Relationship of Teachers' Professional Competence and Achievement of Students at University Level

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Abstract

The purpose of the present research was to analyze the relationship between the competence of teachers and students' achievement and to find out the gender differences if any in the competence of teachers. The sample of the study was 100 teachers and 300 students from renowned universities of Rawalpindi and Islamabad representing the academia and students of Pakistan. Goe and Stickler's four lenses for evaluating the competency of teachers were used in the present study to analyze teachers' professional competence which includes qualifications of teachers, characteristics of teachers, teachers' effectiveness and teaching practices. Two questionnaires were used, one for university teachers and the other for students. It was found that the four independent variables have a combined effect on students' academic achievement. The males teaching practices showed the strongest contribution to the academic achievement of students whereas, the qualification of female teachers demonstrated the strongest contribution to the academic achievement of students.

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Introduction

The accessibility of qualified academia is the demanding predicament implicated in reformation of every education system. National Education Policy (1998-2010) has documented the value of teacher as "quality of education is in direct relation with quality of instruction in the classroom. At gross root level, the teacher is considered the key factor in implementation of the educational reforms. It is a fact that the academic credentials, knowledge of the content, competence, and skills of teaching and the commitment of the teacher have deep influence on learning process."

Excellence of system of education has undeviating demeanour on excellence of teachers. As Qureshi (1975) was the pont of view that,"The secret of the success of the arc of national education is the well-organized,industrious and truthful teacher who is entirely mindful of the reality that he is the loyal to his country's constancy,advancement and standing,because the duty to educate and nurish the nation's adolescence has been placed on his shoulders.It is rather apparent that the education of a country cannot be enhanced with improving the quality of its teachers". Mehmood and Salfi (2012) opined in their research that Higher Education Commission (HEC) has also highlighted the belief by affirming in its credentials that "worthwhile education at all grades is the highly preferred objective of education system of all nations". The significant feature that impacts the eminence of learning is the excellence of teachers, standards of program of study, technical network, research culture, endorsing administration and the policies and procedures implemented in universities.

Most progressives opined that development of academic scholarship is associated to efficient instruction (Thum,2003).The most excellent means for improving instructor's efficiency is to provide him/her with sustainability and direction grounded in effectiveness i.e which uses efficient apparatus to advance specialized competence of teachers, reinforce evaluations, professional development and restoration of accountibility plans for backing-up the students entailing that student attainment is reliant on the quality of teachers. Gupta (1996) explained that the educator embraces vital position in education. The social order of the country, facts, talents, traditions, and feelings obtained over the years, must be passed on to the future cohort by the teachers. They must also attempt to develop in their students the aptitude to adjust to a rapidly varying world.

Ahmad and Aziz (2012) elucidated that competency alarms are currently receiving some interest in Pakistan at different levels e.g.:

a) To ensure the quality and accreditation of teacher education courses a National Assessment and Accreditation Council was established in 2006

b) It is at present an increasing propensity in educational institutions of Pakistan to get ISO 9000:2001 quality guarantees on the base of supposition that ISO 9000 quality system is not in disagreement with any of the educational standards.

c) Higher Education Commission (HEC) Pakistan has also established measures and strategies for quality assurance and its enrichment. The HEC Manual is an attempt made to develop plans and procedures in a single volume so that institutional management, quality enhancement divisions and academia may simply find it to put into practice.

Ever since the establishment of Pakistan consecutive governments in their educational strategies and plans placed unusual stress on the improvement of access and enhancement of the excellence of education. In 1992 some radical steps i.e. privatization of schools', participation of private segment to spend at primary, secondary and tertiary stages of education and involvemen of NGO's for developing the quality enhancement were taken. Quality of instruction is the significant facet of teaching learning process. Mirza (2009) has explained that NACTE's task is to ensure quality teacher instruction plans as a vital fraction of higher education by a constant professional in-house evaluation and external educational audit. He

also says that National Education policy 2009 delineated a number of policy procedures to develop the quality of teacher Education programs and the teacher enrollment and preservation. Most important are the following measures:

   a)   Lifting the least mandatory prerequisite to BA ,B.Ed for elementary and to MA with B,Ed for secondary school teachers.

   b)   To regulate and institutionalize the teacher preparation arrangement, official recognition and documentation measures.

   As competence of teachers has direct bearing on quality of students Rice (2003) stated "Researchers and policy makers agree that teacher competency is a pivotal policy issue in education reform, particularly given the proportion of budget for education devoted to teacher compensation coupled with the evidence that teachers are the most important school-related factor affecting student achievement. However, considerable disagreement surrounds what specific teacher attributes indicate competency and how to better invest resources to provide quality teachers for all students."

   Goe and Stickler (2008) presented four lenses for evaluating the competency of teachers, which are also used in the present study to determine the competence of teachers, are indicated here in the following table:

Teacher Qualifications:

   Teachers' qualifications are particularly significant for entering into educational institutions when performance and production data are not accessible, as is in the case of recently selected teacher. Teacher qualification is frequently used as an indicator of instructors' competence which assists to discover those teachers who improve their pupils' attainments. Numerous variables are connected with improved student accomplishment in specific areas. Goe and Stickler (2008) has described few variables related with teacher qualification, some of them are:

   1. Content Knowledge
   2. Superior Degrees
   3. Experience
   4. Assessment grades
   5. Official recognition
   6. Professional growth
   7. Subject based Pedagogical familiarity

Teacher characteristics:

   According to Goe and Stickler (2008), teacher characteristics are mostly included in describing the teacher competence but are mostly rarely measured in relation with student learning achievement. Some of the teacher characteristics are unchallengeable like race and gender and some others may be more permanent to influence by policy initiatives such characteristics as teachers who share information, punctual, subject matter knowledge, teachers who own their students, are seen as trust worthy and industrious and have a shared vision with students and parents.

Teaching Practices:

   According to Goe and Stickler (2008) teacher practices indicator represents a view of teacher competency, which may be described as most important instructional quality. Goe and Stickler (2008) has included the following in teacher practices:

   1. Alignment of instruction and assessments
   2. Clear learning objectives and performance expectations
   3. Intellectual change

     4. Formative assessment
     5. Active learning
     6. Student outcomes

Researchers have also considered the relationship between student outcomes and teachers' general academic proficiency.

Teacher Effectiveness:

     Goe, Bell, and Little (2008) provided a five-point explanation of teachers' effectiveness as :

     1.   Effective teachers have high expectations for all students and help students learn, as measured by value-added or other test-based growth measures, or by alternative measures.

     2.   Effective teachers contribute to positive academic, attitudinal, and social outcomes for students such as regular attendance, on-time promotion to the next grade, on-time graduation, self-efficacy, and cooperative behavior.

     3.   Effective teachers use diverse resources to plan and structure engaging learning opportunities; adapting instruction as needed; and evaluate learning using multiple sources of evidence.

     4.   Effective teachers contribute to the development of classrooms and schools that value diversity and civic-mindedness.

     5.   Effective teachers collaborate with other teachers, administrators, parents, and education professionals to ensure student success, particularly the success of students with special needs and those at high risk for failure.

     This definition clarifies the dynamic and comprehensive nature of teaching as a profession and emphasizes the impact of effective teachers on students, and subsequently our nation's society.

     Akiri (2013) conducted research in Nigeria and reveal the finding that effective teacher can generate higher student performance. Metzler and Woessmann (2010) in their study "The Impact of Teacher Subject Knowledge on Student Achievement: Evidence from Within-Teacher Within-Student Variation" found a significant effect of teacher subject knowledge on student achievement, drawing on data on mathematics and reading achievement of sixth grade students and their teachers in Peru.

     Long et al (2016) also found positive relation between lecturer competencies and student performance. Student performance will increase if lecturer's competencies on knowledge, creativity, discipline, communication, preparation are maintained. Other positive relations also reported by Hakim (2015), Sultan & Shafi (2014), Ganyaupfu (2013), and Darling-Hammond (2000). Buddin and Zamarro (2009) concluded in their study that there was no indication that any of the teacher licensure scores affect student achievement. The measured basic skills, subject-matter knowledge, and reading pedagogy scores of teachers are unrelated to student achievement

     The present research provides strategies to recruit for the proficient and resourcefully motivated and capable teachers. Universities might have to provide instruction and refresher courses to the faculty and this study might be supportive in recognition of explicit training. The outcomes of the current research may be accommodating for policy makers in HEC Pakistan to have a better planning for improving the competence of university academia and scheming sound and accurate programs for the professional competence of faculty. In addition it may be helpful in engaging authorities in the selection of experienced and efficiently qualified academia.

Objectives of the Study

Following are the main objectives of the study was to find out the relationship between the teachers' competence and students' achievement and to analyze the gender differences if any in the competence of teachers

Methodology

Participants

For selecting the teachers random sampling technique was applied whereas, for selecting the students cluster sampling technique was used, each cluster containing 10 students. These clusters of students were selected from six renowned universities namely Quaid-e-Azam university, International Islamic University, Preston university, FAST university, NUST and NUML Islamabad.

Five clusters of students were randomly selected from each university and 18-16 teachers were randomly selected from each university, for the purpose of random selection research randomizer was used.

Table 1. *Study Sample*

S.No.	Universities	Students	Faculties
1.	Quaid-e-Azam University,Islamabad	5 clusters (50)	18
2.	International Islamic University, Islamabad	5 clusters (50)	18
3.	Preston University, Islamabad	5 clusters (50)	16
4.	FAST University, Islamabad	5 clusters (50)	16
5.	NUST, Islamabad	5 clusters (50)	16
6.	NUML, Islamabad	5 clusters (50)	16

Table 2. Demographic Profile of the Sample

	N	Percentage
Teachers	100	25%
Students	300	75%
Age teachers (Years)		
31-35	31	31%
36-39	26	26%
41-45	25	25%
46-59	20	20%
Gender		
Male	46	46%
Female	54	54%
Experience (years)		
1-5	32	32%
6-10	24	24%
11-15	14	14%
16-20	17	17%
21-25	15	15%
Specialization of teachers		
Islamiat	5	2.9%
Mathematics	24	14.2%

Education	7	4.1%
English	29	16.9
Statistics	10	5.8%
Urdu	12	7.0%
Biochemistry	12	7.0%
Computer	12	7.0%
Teachers qualification		
PhD	33	23%
M.Phil	29	29%
Masters	38	38%
Students Academic achievement scores (percentage scores)		
30-39	27	12.87
40-49	39	22.81
50-59	72	24.56
60-69	79	23.39
70-79	83	16.37
Students country/Province of origin		
Federal	10	3.33%
Punjab	104	34.67%
Khyber Pakhtunkhwa	62	20.67%
Balochistan	16	5.33%
Sindh	17	5.67%
Azad Jammu Kashmir	26	8.67%
Gilgit Baltistan	12	4.00%
Migrated from India (Urdu Speaking)	37	12.33%
Afghanistan	10	3.33%
Somalia	6	2.00%

Research Instruments

As the study was descriptive in nature, the researcher developed two questionnaires to collect data, i.e. one questionnaire for university teachers and the other for students. The questionnaire for teachers comprised 37 items while the questionnaire for students was consisted of 28 items. Researcher prepared these questionnaires by using five-point Likert scale on the basis Goe and Stickler's four indicators.

For pilot testing the questionnaire was administered to 20 teachers and 30 students from the defined population. Both types of questionnaire were applied by researcher to gather data from defined population. The experts were consulted to review and validate the instruments in the light of their opinions questionnaires were refined. Factor analysis was deemed appropriate for the study data, as the value of KMO was 0.724, which is considered as a good value. Furthermore, the Bartlett's test was highly significant ($p < .001$); therefore, the factor analysis was appropriate, meaning that the R-matrix is not an identity matrix. After pilot-testing the research instruments, their reliability was determined by calculating the Cronbach alpha and appropriate amendments were made in their items. The value of Cronbach Alpha Reliability Coefficient of the final questionnaire for teachers was found .89 and for questionnaire of students it was .85.

Results

The findings of the study and interpretations are as follows;

Table 3. Relationship of the Indicators of Teachers' Competency and Students' Academic Achievement

Indicators of teacher competency	N	Mean	Pearson r	Sig (2-tailed)
Qualification of teachers	400	4.67	0.710**	0.000
Characteristics of teachers	400	4.51	0.862**	0.000
Teaching practices	400	4.45	0.727**	0.000
Effectiveness of teachers	400	4.25	0.831**	0.000

** Correlation is significant at 0.05 level of significance (2-tailed) df= 398
Table value of r=0.087

The strength of association between the indicators teachers competency and the academic achievement of students is very high i.e. 0.710, 0.862, 0.727, and 0.831 for qualification of teachers, characteristics of teachers, teaching practices and effectiveness of teachers respectively.

Table 4. Regression Analysis for Teachers' Competency Indicators and Academic Achievement of Students

	B (*b*)	Std. Error	Beta (*β)*	*t*	Sig.
(Constant)	52.833	18.571		2.845	.005
Qualification of teachers	.181	.074	.202	2.447	.014
Characteristics of teachers	.346	.095	.302	3.652	.000
Teaching practices	.077	.109	.063	.704	.041
Effectiveness of teachers	.218	.098	.186	2.215	.029
Dependent Variable: Academic achievement					

Table 4 depicts that the independent variable, qualification of teacher, is positively related to academic achievement (β = .202, p =.014) having a statistically significant β, as the p-value of .016 < .05. The independent variable, characteristics of teachers, is positively related to academic achievement (β = .302, p = .000) having a statistically significant β, as the p-value of .000 < .05. The independent variable, teaching practices, is positively related to academic achievement (β = .063, p = .048) and have a statistically significant β, as the p-value of .041 > .05. The independent variable, Effectiveness of teachers, is positively related to academic achievement (β = .186, p = .029) having a statistically significant β, as the p-value of .029 < .05. Thus, the four independent variables have a combined effect on students' academic

The multiple regression analysis of all the indicators of teacher competency in predicting the academic achievement produced R^2= 0.23, F=73.57, p < 0.05 accounted for 23% of the variance. The significance value (p < 0.05) having positive values of B and standardized beta values for qualification of male teachers (β=0.886), characteristics of male teachers (β=0.502), teaching practices of male students (β= 0.921) and effectiveness of male teachers (β=0.573) had significant regression weights which showed unique impact / contribution of all these predictors to the competencies of male teachers. The Teaching practices with the highest beta value (β= 0.921) showed the strongest contribution to the academic achievement of students. This indicated that the male teachers who showed the highest of competencies

demonstrated the highest level after controlling the other factors in the model. The qualification of male teachers with beta value (β= 0.886) demonstrated moderate contribution in predicting the academic achievement. Whereas, effectiveness of male teachers and characteristics of male teachers with the lowest beta value (β= 0.502 and β= 0.573 respectively) showed that the contribution of these predictor to the academic achievement was less than other two predictors. achievement.

Table 3. Regression Analysis for Gender Differences with Male and Female Teachers' Competencies

	Male Students			Female students		
	B	SE	β	B	SE	β
Constant	11.71	1.37		12.93	1.42	
Qualification of teachers	.981	.102	.886	1.92	.124	.931
Characteristics of teachers	.409	.123	.502	.571	.117	.723
Teaching practices	.989	.126	.921	.992	.132	.921
Effectiveness of teachers	2.76	.131	.573	2.98	.129	.642
R^2=0.23, F=73.57**				R^2=0.27, F=71.43		

**p<.05

The multiple regression analysis of all the dimensions of female teachers' competencies in predicting the academic achievement of students produced R^2= 0.27, F=71.43, p<0.05 accounted for 27% of the variance. The significance value (p < 0.05) having positive values of B and standardized beta values for qualifications of teachers (β=0.931), characteristics of teachers (β=0.723), teaching practices (β= 0.921) and effectiveness of teachers (β=642) had significant regression weights which showed unique impact / contribution of all these predictors to the academic achievement of students. The qualification of female teachers with the highest beta value (β= 0.931) showed the strongest contribution to the academic achievement of students. This indicated that the female teachers who showed the highest of competencies demonstrated the highest level after controlling the other factors in the model. The characteristics of teachers with beta value (β= 0.921) also demonstrated high contribution in predicting academic achievement. Whereas, the effectiveness of female teachers and characteristics of teachers with the lowest beta value (β= 0.723 and β= 0.642) showed that the contribution of these indicators to the academic achievement of students is moderate.

Discussion

In their studies Dahar, et al. (2011), Long et al (2016) and Akiri (2013) Hakim (2015), Sultan & Shafi (2014), Ganyaupfu (2013) found that that professional qualification and teachers' classroom practices have positively significant relationship with academic achievement. This finding is supporting the findings of present study which establishes that the qualification of male teachers and their classroom practices has contribution in predicting the academic achievement and the qualification of female teachers has the strongest contribution to the academic achievement of students. Metzler and Woessmann (2010) also support the present study by concluding a significant effect of teacher subject knowledge on student achievement of sixth grade students in Peru. Similarly, Darling-Hammond 2000) found that teacher quality

characteristics such as certification, status and degree in the field to be taught are very significantly and positively correlated with student outcomes.

The findings of the study are not in line with the findings of Buddin and Zamarro(2009) who concluded that there was no indication that any of the teacher licensure scores affect student achievement. Harris and Sass (2008) were of the view that teacher training generally had little influence on productivity; neither the pre-service training nor the scholastic aptitude of teachers had influenced their ability to increase student achievement which also goes against the results of the present study.

The strengths of the present research include the adaptation of Goe and Stickler (2008) model which analyses the teachers' professional development microscopically. Factual and exploratory research about which features at the school and task level are important to augment teachers' professional development at work and it impact on students' academic achievement appears sparse. This research contributes to this knowledge breach. The most important limitations of the study were its cross-sectional nature and the use of self-reporting scale, which probably entails common method bias. To enhance Teachers Professional Development, it is fundamental for school administrators to work for the enhancement of teachers' qualifications and to provide them the variety of experiences if they really want to enhance the standard of their school. In future explanatory research design likely be used and a longitudinal study may be conducted to find out how the process of teachers; professional development actually evolves.

Recommendations

The teacher should develop study habits and positive attitudes in the students which determine the academic performance of the students. These habits may be cultivated by giving them reading activities and writing activities regarding the topics of their content and rephrasing them in their own words.

Teachers may be provided incentives to increase effort to produce specific student outcomes. Second, linking pay directly with classroom outcomes would encourage high-quality teachers to continue the teaching profession. They might be not overburdened with extra duties like election duties, dengue mosquito scheme, so they may focus on students' progress.

The importance of head teachers in the enhancement of the quality of teaching cannot be underestimated. Head teachers may be accorded a substantial role and backed by enforcement powers to ensure improved learning outcomes. He/she may seek the opinion of teachers before starting new activities.

Newly trained and inducted teachers as well as those already working require peer and school support to continue their professional and personal development. Encouragement, guidance and a healthy working environment can add tremendous value to a teachers output and commitment. There is a need to foster a culture of critical reflection among the teaching faculty of schools.

A performance based teacher evaluation and compensation system is required to motivate the teachers to strive towards excellence. Promotions may be linked with teacher's capabilities rather than seniority. Additionally there should be an institutional performance appraisal system to monitor institutional accomplishment against set curricular objectives and goals.

There is a need to develop a workable policy and strategic framework for professional development of teachers, with an accreditation and certification scheme. Minimum requirements for resourcing institutes with regard to staffing, infrastructure and organization need to be developed in conjunction with the respective heads of these institutes in order to ensure system equity and quality provision. The credentialing of teacher education programs

should be transferred to an independent body like the Higher Education Commission. Uniform work requirements, in terms of teaching and supervision loads, should also be developed.

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