

Research-Oriented Teaching and Students' Academic Performance: Perception of University Teachers

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Abstract

The role of a teacher and teaching methodology is very important to transfer knowledge and content to students. The traditional ways of teaching make the students passive listeners and knowledge observers only. Now a day's trend of teaching has been changed from traditional ways to research oriented teaching. These reforms in teaching-learning environment make the students more critical, innovative, problem solvers and active learners. Now students under the guidance of the teachers engage themselves in research related and problem solving activities and find out the solutions of the problems. This paper intended to find out the perception of teachers regarding the effect of research oriented teaching strategies on the performance of university students. Data were collected from 100 university faculty members of five public cadre universities by employing convenient sampling technique. The results of data analysis showed that teachers were aware about the mode of research oriented teaching. Results of regression analysis also made it clear that students' performance was affected by teacher's research oriented teaching.

Keywords: Research oriented teaching; students' performance; teachers' perception; emerging trend

Introduction

Teaching is the pathway to deliver the knowledge to the students. Success of teaching and learning largely depends upon the teachers and teaching strategies which teachers adopt to convey the content to the students. To communicate and provide instruction to all the students cannot be dealt in a single way. Teaching is not only concerned with the transmission of knowledge and information but to train the individual for prospective requirements. Previously teachers follow traditional ways to convey the content and to teach the students. Teachers personally select, organize, and convey the knowledge to the students and students just has to listen only. In this situation students became passive listeners and they accept everything that teachers said, without confirming it (Zhang, Xiong, Ding, Wang & Ye, 2014). It was a traditional concept of teaching. During emerging trends in the field of education knowledge cannot be kept as the center of teaching. Now era has changed from passiveness to activeness. Due to the the evolution of technology just knowledge transmission is not considered sufficient. Students should be taught in such a way that they can develop in themselves the abilities of critical thinking, creativity, collaboration, and interactive thinking etc.

Traditional ways of teaching are now transforming into research based and research oriented teaching, especially in the sector of higher education. Higher education is the sector which is considered to be a house where innovative, creative, and critical thinkers are produced. At the level of

higher education students have the opportunities to display their best performance, enthusiasm, creativity and they add to the corpus of knowledge. Traditional way to teaching cannot develop such innovative competencies in students. Traditional methods of teachings do not incorporate the graduates with problem solving attitude (Jiang and Luo, 2011) and critical thinking abilities.

Due to shifting paradigm of teaching from traditional methods of teaching to research oriented teaching many changes come in current method of teaching styles. Research oriented teaching is emerging trend in higher education, and widely used in developed countries. Now almost all the universities have shifted their role from teaching institutions to research institutions. To inculcate the research attitude among higher education graduates research oriented teaching is the new idea and new teaching reform (Jiang and Luo, 2011) which have adopted most of the research related universities where those people taught who discover, create, and apply, as well as transmit insights about subjects in which they are expert (Boyer Commission on Educating, 1998). Research oriented teaching is a type of teaching in which teachers play their role as an instructor and under their guidance and support students build a sense of discovering the problems and creativity (Jiang and Luo, 2011) and teachers only guide the students to plan about the exploration and solving of problems (Xingong and Xianjun, 2012). Through this mode of teaching students become active (Xingong and Xianjun, 2012), acquire new information, and adds into the corpus of knowledge (Zhang et.al, 2014). In the process of research oriented teaching teachers only create the problematic environment for research and guide the students to solve the issue related to problematic environment. Students are expected and required to explore, think, critically evaluate, and apply knowledge to solve the problem (Shi, Xue, and Zhang, 2015). White Paper of UK government (2003) explained that only those universities can compete the standard of international level of education which has research culture otherwise they would be the teaching universities only.

In research oriented teaching teachers assume about the students that they are already having basic knowledge and they can use problems to stimulate their interest. Research oriented teaching train students towards creative and innovative thinkers. Basic purpose of research oriented teaching is to guide the students for self-exploring and acquisition of knowledge through the scientific method (Zhang et.al, 2014). To discourage the traditional cramming in teaching methodologies the notion of research based teaching for learning emerged. It is considered that to promote the interaction between research and teaching, it is necessary to promote scientific research into teaching (Shi, Xue, and Zhang, 2015).

Research oriented teaching clarifies the existing knowledge and generate new knowledge (Trempe, 2010). In research oriented teaching teachers just create the problematic situation and students make strategies to overcome those problems. They ask questions related to the problem and gather information to explore the problematic areas (Xingong and Xianjun, 2012). On the basis of gathered facts they draw conclusions and apply new knowledge to cope with specific problematic situation (Zhang et.al, 2014).

Research oriented teaching depends upon research and produces outcome in the form of new knowledge. Zhang et.al (2014) has explained three modes of research oriented teaching, (i) problem-solving (ii) independent research; and (iii) projects. Xingong and Xianjun (2012) point out in their study that to develop research oriented teaching mode is good to explore the wisdom of students, to make them active thinkers and improve their innovative ability. Some common research based teaching strategies are; active teaching (Prince, 2004), cooperative learning (Prince, 2004), problem-based learning (Prince & Felder, 2006), service learning (Oakes, 2009), project method, interactive learning etc. According to Scott (2002) teaching and research are interrelated now and in a knowledge society all graduates should be researchers. These graduates should not only produce the

knowledge but should be able to cope with the risks and uncertainties which advanced researches have created.

Cooperative Teaching

Cooperative learning class is structured around small groups and projects are specified to each group to complete it. The success of each member depends upon the success of group. This style of teaching develops critical thinking ability among the students (Teed, McDaris, & Roseth, 2009).

Interactive Teaching

Interactive Lecture demonstrates prior understanding of core concepts. Interactive learning predicts and experiences the demonstration, and reflects the outcome (Maier, 2010).

Inquiry Based Teaching

This method of teaching engage students towards intellectual development and foster the understanding of the concepts through the research based disposition and interaction. It involves the learner to tackle real world questions issues and controversies. Develop research and communication skills and problem solving attitude among students. Inquiry based approach cover a number of other methods like; problem based, project based, and designed based methods of teaching and learning (Stephenson, 2007).

Basically teaching- research nexus is the heart of higher education (Jenkins, Healey & Zetter, 2007). Linkage between teaching and research enhance the graduates' attributes. Between teaching and research there is no single relationship but there are multiple relationships among them and issues also which are related to these relationships (Jenkins, 2004). Hattie and Marsh (1996) concluded in their study that to improve the relationship between the teaching and research nexus universities should establish mission goals.

Now the question is that how this relationship can be developed? In this perspective Hattie and Marsh (1996) provided some strategies to increase the relationship between teaching and research. These strategies are related to the improvement of the skills of staff to teach, and emphasis on the construction of knowledge by the students but not impart the knowledge in them through instruction. In research oriented teaching students have the opportunities to learn by themselves and to improve their performance.

Rationale of the Study

Research oriented teaching is a student center approach and emerging trend in education especially in the sector of higher education. European countries have widely adopted this trend of teaching to make their students more innovative and critical thinker rather than passive listeners. In Pakistan, universities are responsible to provide higher education and prepare individual for prospective needs. So, in Pakistani context this is the dire need of the university sector to convert the traditional method of teaching into newly emerging trends for the best benefit of the student. This type of change can be brought only through teachers by adopting research oriented teaching styles at universities. So this study intended to check the effect of research oriented teaching on students' academic performance in the perception of university teachers. To highlight the effect of research oriented teaching on students' performance following research objectives were developed;

- To identify the awareness of teachers about research oriented teaching.
 - To highlight the use of research oriented teaching strategies at higher education institutions.
 - To examine the effect of research oriented teaching on students' performance.
 - To highlight the facilities at institutions to encourage research oriented teaching.
- To follow the objectives of the study following research questions were framed.

1. Are teachers aware about the research oriented teaching mode?
2. Do teachers adopt research oriented teaching strategies?
3. Are students improving their learning by using research oriented teaching?
4. Do institutions provide facilities to complete the research oriented projects?

Methodology

This study was descriptive in nature and adopted survey research design. Population of the study was five universities of Punjab province. These five universities were G C University Faisalabad, Agriculture University Faisalabad, University of Sargodha, Punjab University Lahore, B Z U Multan. From five universities 100 respondents were selected as a sample of the study. To select the sample convenient sampling technique was used.

Instrument

A questionnaire was administered to collect data on the format of five point Likert scale ranging from 1 to 5. Questionnaire was developed by the researchers after studying the relevant literature related to research oriented teaching. Objectives of the study were also considered while developing the instrument. Reliability of the instrument was measured through Cronbach's alpha. Coefficient value .82 showed higher level of consistency among the items. To ensure construct validity Exploratory Factor Analysis (EFA) was employed. Bartlett's chi-square test of sphericity ($X_{(35)} = (1020.34)$) showed the fitness of model and Kaiser-Meyer-Olkin (KMO) measure .83 was greater than .5 that proved adequacy of the sample size. To ensure the content and face validity questionnaire was send to five experts in the relevant field. Only those items were kept in questionnaire that got 80% relevant response from the experts. After experts' opinion and EFA only relevant questions adopted as a part of questionnaire. So, final questionnaire was comprised of 20 items. Items of the questionnaire were distributed into three factors including teachers' awareness, use of research oriented teaching methods, students performance in research oriented classroom, facilities provided by the institutions to promote research oriented teaching.

Results and Discussion

Results were displayed in tabulated form. Mean value less than 03 shows respondents' disagreement with the statements and more than 03 shows they are agree with the statements. Multiple regression analysis is applied to check the prediction and variance in the performance of the students in the research oriented environment.

Table 1. Display of Demographic Information

Gender		Qualification		Faculty				
Male	Female	M. Phil	PhD	Social Science	Basic Science	Environmental Science	Arts and Humanities	Management Sciences
60	40	56	44	35	30	10	16	9

Table 1 represents the demographic display of the data. From 100 respondents 60 were male and 40 were female with the qualification of M. Phil and PhD. Total of 35 respondents belonged to the faculty of social sciences, 30 from basic sciences, 10 from environmental sciences, 16 from arts and humanities, and 09 from management sciences.

Table 2. Faculty wise comparison of teaching method

Faculty	Teaching Method				Total
	Lecture Method	Discussion Method	Project Method	Problem Based Learning	
Social Sciences	29 (58%)	6(23%)	0	0	35(35%)
Basic Sciences	5(10%)	13(50%)	9(56%)	3(37.5%)	30(30%)
Arts and Humanities	12(24%)	4(15%)	0	0	16(16%)
Management Sciences	2(4%)	1(3.8%)	4(25%)	2(25%)	9(9%)
environment sciences	2(4%)	2(7.69%)	3(18.7%)	3(37.5%)	10(10%)
Total	50(50%)	26(26%)	16(16%)	08(08%)	100

Table 2 represents the mostly used teaching methods by the faculty at university level. Results show lecture method is used most commonly at university level because 50 % respondents responded that they use lecture method for instruction. From which 29 respondents belong to the faculty of social sciences, 05 from the faculty of basic science, 12 from arts and humanities, and 2 from environmental sciences. 26% respondents use discussion method of teaching from which 06 belong to social sciences, 13 from basic sciences, 04 from arts and humanities, 01 from management sciences and 02 from environmental sciences. Table further explains that 16% faculty use project method of teaching including 09 from basic sciences 04 from management sciences and 03 from environmental sciences and 08 % faculty use problem based learning from which 2 belongs to management sciences and 3 from environment and 03 from basic sciences.

Table 3. Factor wise detail about the perception of faculty

	Mean	Std. Deviation	N
Teacher's Awareness	4.1360	.49145	100
Use of research Oriented Teaching Methods	3.0960	.49194	100
Student's Performance in Research Oriented Classroom	3.7383	.51697	100
Facilities Provided by Institutions	3.0100	.77762	100

Table 3 reveals the factor wise detail about the perception of faculty members regarding the impact of research oriented teaching on students' academic performance. Mean value (M= 4.13, SD= .491) explains teachers are fully aware about the research oriented teaching. Regarding the use of research oriented teaching mean value (M= 3.09, SD= .4914) shows faculty is slightly agree with the statement that they use the research oriented teaching mode at institution to foster students performance. About the perception of teachers regarding the performance of the students by using research oriented teaching mean value (M= 3.73, SD= .519) demonstrates that teachers have perception that if they use research oriented teaching improve the students performance. Mean value (M= 3.01, SD= .777) regarding the facilities provided by the institutions to promote research oriented teaching express that faculty is slightly agree. It shows that institutions provide research supported facilities to some extent.

Step wise regression analysis explains that in step 1 Faculty awareness about research oriented teaching separately has positive impact ($R^2 = .077$, $b = .278$) on the performance of the students. However in step 2 and 3 faculty use of research oriented teaching and facilities provided by

the institutions to support research oriented teaching have significant palace ($R = .150$, $F(3, 96) = 6.014$) in the performance of the university students. Furthermore steps 2 and 3 show that one unit increase in the use of research oriented teaching methodology will decrease the impact on students' performance ($b = -.215$). Table also revealed that one unit increase in the provision of facilities have no impact due to insignificant t-value.

Table 4. Multiple Regression to examine the effect of research oriented teaching on the performance of students

Predictors	B (Standard)	t-value	Sp ²
Step 1 Faculty Awareness	.278 $R^2 = .077$, $F(1,98) = 8.207$	2.865**	0.077
Step 2 Faculty Awareness Faculty use of research oriented teaching	.320 -.272 $R^2 = .150$, $F(2,97) = 8.530$	3.372* -2.871**	0.099 0.072
Step 3 Faculty Awareness Faculty use of research oriented teaching Facilitation from institution to support research oriented teaching	.309 -.215 -.111 $R^2 = .150$, $F(3,96) = 6.014$	3.245*** -1.965** -1.027	0.092 0.033 0.009

$P < .05$, * .01**, .02***

Results showed that research oriented teaching have positive impact on the performance of university students. According to the perspective of the faculty it is clear that if research oriented teacher is implemented than it brings change in the performance of the students. These results are consistent with Xingong and Xianjun (2012) and Barnett (2000). Results also showed that universities provide sufficient facilities to support teaching research nexus. This is very necessary. Without the support of institution teaching research nexus cannot be supported. These results are also consistent with the results of Geschwind and Broström (2013).

Conclusions

It can be concluded from the data analysis that majority of the faculty members belong to social sciences and arts and humanities use lecture method and discussion method to support the teaching. While the faculty members belong to environmental, basic, and management sciences use project method, and problem solving methods also with lecture and discussion method. This situation shows that research oriented methods are used mostly in basic, management and environmental sciences.

It also can concluded form the results that teachers are aware about the mode of research oriented teaching. They also know about the positive impact of research oriented teaching on students.

From the findings of the study it is clear that at Pakistani universities faculty also use research oriented teaching methodology to prepare the students for future. Now teaching is not considered only to put knowledge into the mind of the students. Teachers using research oriented methods to make the students innovative, critical thinker and problem solver.

Form the response of the respondents it is clear that intuitions provide facilities and incentives to support research oriented teaching. Results of regression analysis it can also be concluded

and predicted that students' performance is affected by the teachers' awareness and use of research oriented teachings.

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