistency between beliefs and behaviour are also increased if beliefs are adjusted towards behaviour.

Conceptions of Teaching in Higher Education

In similar teaching situations, different teachers adopt different approaches to teaching. Some researchers have credited this to constitutional characteristics of the teachers themselves such as different lecturing techniques, thinking methods, or personality traits. Yet, it has been debated by others that varied methods of teaching reflect different core ideas of teaching itself. Certainly, investigations based on interviews have revealed a multitude of different teaching notions. Kember (1997) studied these investigations and proposed that the majority of them congregated on five different conceptions.

Table 1
Five different conceptions of teacher to teaching by Kember (1997)

Number	
1	Transmitting information.
2	Imparting transmitting structured knowledge.
3	Interaction between the teacher and the student.
4	Assisting understanding on part of the student
5	Bringing about intellectual development and conceptual change in the student

It is assumed by many researchers (Gibbs, and Coffey, 2004; Kember, and Kwan, 2002) that with experience, the ideas of teachers in higher education begin to change. This change is usually from being more content orientated and teacher- centered to being learning-orientated and student- centered.

However, little proof is given that with increased teaching experience, a teacher's ideas of teaching develop. (Richardson, Newstead, Mayes, Hartley, and Norton 2005). Also, little proof is that the ideas of teaching transform due to formal training. However, Ho (2000) discovered significant findings from a teaching program that aimed at producing conceptual change. In the United States, the results of surveys conducted by Gibbs and Coffey (2004) showed that views concerning teaching differ distinctly across the disciplines, and that the distinctions must be linked with the views of teachers about their own discipline. Norton, Richardson, Hartley, Newstead, and Mayes (2005), through a questionnaire-based study, were able to ascertain that notions on teaching differed across the disciplines. In many universities, teachers in the same disciplines had similar ideas about their profession. Comparisons on notions of teaching and approaches to teaching were explored by Trigwell and Prosser (1999) in relation to 24 teachers who taught the courses of chemistry and physics in first-year.

It was discovered that teachers holding specific notions of teaching inclined to take adopt commensurate teaching methods. Therefore, teachers having 'learning-orientated' or 'student- centered' conception of teaching are more likely to adopt a teaching approach which is student-focused. In Prosser and Trigwell (2005) study, many of the teachers described methods of teaching which were more "teacher focused", were less "learner-focused" than would be anticipated from the described teaching notions. Thus, if higher education institutions want a more student-focused approach among their teachers, these institutions need to make sure that a commensurate conception of teaching is held among their teachers. A brief training course cannot achieve this result.

Norton, Richardson, Hartley, Newstead, and Mayes, (2005) confirmed the flow away from "learner focused" approaches and towards "teacher focused" approaches due to circumstantial reasons disturbing teachers' planned approaches. Experienced teachers holding conventional, "teacher focused" teaching conceptions are likely to have concerns on coverage as well as curriculum standards (Estes, 1999). Students can also collaborate in persuading their teachers to accept a more traditional approach (Newman, 2004).

In conclusion then, the literature reviewed indicates that approaches of students are affected by teaching approaches. Critical thinking skills can be fostered by a student-centered approach to teaching. Teachers need to develop student skills in preparation for practical life by following teaching approaches that create learning opportunities to encourage students to employ critical thinking. There is a higher chance that students will develop their creative thinking ability and seek innovative solutions to given problems if the conceptual change/student focused (CCSF) approach to teaching is used. From the review of literature, the present study attempted to identify teaching approaches of teachers in eight universities in the Punjab Province of Pakistan.

Research Objectives

Following objectives of the study were to:

- explore the approaches to teaching teachers use at undergraduate level in the universities of Punjab
- find out the differences in teaching approaches between male and female teachers
- find out the universities-wise difference in approaches to teaching at undergraduate level
- find out the designation-wise difference in approaches to teaching, the teachers used at undergraduate level in universities?

Research Questions

Four research questions were developed from the review of literature:

1. What approaches to teaching do teachers use at undergraduate level in the eight universities?
2. What are the differences in teaching approaches between male and female teachers?
3. What is the difference across the universities in approaches to teaching at undergraduate level?
4. What is the designation-wise difference in approaches to teaching, at undergraduate level in universities?

Research Methodology

A survey design is used and reasons to prefer this design over others was that the study explored the approaches of teachers and surveys can be used to investigate the attitudes and beliefs that are integral to the choice of approach. In this study we are focused on the nature of the respondents' perceptions, values and feelings and the same design was used by Wang, Pascarella, Nelson, Laird, and Ribera, (2015) and Trigwell and Prosser (2005) in similar research.

Population and Sampling

To attain a representative sample of teachers in higher education teaching at undergraduate level, the population was divided into two strata; teachers teaching in pure sciences departments and teachers teaching in social sciences departments. So, the sample of the study constitutes the teachers at various higher education institutes, in departments of natural sciences and social sciences. The data was collected from teachers in the social and natural sciences departments in private or public universities which were recognized by the Higher Education Commission as degree awarding institutions. According to the Higher Education Commission of Pakistan, there are 43 universities in Punjab Province; 22 public and 21 private.

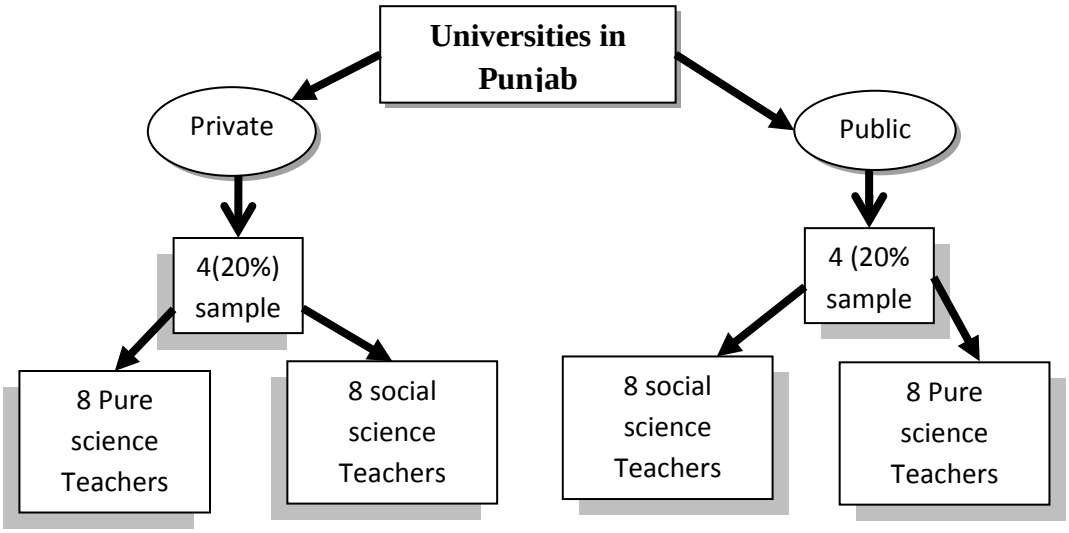

Figure 1. *Research Sample*

Instruments

The core objective of this study was to explore the approaches to teaching by teachers at university level and its relationship to student learning. The teachers themselves are an essential source of information with regard to practices and approaches of teaching in the classroom. For this purpose, a questionnaire was developed by using the key constructs used by Trigwell (2007) in his 'Approaches to Teaching Inventory'.

The participants were assured that the questionnaire was confidential, and would be utilized for the purposes of research only. The questionnaire was used to ask teachers about their approach to teaching particularly for the course they were teaching. Each statement was about the activities in the classroom and was rated by using a scale.

The questionnaire was based upon five conceptions of teaching described by Richardson (2005) 1) Imparting information, 2) Transmitting structured knowledge, 3) Interaction between the student and the teacher, 4) Facilitating understanding on part of students, 5) Inducing concept changes and intellectual development in students.

Reliability Evidences of Approaches to Teaching Inventory

In order to make sure that the survey instrument would likely generate the same results across recurrent measures, whether within the same population or a similar population, reliability testing is essential. Reliability testing used Cronbach's alpha coefficient (0.83) to ensure that the study meets the test for producing steady and reliable results. The test verified that the ATI, as adapted, is a vigorous and statistical approach for measuring approaches to teaching and learning.

Data Collection and Analysis

The researchers personally visited each class of every department of the University selected for this study. Confidentiality was assured and appropriate guidance was provided to the teachers so that they could easily complete the inventory. The researchers asked the teachers to think only what she/he did for this particular course. The researchers collected the completed questionnaires from the teachers.

The data was entered in the computer using SPSS 16 for scoring and onward identification of teachers' approaches to teaching. Both diagnostic and analytical results were provided by the use of this instrument during the course of this research. In order to assign teachers to different teaching approaches, first the mean score of each group of teaching approaches was computed.

Data were analysed by applying an independent sample t-test, and a one way ANOVA. Results are presented in tables. The data was collected by using "Teachers Approaches Inventory", as adapted. Descriptive statistics, including frequencies, means and standard deviations, were calculated to summarize the responses to the scale wise items of ATI.

The major approaches to teaching teachers used at undergraduate level

The university teachers were compared on two approaches. The frequency of teachers using Conceptual Change/Student Focused (CCSF) and Information Transmission /Teacher Centered Approach (ITTF) was determined.

Table 1

Number of Teachers using Conceptual Change/ Student Focused (CCSF) and Information Transmission /Teacher Centered Approach (ITTF)

Variables	Frequency	Percent
CCSF	80	62.5
ITTF	48	37.5
Total	128	100.0

Table 1 show that 80 teachers are using Conceptual Change/ Student Focused (CCSF) and 48 teachers Information Transmission /Teacher Centered Approach (ITTF) at undergraduate levels in universities.

The differences in teaching approaches between male and female teachers

In order to answer this research question, the researcher compared the Male/Female university teachers on two approaches to teaching. For this purpose, first mean score and SD of male and female teachers were computed and afterward an independent t-test was used to compare mean scores of male/female teachers from sample universities on Conceptual Change/Student Focused (CCSF) and Information Transmission/Teacher Focused (ITTF) approaches to teaching. The results are shown below.

Table 2

t-test Comparison of Male and Female teachers Conceptual Change/Student Focused (CCSF) approach to teaching

Gender	*N*	*M*	*SD*	*T*	*df*	*p*
Male	66	3.51	1.01			
				1.06	126	.29
Female	62	3.70	0.91			

According to the results shown in Table 4.2 there is no significant difference between male and female University CCSF Approaches to Teaching mean scores(p>05).

Independent t-test revealed that male and female teachers, who use CCSF approaches, do not differ significantly (p>05).

Table 3
t-test comparison of Male and Female using Information Transmission /Teacher Centered (ITTF) Approach

Gender	*N*	*Mean*	*SD*	*t*	*Df*	*p*
Male	66	3.41	..83			
				-2.13	116.12	.035*
Female	62	3.67	.57			

According to the results shown in Table 3, there is a significant difference between male and female University ITTF Approaches to Teaching mean scores(p<.05).

Independent t test revealed that male and female teachers who are using ITTF approaches differ significantly, although more female teachers tend to use ITTF approaches (p<.05).

The differences in approaches to teaching between teachers of different universities

The teachers from the different universities were compared on the two teaching approaches. For this purpose, first mean score and SD of sample universities teachers were computed and afterward a one way ANOVA was used to compare mean scores of teachers from sample universities on two teaching approaches. The results are shown separately.

Table 4
ANOVA for teachers using CCSF approaches in different universities

	Sum of Squares	*df*	Mean Square	*F*	*p*
Between Groups	12.762	7	1.823	2.063	.053
Within Groups	106.059	120	.884		

Table 4 indicated that there is no significant difference across universities in teachers using Conceptual Change/Student Focused (CCSF) approaches to teaching.

Table 5
ANOVA for teachers using ITTF approaches in different universities

	Sum of Squares	df	Mean Square	*F*	*p*
Between Groups	6.044	7	.863	1.704	.114
Within Groups	60.810	120	.507		

Table 5 indicated that there is no significant difference within universities in teachers using Conceptual Change/Student Focused (ITTF) approaches to teaching.

Discussion, Conclusions and Recommendations

The results showed that there were more teachers using the CCSF approach than teachers using the ITTF approach at under-graduate level.

There was no significant difference between male and female teachers in using CCSF approach. But there was significant difference in using the ITTF approach between male and female teachers. Female teachers were more likely to use the ITTF approach than male teachers. There was no significant difference in teachers of different universities using CCSF approach. There was no significant difference in teachers of different universities using ITTFF approach.

There was a significant designation-wise difference in the use of CCSF approach. Associate Professors were more likely to use the CCSF approach than Assistant Professor and Lecturers more likely to use CCSF than Assistant Professors. There was no significant difference designation- wise in use of ITTF among teachers.

The study revealed that there were more teachers using the CCSF approach than teachers using the ITTF approach. 73(61%) teachers in the sample adopted the "Conceptual Change-Student Focused" (CCSF) approach as compared to 47(39%) teachers who used the "Information Transmission-Teacher Focused" (ITTF) approach.

The results confirmed previous studies that showed teachers have a preferred or predominant teaching approach which can depend upon their beliefs, learning and course demand (Snyder and Snyder, 2008, Ladsman & Gorski, 2007, Rippen, Booth, Bowie, and Jordan, 2002). It also identified the relationships between teachers' approaches to teaching, their perceptions of the teaching environment and their "conceptions of teaching" (Trigwell and Prosser, 2004). In addition to that, it has revealed various tools that can be employed in order to develop our understanding of teaching and learning in particular contexts.

The results confirm earlier studies that showed that there is no difference between male and female teachers in using the CCSF approach. However a difference between male and female teachers was reported in the use of the ITTF approach: female teachers were more likely to use the ITTF approach than male teachers. Trigwell, Prosser, Martin, and Ramsden, (2005) noted that teachers who use ITTF tend to focus their teaching on assessment and provide their own notes to the students. This seems to restrict rather than permit and facilitate deep learning.

The study revealed that there was no significant difference in teachers across the different universities. The study found a significant difference experience-wise in teachers using teaching approaches. Less experienced teachers were more likely to use the CCSF approach than more experienced teachers. More experienced teachers were more likely to use the ITTF approach than less experienced teachers. Young teachers may be more likely to use a "Conceptual Change" driven approach than experienced teachers. Experienced teachers may find it difficult to change their existing practices. The results confirmed the results from an earlier study by Trigwell, Prosser, Martin, and Ramsden, (2005) who found that less experienced teachers were using CCSF more than experienced teachers.

The study revealed that teachers use both approaches, at higher education institutions, depending upon the demand of the discipline, designation, experience, gender and their own experiences, beliefs and attitudes. The results indicate that university teachers of undergraduates should be encouraged to apply "Conceptual Change –Student Focused Approach" by means of a systematic continuing professional development offer.

The particular focus and targeting of such an offer could be specified on the basis of further research, for example on why female teachers and more experienced teachers are less likely to use student (learning) centered approaches and whether this is universal or something particular to Pakistan.

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