



Teaching and Research: A Way to Achieve Excellence at Higher Education

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ABSTRACT

The core objective of the research was to explore the relationship among teaching and research in order to achieve academic excellence at higher education. Quantitative type of data was collected from the Ph.D. and M.Phil. research students from eight universities of Punjab, comprising three faculties of Arts/Humanities, Science and Social Science. Study was descriptive in nature and survey method was adopted for the collection of data. Six departments namely English, Urdu, Chemistry, Physics, Education and Psychology from three faculties were selected through purposive sampling technique respectively. A self-developed questionnaire was used for the purpose of data collection. Questionnaire contained seven factors namely; Teacher as knowledge producer, Teacher role in content selection, Practical and pedagogical skills of teacher, Critical thinking and Problem-solving skills of teacher, Evaluation, Students participation in research and Impact of research to check the collaboration of research and teaching at higher education. Statistical Package for Social Sciences (SPSS) version 20 was used for analyzing the collected data. Correlation and Regression tests were applied to explore the relationship between teaching and research to attain academic excellence. Result of the study revealed that strong positive correlation was observed among 'teacher as knowledge producer' and 'pedagogical skills of teachers' and overall strong positive correlation exists between all the mentioned factors of teaching and research at university level. Results regarding the impact of research on quality of teaching explained the variation, one unit increase in research will cause 58% increase in quality of teaching and overall positive linear association was observed among research and teaching factors. Study highlighted that both (teaching and research) strengthen each other and considered obligatory to attain academic proficiency and quality education at university level.

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1. Introduction

One of the major concerns of higher education is to bring novelty and innovation for the acquisition of knowledge, competencies, skills and self-governed attitude of students for uplifting the society standard (Grencikova, 2017). Instructive system at universities is mainly teacher centered whether it relate to teaching-learning process, curriculum, pedagogy, research and evaluation. At HEIs, the role of teacher revolves around teaching, research and management to prioritized the capacity building and strengthening the organizational interest. Faculty at HE possessed systematic and stimulating role as compare to other educational levels (Atkin and Brown, 2002). So, the role of teacher is not only limited to knowledge transmission but it demands numerous skills of critical thinker, problem solver, evaluator and possession of pedagogical skills specially at university level (Sharrock, 2012). In the perspective of higher education, the domain of teaching and research go parallel for institutional growth.

The element of research in higher education is the only tool to improve the quality of education by exploring new frontiers of knowledge. Ranking of universities is affected by the modifying conditions of research, as it became the most dominant element along with teaching at higher education now a days(Kumari, 2014). The concept of research in HE is rooted almost two centuries back, and the credit for connecting research with teaching goes to German philosopher and educationist William von Humboldt (1810). Humboldt's approach of combining research with teaching that would provide new direction to knowledge (Savvina, 2016). It was stated that HE should be free from external force and work on democratic manners. Academic freedom is the key consideration and basic idea of Humboldt (1810), where faculty possess the freedom for designing course outlines and selection of content, while the students have freedom of selecting the course or subject. The key component of Humboldt's approach was the utility of research and education to generate knowledge according to the demand of time, which is possible through linking research with teaching at higher education. Present model of universities from all around the world considered research as mandatory tool for the improvement in educational system by updating the curriculum according to the needs of global market and discoveries specially at HE. Teaching can be described as an organized communication and research as a systematic process of solving problem. Interlinked aspects of both research and teaching at higher education had different dimensions. Teaching and research collaboration at higher education urged the faculty to simultaneously balance 'teaching' as well as 'research' activities to achieve academic excellence (Coate, Barnett and Williams (2001).

Integration of research with pedagogy is crucial for achieving the learning outcomes anticipated at higher education. Teaching and research are seen as two fundamental speculative activities for improving the overall quality at higher education. The relationship between teaching and research not only expand teachers' knowledge, but also boost their pedagogical skills, critical thinking/problem-solving skills, evaluation and collaboration of work activities (Mathieson, 2019). This idea shifts diversity in the role of teachers to practice pedagogical skills as well as research skill especially in higher education. Emerging trend of research in higher education not only positively affect the learning environment for students but for the teachers too. Therefore, to assess the impact of research on teaching this study explore the 'relationship between research and teaching in order to achieve academic excellence at higher education'. This study elaborates the research teaching relationship at university level, that would be significant to policy makers and administrative body for paving the way for quality research and teaching(Ahmed, Azhar, & Mohammad; Dler M Ahmed, Z Azhar, & Aram J Mohammad, 2024; Dler Mousa Ahmed, Zubir Azhar, & Aram Jawhar Mohammad, 2024; Mohammad, 2015a, 2015b; Mohammad & Ahmed, 2017).

2. Literature Review

In order to achieve academic excellence, universities and higher educational institutions encourage the faculty to actively involved in research activities and publications. As to provoke, research incentives and promotion are given to the faculty who actively participate in research projects. Now research is considered as a basic study in almost every field of academic discipline in universities at higher education. Primary goal of research in education is to create or generate knowledge. In the process of teaching and learning, research skills make a significant difference towards quality education (Mercer, 2007). Educational research at HE helps to acquire answers to those question which leads to discover new theories about different problems, solving learning deficiencies, developing new strategies towards a problem and choosing the best possible solution (Melin, Astvik, & Bernhard-Oettel, 2014). Research also contributes to discover theory and practice gaps at various stages of education system. Research in social construct ensure the growth of learner and associate it to resolve problems related to pedagogy and andragogy (Gerald, 1992).

At university or higher educational institution levels, teacher role is diverse like instructor, research supervisor, evaluator and administrator. Mainly teaching can be describe as organized communication or delivery of information in which a teacher transmits information to the students in the form of visual, audio-video, documentary and practical demonstration. While research can be defined as process of systematized curiosity. It encompasses highest level of cognitive abilities to solve a particular problem related to subject matter. Research is the highest form of knowledge as learning goes through the process of acquisition,

understanding, application, and evaluation. According to Wilhelm and Fisher (2019) research skills are necessary for the university teachers to solve the problems related to classroom management and learning of students. Quality of teaching is conditioned with research in order to attain academic excellence at higher education. Research skills involve time management, concentration, critical thinking, creative writing, statistical techniques, use of resources and goal setting to reach a conclusion (Ragmoun, 2022; Ragmoun & Alfalih, 2024; Ragmoun, Alfalih, & Alfalih, 2017). The fusion of these traits with pedagogical skills can improve efficiency and production by engaging in such activities that help to achieve both teaching and research goals simultaneously at higher education. These theories support the role of research that positively influence teaching to achieve quality education. Universities are achieving high rankings due to the research evaluation exercises (Dhivya et al., 2023). It is important for the faculty to equally carry the pedagogical activities and research engagements for quality assurance (Mercer (2007).

3. Methodology

The central aim of the research article was to explore "The relationship between research and teaching at higher education in order to achieve academic excellence". Descriptive research design was adopted to achieve the objective. Population of the study consisted of all the research students of M.Phil. and Ph.D. programs from eight public universities of province Punjab. Three faculties namely Arts/Humanities, Science and Social Science were randomly selected for the collection of data. Sampling of the study included two departments from each faculty for the purpose of data collection. Departments of chemistry and physics from the faculty of science, departments of education and psychology from faculty of the social sciences while departments of English and Urdu from the faculty of arts/humanities were selected randomly. Sample of the study consisted on five research students from Ph.D. and five from M.Phil. programs from each mentioned department. Total sample size consisted on 480 research students from three faculties of eight universities from province Punjab. The questionnaire was consisted of 2 parts, first part of questionnaire was demographic part, second part was consisted of close ended questions comprising five-point likert scale. After the analysis of literature review seven factors were identified to explore the relationship between teaching and research such as role of teacher as knowledge producer (F1), role of teacher as curriculum designer (F2), practical and pedagogical training of teachers (F3), critical thinking and problem-solving skills of teachers (F4), evaluation (F5), collaboration of research work with students (F6) and impact of research (F7). Final form of questionnaire was comprised on 26 items. These items were further classified into sub factors related to teaching and research to check the impact of research on improving the quality of teaching to achieve excellence. After the consideration of validity and reliability the tool was distributed for collection of data. Validity of research tool was measured through expert opinion and pilot testing. The tools was critically reviewed by the Ph.D. teachers and language experts before collecting the data. Reliability of tool was identified by using Cronbach's Alpha, as value of the Cronbach's Alpha was greater than 0.8 for each item, that showed internal consistency of the tool. Out of 480 distributed questionnaires 269 filled questionnaire were returned as the return rate of the survey was 62%. The gathered information was analyzed using Statistical Package for Social Sciences (SPSS) 20 version.

4. Results and Discussions

Table 1: Impact of Research on Quality of Teaching

Independent Variable	Dependent Variable	B	T	F	R ²	Sig
Research	Quality of Teaching	.587	11.112	211.95	.443	.000

Table 1 illustrate the impact of research on the quality of teaching. The goodness of fit values (R²= 0.443) describes 44% total variance on quality of teaching (dependent variable) was described by research (independent variable). The value of f (F = 211.95, p =.000) showed the model fit is significant. It suggested linear relationship between research impact and quality of teaching. The ($\beta = .587$) value of the independent variable exhibited contribution caused in the dependent variable because of its change. The result explained that research contributed mainly in explaining the variation in quality teaching and one unit increase in research will cause 58% increase in quality of teaching. Above table elaborate the extent to which independent variable contributes to value of the dependent variable that is quality of teaching. The t-value (t = 11.112, p = .000) is also significant, which indicates that research

had positive impact on the quality of teaching. That showed the positive impact of independent variable on dependent variable.

Table 2: Correlation between Research and Teaching Correlations

		F (1)	F (2)	F (3)	F (4)	F (5)	F (6)	F (7)
Teacher as Knowledge Producer	Sig.	1						
	N	269						
Teacher as Content Selector	Sig.	.256**	1					
	N	269	269					
Pedagogical Skills of Teacher	Sig.	.433**	.322**	1				
	N	269	269	269				
Critical Thinking Skills of Teacher	Sig.	.336**	.153*	.338**	1			
	N	269	269	269	269			
Evaluation	Sig.	.378**	.208**	.352**	.405**	1		
	N	269	269	269	269	269		
Accessibility of Research Work	Sig.	.306**	.255**	.350**	.243**	.270**	1	
	N	269	269	269	269	269	269	
Impact of Research	Sig.	.257**	.175**	.365**	.131*	.212**	.272**	1
	N	269	269	269	269	269	269	269

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

* . Correlation is significant at the 0.05 level (2-tailed).

Table showed the detailed nature of correlation among factors stated in the research tool. Significant correlation (2 tailed) value and Pearson Correlation measure the kind of strong/weak and positive/negative relationship between different factors. The table illustrate that F4 (Critical thinking and problem-solving skills of teachers) and F7 (Impact of research) while F2 (Teacher as content selector) and F4 (Critical thinking skills of teacher) showed weak positive correlation as values of Pearson correlation are (0.131^{*}) and (0.153^{*}) respectively. While there is strong positive correlation observed among F1 (Teacher as Knowledge producer) and F3 (Pedagogical skills of teacher) according to the Pearson correlation value (.433^{**}). The p-value showed overall significant positive relationship exist between all the stated factors as F1 (Teacher as knowledge producer), F2 (Teacher as content selector), F3 (Pedagogical skills of teacher), F4 (Critical thinking skills of teacher), F5 (Teacher as evaluator), F6 (Student's participation in Research) and F7 (research impact).

5. Conclusions

This article examined the collaboration of research and teaching practices and its impact on higher education. The study disclosed the philosophy of modern universities is basically linked with early 18th century reorganizations given by Humboldt (1810). Thoughts of William Von Humboldt (1810) lead to the advancement of universities to be research oriented and should not only limited to knowledge delivery but also encouraged for selecting content independently, adaptation of advance pedagogical skills, critical thinking and problem-solving skills, process of evaluation, student's participation in research and impact of research on the quality of teaching at university level. Such practices at higher education, strengthen the ideas of Humboldt (1810) and now universities from all around the world ranked on the basis of publications and research. The ranking of universities in Pakistan is also linked with research and publications. The universities made efforts to be ranked at top in the list of HEC recognized research journals. According to HEC criteria, the rank of universities as well as promotion of faculty at HE directly linked with research practices and publications. To attain the benefits of research-teaching practices, higher educational institutions should be research oriented and faculty at university should equip themselves with advanced pedagogical skills to accomplished academic excellence. The aim of the study was to check the teaching and research collaboration and its' impact in improving the quality of education at universities. The role of teaching with relevance of research was divided in seven factors; role of teacher as knowledge

producer, role of teacher in content selection, updated pedagogical skills of teachers, problem solving skills of teachers, evaluation, accessibility of research opportunities and research impact. These factors fully attributed to the paradigm of teaching and research practices at higher education.

The factor related to knowledge generation or updating the prior knowledge is rooted with Humboldt's memorandum. This aspect demands the faculty to attain the skills of researchers along with pedagogy specially at university level. The basic purpose of linking research with teaching was to open new gate ways of knowledge that fulfill the demand of time and empower the academic self-govern position of university. This study demonstrated that research plays a significant role in generating knowledge and had good impact on the quality of teaching. The findings showed that research update the rank of teachers from pedagogical obligation to research alignment. This alliance of teaching and research nexus not only bring advancement in teaching learning activities but putting a great effort in knowledge generation and skills development. Second main component related to teaching at higher education is the role of teacher in designing curriculum or freedom to select the content for teaching learning process. To achieve academic excellence at higher education, Humboldt (1810) stressed on the freedom of teaching that is vigorous to bring academic autonomy in the organization. Academic autonomy is concerned with both teachers and students for the growth of institutional prestige and reputation. The study highlighted that to improve the quality of education, faculty autonomously develop the course outline and independently select the content to teach the student. This practice of presenting the cited content during lecture validate the process of learning and prove to be helpful to achieve the academic excellence.

Factor related to the andragogy and pedagogical skills of teachers is the prime concern at higher education. For achieving quality education, knowledge of subject matter is not sufficient. For effective teaching, it is significant for the university teachers to possess practical and pedagogical skills. Research discovers new methods of teaching and learning styles and it is essential for the university teachers to adopt updated pedagogical skills according to subject matter. The study elaborated that research had positive impact on acquiring practical and pedagogical skills specially at higher education. Andragogy and pedagogical skills positively affect the performance of teacher and made effective learning for students. Finding of the study exhibited that implications of research related to practical and pedagogical skills, proved to be helpful for the university teachers to adopt new teaching styles to achieve academic excellence. Critical thinking skills is mainly considered as research skill that evoke the logical reasoning to solve practical problems. Critical thinking is also aligned with teaching when it comes to solve class room problems like students' learning deficiencies, discipline issues, individual differences and time constraints. The study highlighted that critical thinking and problem-solving skills help the teachers to overcome the mentioned problems specially at higher education. Finding of the study demonstrated that critical thinking is an essential element for university teachers to develop in order to solve classroom problem for uprising the quality education. Evaluation is an essential part of educational system. Responsibility of teacher as evaluator demand certain skills like statistical skills, comprehension skills, time management skill and research skills to come up with accurate and sound conclusion. The study showed that process of evaluation is complementary for both research and teaching so faculty at university strengthen the assessment process in the light of research to achieve academic excellence. Students' participation in research activities at higher education is greatly valued because it allows them to adopt scientific attitude, improve writing skills and critical thinking approach. It also provides valuable self-learning techniques to attain competency. Findings of study highlighted that research accessibilities and guidelines provided by teachers helps the students to develop research skills and contributed to knowledge creation at higher education. Research is mainly relevance to real world application and considered to be enhanced the students' learning specially at higher education. The study proved that publication and research exposure of university teachers had strong impact to improve their quality of teaching. To attain academic excellence, it is obligatory to collaborate research activities with teaching practices at higher education.

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