



Impact of Teachers' Competency in the Students' Academic Satisfaction in STEM Subjects at the University Level

Faheem Khan

Instructor
Regional Professional Development Center, Dera
Ismail Khan, Khyber Pakhtunkhwa, Pakistan.
Email: faheemk2213@gmail.com

Safia Noor

Directress, Directorate of Professional Development
Center, Peshawar, Khyber Pakhtunkhwa, Pakistan.

Junaid Siraji

Assistant Professor
Institute of Education and Research, Gomal
University, Dera Ismail Khan, Pakistan.

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ABSTRACT:

The current study aimed to investigate the impact of teachers' competency in the students' academic satisfaction in STEM subjects at university level. Positivisms research philosophy was applied. Therefore, survey research was used. A sample of 372 participants (83 teachers and 289 students) was selected by using stratified sampling method. Two instruments were used. Teachers' competency scale was used for data collection from teachers whereas Students' satisfaction scale was used for data collection from students in STEM subjects. Instruments were validated by experts of Gomal University whereas reliability was measured through Cronbach's Alpha. The reliability of teachers' competency and students' academic satisfaction scale was estimated .843 and .789 respectively. Pearson Product Moment Correlation, linear regression, independent sample t-test and ANOVA was used. The study concluded a positive correlation between students' satisfaction and teachers' overall skills. Student satisfaction is the term used to describe the positive feelings that students have about their education. Teachers' competences are one of the key factors that impact students' satisfaction among other factors. The study recommended that Higher Education Commission (HEC) was arranged workshop to uplift the teachers' competencies in STEM subjects.

Key words: Teachers Competencies, Students' academic satisfaction, HEC.

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Introduction

A teacher is a key member of the educational team. The duty of imparting knowledge to students fell on teachers in the past. Previously, the instructor centered all of the activities in the classroom, but today's teachers also serve as advocates. He assigns several tasks for his students to complete. Together with providing resources, managing the classroom, maintaining discipline, and conducting student assessments, he oversees many aspects of the classroom program. Engaged in a separate course aspect, the students investigate it independently (Bassi, 2019). Teachers play a critical and valuable role in any society, and they are particularly significant members of it for a variety of reasons. Young people are taught by teachers, and those students go on to lead future generations as interns. Instructors impart knowledge to their students in ways that leave an impression. During the formative years of their lives, teachers have an unexpectedly significant impact on their students. Teachers shape the lives of their students in this way, helping them become responsible members of the public. Instructors who possess multidisciplinary expertise, intellectual curiosity, and a strong work ethic are invaluable (Pedro *et al.*, 2018).

Competency is the particular set of abilities, attitudes, and knowledge required of a teacher in a given field of instruction. Stated differently, competency is the ability to do a task well, which includes neatness, enthusiasm, fluency, inventiveness, and flexibility. Possessing a lot of knowledge does not make one competent. Competence needs to be used when it's needed. Knowledge is incorporated into behavioral patterns for practical purposes. To be competent is to be sufficient. The skills, knowledge, and values that teachers possess are known as their teacher competencies (plural of competency); these are the instruments of instruction (Uerz *et al.*, 2018). A set of knowledge, skills, abilities, and behavioral attitudes known as competency are required to demonstrate improved performance in the workplace. Training and competency development go hand in hand. The organization values training because it recognizes the importance of employees' competencies being built and developed. Within the organization, competency development is a continuous activity. The company that initiates the training program is responsible for enhancing and growing the employees' competencies. Effective training instruction requires a thorough understanding of the competency development process (Levine & Patrick, 2019).

The success of every institution is largely dependent on the competency of its teachers. Furthermore, the competency of the teaching personnel is one of the elements that raises the degree of student satisfaction. The term "competence" describes the specific degree of aptitude, understanding, and disposition required of a teacher in a given field of instruction. Put another way, the essential components of competency include the ability to execute a task with originality, fluidity, neatness, and adaptability (Latip *et al.*, 2020).

Raza *et al.*, (2012) claim that increased competition in employment organizations is a result of contemporary globalization, advancements in higher education, and the steady influx of learners into this area. Organizations anticipate a high caliber of human resources when it comes to employment prospects during such a competitive time. To adhere to the highest standards of quality, students are selecting colleges with instructors qualified to prepare them for the demands of the labor market. Graduate students pay fees, therefore they felt that higher-quality instruction was valuable. This perception is supported by graduate-level education research, which shows a link between teaching effectiveness and students' degree of learning satisfaction.

In the educational system, activities aimed at teaching and learning primarily benefit students. In a competent school system, their growth and contentment are of paramount significance and are seldom overlooked. To meet students' expectations for continued learning and development, it is necessary to attend to their worries, sentiments, and motivation. Another theory holds that happiness can also be attained by using resources and services to provide oneself with a happy condition of affairs (Suarman, 2015).

Studies and academic literature on student satisfaction are likewise very diverse. Scholars throughout several fields of study have described student learning according to their perspectives. One of these definitions comes from Latip *et al.* (2020), who described student satisfaction as a fit between the expectations and demands of the employers and the perceived performance. A concept akin to this was provided by Sumarsono *et al.* (2015), who defined student

satisfaction from the viewpoint of the students rather than the employers. Students evaluate themselves to determine how well they align with the demands of the labor market and their potential to meet expectations.

Students' academic satisfaction is a crucial metric for determining how well an institution can educate its students. Measuring university student satisfaction has been the subject of very little research. The majority of the research was done in the context of private, public, and college institutions. Arshad (2012) states that while numerous variables affect students' satisfaction, one of the most important and crucial ones is the teaching staff's expertise. Proficiency in subject matter, pedagogy, and professional competence will enable teachers to raise the standard of instruction, which in turn raises student satisfaction. The purpose of the current study was to examine students' satisfaction with university-level STEM instructors' competency. The majority of previous research on this topic was carried out in schools; however, the current study was carried out at the university level using STEM (science, technology, engineering, and mathematics) courses. Since the majority of studies were carried out in educational institutions in Punjab, this was the first study to be carried out in Khyber Pakhtunkhwa. The following are the key objectives of the study:

1. To find out the relationship between teachers' competencies on the students' academic satisfaction in STEM subjects.
2. To examine the impact of teachers' competencies on the students' academic satisfaction in STEM subjects
3. To compare the teachers' competency in perspective of gender and university.

Method

The current study aimed to investigate the impact of teachers' competency on the student's academic satisfaction in STEM subjects at the University level. So, positivist research philosophy was used. To gather data, the study uses a survey research design. To determine the trend in attitudes, opinions, behaviors, or other characteristics among a large group of individuals (population), researchers in quantitative research use survey research design, which involves giving a questionnaire to a small number of people (sample) (Showkat & Parveen, 2017). The most popular and efficient strategy for gathering primary data in quantitative research projects is the survey research design. To gather primary data for a survey research design, a questionnaire is typically developed. Two Questionnaires were used. In the present study, all teachers, and students from five (05) public sector universities in Khyber Pakhtunkhwa including Gomal University, DIKhan, University of Engineering & Technology Bannu Campus, University of Science and Technology Bannu, Khushal Khan Khattak University, Karak, and University Lakki Marwat, Lakki Marwat constituted the population of the study. A sample of 372 participants (83 teachers and 289 students) was selected by using a stratified sampling method. Teachers Competency scale was developed for teachers in which 4 dimensions included subject matter knowledge (7 items), instructional planning and strategies (6 items), communication skills (6 items), and assessment strategies (7 items) whereas students' academic Scale (19 items) was adapted for students which developed by Saleem (2016). Instruments were validated by experts at Gomal University whereas reliability was measured through Cronbach's Alpha. The reliability of teachers' competency and students' academic satisfaction scale was estimated at .843 and .789 respectively. Pearson Product Moment Correlation, linear regression, independent sample t-test, and ANOVA were used.

Results and Analyses

Table 1

Demonstrating the Relationship Between Teachers' Competency and Students' Academic Satisfaction

| Research variable | Statistics | Teacher Competencies | Students Satisfaction |
|-------------------|---------------------|----------------------|-----------------------|
| Teachers | Pearson Correlation | 1 | .768** |
| Competency | Sig. (2-tailed) | | .000 |
| | Sample (n) | 372 | 372 |

The association between the criterion variables (student satisfaction) and the predictor (teachers' competency) is displayed in Table 1. There is a positive correlation ($r=.768^{**}$) between students' satisfaction and teachers' competencies. Furthermore, a strong correlation has been observed between teachers' skills and students' academic satisfaction ($p=.000<.05$). Therefore, the claim that there is no connection between teachers' competency and students' academic satisfaction with STEM courses is hereby rejected.

Table 2

Regression Output Summary Regarding the Impact of Teachers' Competency on Students' Academic Satisfaction in STEM Courses.

| Model | R | R Square | Adjusted R Square | B | F | Sig. | Durban-Watson |
|-------|-------------------|----------|-------------------|------|-------|------|---------------|
| 1 | .768 ^a | .648 | .647 | .651 | 65.21 | .000 | 1.98 |

Table 2 indicates that the correlation between students' satisfaction and teachers' competence is $R=.768$. The table infers that the dependent variable (student academic satisfaction) has a variance that is caused by the independent variable (teachers' competencies), as indicated by the value of "R Square" (.659). As indicated by the R-square estimate of .659, 65% of the variance in the Criterion variable (student satisfaction) was caused by the predictor (teachers' competencies). The overall fit of the regression model is demonstrated by $F=555.718$. In addition, the value $p=.000<.05$ offers enough proof to reject the null hypothesis. The unstandardized beta value, which was .651, shows that an increase in the predictor's current value (teachers' competencies) by one unit is predicted to increase the dependent variable (student academic satisfaction).

Table 3

Demonstrating Mean Difference in Teachers' Competency Across Gender

| Group | n | Mean | SD | Sig. |
|--------|----|--------|---------|------|
| Male | 57 | 3.6842 | .28818 | .000 |
| Female | 26 | 3.1936 | 1.30510 | |

Table 3 indicates the mean difference in teachers' competency across genders. The table reveals that the Mean score of males (3.68) is higher than the mean score of females (3.19) which indicates male teaching competencies are found better than females. The $p=.000<.05$ which indicates that there is a significant difference in the teachers' competency across genders.

Table 4

Demonstrating the Mean Difference in Teachers' Competencies in Perspective of Qualification

| | Sum of Squares | df | Mean Square | F | Sig. |
|----------------|----------------|----|-------------|------|------|
| Between Groups | .790 | 2 | .395 | | |
| Within Groups | 135.367 | 80 | 1.692 | .032 | .000 |
| Total | 136.158 | 82 | | | |

Table 4 indicates the mean difference in teachers' competencies from the perspective of qualification. The result depicts that the value of $F=.032$ with $p=.000<.05$ which depicts that there is a significant difference in teachers' competencies in perspective of qualification. In other words, teachers with higher qualifications have better teacher skills.

Discussion

The current study aimed to investigate the Impact of teachers' competency on the students' academic satisfaction in STEM subjects at the University level. The result shows that teachers' competencies have a significant impact on

students' academic satisfaction. The same outcome as Istiana (2021) was discovered. He discovered a positive relationship between university instructors' competencies and students' academic satisfaction. Furthermore, a measure that influences learning outcomes in higher education is the evaluation of student satisfaction. Pupils who choose an active learning style or who are cheerful will feel content; those who choose a passive approach or who are unhappy will not feel satisfied. Active learning and a positive attitude towards learning are mostly dependent on the subject matter expert, communicator, and social worker's proficiency.

Conclusion and Recommendations

The study concluded a positive correlation between students' satisfaction and teachers' overall skills. Student satisfaction is the term used to describe the positive feelings that students have about their education. Teachers' competencies are one of the key factors that impact students' satisfaction among other factors. According to the study's findings, kids are happier when their STEM professors possess a variety of professional skills. The study recommended that to raise students' academic satisfaction with STEM topics, teachers' abilities should be improved. Higher Education Commission (HEC) Pakistan may host a workshop on capacity building for faculty members who work in the scientific, technology, engineering, and mathematics faculties to achieve this goal.

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Declaration of Interest: The author declares that there is no clash of interests.

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