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Comparative Analysis of the Influence of Teachers' Pedagogical Skills on Student Outcomes in Higher Education

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ABSTRACT

This study investigates the relationship between teachers' pedagogical skills and student achievement and engagement in higher education institutions. Using a descriptive research design, data were collected from a sample of 178 respondents, employing a structured questionnaire. Data were analyzed using the Statistical Package for the Social Sciences (SPSS). Inferential analysis was performed through the Mann–Whitney U Test for group comparisons and Spearman's Rank-Order Correlation to examine relationships between variables. Findings revealed a significant positive association between teachers' pedagogical competencies and students' classroom engagement and academic performance. The study underscores the importance of continuous professional development to enhance pedagogical skills, thereby

improving learning outcomes. Recommendations are offered for policymakers, higher education institutions and teacher training programs to prioritize skill-based pedagogical approaches.
Keywords: *Pedagogical skills, student engagement, higher education, teaching methods, learning outcomes**.***

Introduction

The quality of teaching in higher education plays a pivotal role in shaping students' learning experiences, academic achievement, and overall engagement. Teachers' pedagogical skills encompass the ability to design effective lesson plans, deliver content clearly, use appropriate teaching strategies, assess learning outcomes, and adapt to diverse learner needs. These skills are critical for creating an engaging and inclusive learning environment, particularly in higher education, where students are expected to develop advanced cognitive and analytical abilities (Khalaf and Zin, 2018).

Pedagogy in higher education extends beyond subject knowledge; it involves the art and science of teaching in a manner that stimulates intellectual curiosity and critical thinking. Teachers' capacity to integrate modern teaching methods, such as active learning techniques and technology-enhanced instruction, is increasingly recognized as a determinant of student success (Zhang, 2017). In developing countries such as Pakistan, the challenges of large class sizes, outdated curricula, and limited training opportunities further emphasize the need to strengthen pedagogical competencies among university faculty.

Research consistently demonstrates that effective pedagogical skills lead to improved student engagement, which in turn fosters better academic outcomes (Moriña and Orozco, 2021). Engagement includes cognitive, emotional and behavioral dimensions, each influenced by the teacher's approach to instruction. When teachers create an interactive and supportive learning environment, students are more likely to participate actively, persist in their studies, and achieve higher performance levels. This aligns with Fabriz et al. (2021), who stressed that effective classroom management and the strategic use of technology, such as multimedia tools, contribute to a more engaging and achievement-oriented learning environment. In addition, Saaida (2023) emphasized that teaching practices grounded in real-world applications and collaborative learning activities foster deeper understanding and practical skill development among students.

The present study is anchored in Constructivist Learning Theory, which offers a comprehensive framework for understanding how students perceive the role of teachers' pedagogical skills in fostering both academic achievement and classroom engagement. Constructivism posits that learning is an active process in which students construct their own understanding rather than passively receiving information from the teacher. Learners actively interpret, transform, and integrate new knowledge with prior experiences, revising their mental frameworks when confronted with new evidence or perspectives.

The origins of constructivist thought can be traced to the works of John Dewey, Jean Piaget, Jerome Bruner, and Lev Vygotsky, Piaget's perspective emphasizes cognitive development through experiential learning and adaptation, while Vygotsky focuses on the social dimensions of learning, particularly the importance of cultural context, collaboration, and guided participation (Bada and Olusegun, 2015). In higher education, these ideas translate into the teacher's role shifting from a transmitter of information to a facilitator of learning designing environments that encourage inquiry, dialogue and hands-on engagement.

Constructivist-oriented pedagogical skills include interactive teaching methods, effective communication, immediate feedback, incorporation of real-life examples, and adaptive teaching strategies that acknowledge individual learning differences. These approaches

encourage critical thinking, promote active participation, and help students apply theoretical knowledge to practical contexts. In this way, Constructivist Learning Theory not only underpins the research focus of the current study but also offers a coherent explanation for the observed relationships between pedagogical strategies, academic success and classroom participation. It provides a theoretical lens to interpret how and why specific teaching practices, rooted in active learning principles, influence students' perceptions and performance in higher education settings.

This study focuses on higher education institutions in Faisalabad, aiming to compare the impact of teachers' pedagogical skills on student engagement and achievement. By examining differences across various demographic and institutional contexts, this research contributes to the growing literature on educational quality improvement in South Asia.

Methodology

This study used a descriptive-comparative design to examine differences in teachers' pedagogical skills and their influence on students' engagement and achievement in higher education. The respondents were M.Phil. students from the Faculty of Social Sciences, University of Agriculture Faisalabad (UAF) and undergraduate students from Government Islamia Graduate College. The total population was 1,903 based on class lists from the clerical office. Using www.surveysystem.com with a 95% confidence level and 7 confidence interval, a sample of 178 was determined. Proportionate random sampling yielded 37 respondents from UAF and 141 from the college. Data were collected through a validated and structured questionnaire covering pedagogical skills, engagement, and academic achievement. Reliability was confirmed with Cronbach's alpha values above 0.70. Data were analyzed using SPSS (Statistical Package for the Social Sciences). Inferential tests included: Mann–Whitney U Test for two-group comparisons, Spearman's Rank-Order Correlation to assess relationships.

Results and Discussions

Comparative Analysis of Teaching Practices Between College (Undergraduate) and University (M.Phil.) Students

Statements	Mann-Whitney U	Z-Score	Asymp. Sig. (2-tailed)
My teachers communicate course content clearly and effectively	2358.500	-.931	.352
Feedback from my teachers is constructive	2473.500	-.514	.607
My teachers relate classroom content to real-life applications	2382.000	-.846	.398
My teachers encourage critical thinking and problem-solving skills	2166.500	-1.652	.099
My teachers create a comfortable and inclusive learning environment	2273.000	-1.247	.213
Different teaching methods enhance my academic engagement and performance	2524.500	-.315	.753

Table presents the results of the Mann-Whitney U test conducted to examine six key items related to teachers' efficacy and student engagement, aiming to explore the differences in perceptions of pedagogical skills between undergraduate and M.Phil. students. The ordinal characteristics of the data and the non-normal distribution of responses made this non-parametric test appropriate. According to the table's results, all p-values were higher than the standard threshold point of 0.05, meaning that none of the six variables displayed statistically

significant differences between the two groups. With a U value of 2358.500, a Z score of -0.931, and a p-value of 0.352, for the statement "My teachers communicate course content clearly and effectively" showed no significant difference in perception between undergraduate and M.Phil. students.

Similarly the variable “My teachers relate classroom content to real-life applications” yielded a non-significant result (U = 2382.000, Z = -0.846, p = 0.398), and the item “Feedback from my teachers is constructive” provided a U value of 2473.500 (Z = -0.514, p = 0.607). With p-values of 0.099, 0.213, and 0.753, respectively, other variables that supported an inclusive learning environment, encouraged critical thinking, and used a variety of teaching techniques also showed this pattern. According to these results, undergraduate and postgraduate students' opinions of their teachers' educational abilities are essentially the same. The lack of statistically significant differences suggests that students' assessments of their teachers' participation and techniques for instruction were not significantly impacted by their academic standing. These results align with earlier studies showing that teaching quality has a greater impact on students' assessments of teaching effectiveness than academic standing. A research by Gonsar et al. (2021), revealed that graduate and undergraduate students equally preferred interactive teaching approaches, with the former wanting less lecturing and more active learning.

Comparing Undergraduate and M.Phil. Students’ Perceptions of Teachers’ Pedagogical Skills

Pedagogical Skills	Mann-Whitney U	Z-Score	Asymp. Sig. (2-tailed)
Lectures enhance my understanding of the subject matter	2373.000	-.882	.378
Case studies used in class help me apply theoretical concepts	2444.500	-.617	.537
Practical exercises reinforce my learning effectively	2391.000	-.812	.417
Collaborative learning improves my comprehension of the material	2571.500	-.140	.888
The flipped classroom approach benefits my learning	2257.000	-1.306	.191
Different teaching methods are adapted to accommodate diverse learning needs	2324.500	-1.058	.290

Table indicates that there were no statistically significant differences in perceptions across the six pedagogical items assessed. For example, there was no significant difference in the Mann-Whitney U value for lectures that improved knowledge, which was U = 2373.000 with a p-value of 0.378. similarly the U value was 2444.500 (p = 0.537) for case studies, 2391.000 (p = 0.417) for practical exercises, 2571.500 (p = 0.888) for collaborative learning, 2257.000 (p = 0.191) for the flipped classroom, and 2324.500 (p = 0.290) for the use of diverse teaching methods. The null hypothesis is accepted in each situation since all p-values are higher than the significance level of 0.05, indicating that there is not a significant difference between undergraduate and M.Phil. students' opinions of these teaching strategies. These results are in alignment with earlier studies that demonstrate the broad success of active learning techniques at all academic levels when used appropriately. Additionally, it supports the idea that effective teaching strategies, like hands-on activities and inclusive education, help students at all academic levels (Davidson and Katopodis, 2022).

Comparing Undergraduate and M.Phil. Students' Perceptions of the Use of Educational Technologies

Use of Educational Technologies	Mann-Whitney U	Z-Score	Asymp. Sig. (2-tailed)
PowerPoint presentations aid my understanding of the content	2266.000	-1.280	.200
Online resources integrated into coursework enhance my learning experience	2532.500	-.284	.776
The Learning Management System is effective for course management	2407.500	-.752	.452
Interactive whiteboards and multimedia enhance the delivery of lessons	2393.500	-.820	.412
Educational apps contribute positively to my learning activities	2447.000	-.603	.547

According to the table, M.Phil. students preferred using PowerPoint presentations slightly more. The difference was not significant at the 0.05 level, with a U value of 2266.000 and a non-significant p-value of 0.200. Likewise, there was no significant difference in the groups' perceptions of the online resources incorporated into the coursework (a Mann–Whitney U value of 2532.500 and p = 0.776). The U values for interactive whiteboards and multimedia tools were 2393.500 (p = 0.412) and 2407.500 (p = 0.452) for the effectiveness of learning management systems (LMS), respectively, indicating consistent perspectives across educational levels. Similarly, both groups gave educational apps identical ratings (U = 2447.000, p = 0.547). These results indicate that students view instructional technologies as being equally beneficial in promoting learning, irrespective of their academic standing. This is according to earlier studies showing that although students usually embrace technology-enhanced learning resources, their efficacy is mostly determined by how well they are incorporated into instructional strategies (Tondeur et al., 2017).

Relationship Between Teachers' Pedagogical Skills and Students' Academic Achievement

Statements	**Spearman's correlation**	**Sig. (2-tailed)**
Teacher's Clear explanations improve performance.	1.000	<0.001
Engaging teaching methods (discussions, case studies) boost grades.	0.396	<0.001
Real-world applications enhance academic success.	0.378	<0.001
Effective classroom management aids academic achievement.	0.197	0.008
Multimedia tools improve understanding and exam performance?	0.332	<0.001
Teacher-encouraged participation improves achievement.	0.363	<0.001

Regular feedback from teachers improves performance.	0.524	<0.001
Aligned assessments enhance learning.	0.369	<0.001
Adaptive teaching methods improve results.	0.307	<0.001
Interactive strategies lead to higher achievement.	0.278	<0.001

Table showed in Regular feedback from teachers has the strongest correlation (ρ =.524, p <.01), suggesting that students who appreciate clear explanations also typically benefit from regular feedback. Moderate associations with real-world applications (ρ =.378) and engaging instructional approaches (ρ =.369). The most significant association was found with adaptive teaching methods (ρ =.502, p <.01), indicating that interactive and adaptable approaches frequently work together. Additionally, there is a substantial correlation between active involvement (ρ =.355) and aligned assessments (ρ =.392). strong correlations with feedback (ρ =.470), adaptive approaches (ρ =.457), and active involvement (ρ =.519), indicating that in order to optimize learning, assessment tactics should be in line with instruction.

The Spearman's rho correlation between different educational parameters and their link to students' academic achievement. All the variables under study had statistically significant positive associations (p <.01), according to the analysis. Additionally, the strongest correlation was found between interactive strategies and adaptive teaching approaches (ρ =.515) and between teachers' good explanations and frequent feedback (ρ =.524). The study showed that students' academic success and efficient classroom management techniques were positively correlated. Improved student performance was a result of strategies including setting clear guidelines and conducting regular observations (Nadeem, 2023). According to these results, there is a strong correlation between successful teaching strategies, and advancements in one area are likely to improve others, all which support students' academic achievement. In online classes, this study discovered a strong positive correlation between student motivation and clear instruction. The significance of clear communication in teaching was highlighted by the finding that higher levels of clarity in instruction were linked to higher levels of student motivation (Liang, 2023).

Conclusion

This study investigated the perceptions of undergraduate and M.Phil. students regarding their teachers' pedagogical skills and their influence on academic achievement and classroom engagement. The analysis revealed no statistically significant differences between the two groups in perceptions of teaching practices and the use of educational technologies, indicating a generally consistent experience across academic levels. Correlation results confirmed that teachers' pedagogical competencies, particularly clear explanations, regular feedback, and interactive teaching methods, are significantly associated with improved student academic achievement. These findings align with prior research emphasizing the importance of effective communication, engagement strategies and adaptive teaching for enhancing learning outcomes. Although classroom management also contributed positively, it had a comparatively smaller impact. Overall, this study underscores the critical role of teachers' pedagogical skills in fostering both academic success and active classroom participation.

Recommendations

- Institutions should prioritize continuous professional development focused on developing teachers' clarity in instruction, effective feedback techniques, and interactive teaching strategies.
- Educators should be encouraged to incorporate discussions, case studies and real-life applications to boost students' engagement and comprehension.
- Teachers should be trained to recognize and respond to diverse learning needs through adaptive pedagogical approaches to maximize academic achievement.
- While having a smaller effect size, effective classroom management remains essential for creating a conducive learning environment and should be part of teacher development.
- Establishing feedback mechanisms that are timely and constructive can significantly improve student performance and motivation.
- Further studies should explore longitudinal effects of pedagogical skills on student achievement and examine these relationships in diverse educational settings beyond Faisalabad.

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