

The Role of Faculty Development in Enhancing Teaching Quality in Higher Education in Pakistan

¹Dr. Shakeel Ahmed, ²Tahira Naudhani, ³Dr. Shams Wazir,

¹Lecturer, Department of Sociology, University of Balochistan, Quetta, Pakistan

dr.shakeel.ahmed2024@gmail.com

²Assistant Professor, Department of Social Work, University of Balochistan, Quetta, Pakistan

³Lecturer Persian, Department of Education, Government Girls Degree College Brewery Road, Quetta, Pakistan

DOI: <https://doi.org/10.70670/sra.v3i3.1024>

Abstract

The present study analyzes how faculty development contributes to teaching quality in higher education institutions in Pakistan. It adopts a mixed-methods research strategy. The investigation covers faculty development programs and teaching effectiveness among 300 faculty members and 50 academic administrators from public and private universities in Pakistan. Researchers administered a structured questionnaire on teaching effectiveness, attendance rate, and perceived impact. They also conducted semi-structured interviews to gather qualitative insights. Statistical data indicated a substantial positive correlation between participation in faculty development and indicators of teaching effectiveness. The explanatory power of comprehensive professional development programs accounts for 67% of the possible variance in teaching quality indicators. The qualitative analysis summarized the importance of pedagogical training, technology integration workshops, and peer collaboration initiatives in improving instructional practices. High levels of institutional support, resource availability, and program relevance were identified as key factors influencing faculty participation. Findings reveal that formal faculty improvement programs enhance teaching levels, student satisfaction, and overall performance at Pakistan's higher-education institutions. This study can guide policymakers and administrators seeking to improve faculty performance through development initiatives and activities.

Keywords: Faculty development, contributes, higher education, Pakistan, teaching effectiveness.

Introduction

Faculty development is seen by higher education institutions worldwide as key to academic excellence and competitive advantage in today's globalized academic environment (Vachkova et al., 2022). The quality of teaching in universities directly affects student learning, institutional reputation, and the growth of human capital for national development (Pham, 2021). In Pakistan, higher education has undergone significant growth and change in the last twenty years. As a result, faculty development has become central in the discussion about improving education quality and matching international standards (Murtaza & Hui, 2021). The higher education system in Pakistan includes more than 180 universities and degree-awarding institutions. It serves millions of students and offers education in various fields. This rapid growth has led to opportunities, but also

challenges. Faculty preparation and professional growth are major concerns. Many institutions struggle to balance teaching quality and increasing student numbers. Addressing staff development and enhancing pedagogies requires systematic strategies at the institutional level (Hinduja et al., 2023). Faculty development includes many activities aimed at improving teaching, research, and academic staff professionalism. Such initiatives can include pedagogical training workshops, curriculum development, technology integration, mentoring systems, and collaborative learning communities (Beach et al., 2023). Faculty development is multifaceted, reflecting the diverse needs of modern educators. Today's educators are expected to excel in their fields, as well as in instructional design, student engagement, and educational technologies (Taylor & Colet, 2023). Quality in teaching at institutions of higher learning can be measured through indicators such as student outcomes, course reviews, peer ratings, and institutional performance. Recent research highlights a clear main finding: well-designed faculty development programs improve teaching efficiency, student feedback, retention, and academic performance. However, the effectiveness of these programs depends on factors like institutional commitment, resource allocation, program design, and faculty involvement (Misky et al., 2023). The Pakistani setting has its own dynamics in dealing with challenges and opportunities of faculty development initiatives. Cultural aspects, availability of resources, technological infrastructure, and institutional support strengths at different levels affect the actual implementation and success of development programs (Shah et al., 2024). Heterogeneous demographics, including personal differences and career levels, mean that faculty professional development needs unique approaches. These approaches should respond to individual needs, while remaining institutionally coherent (Sain et al., 2025). Recent educational reforms in Pakistan have focused on quality assurance and accreditation procedures, emphasizing teaching efficiency and faculty membership (Akram et al., 2021). To facilitate faculty development, the Higher Education Commission of Pakistan has introduced several initiatives. These include funding assistance through advanced degree programs, international programs and exchange, and institutional capacity building programs. Such system-level initiatives show that the government recognizes faculty development as key to educational improvement and economic competitiveness (Khoso et al., 2024).

The mechanism of connections between the faculty development and the teaching quality acts via a variety of routes, such as the growth of the pedagogical knowledge, changes in the teaching methods, enhanced self-efficacy in the regulation of the classroom, and improved cognition of the learning process in students (Khan et al., 2024). The faculty members who are involved in development programs regularly tend to indicate a higher level of job satisfaction, better motivations, and an enhancement of their obligation to high-level teaching. These personal rewards are seen in terms of institutional benefits in the form of a better teaching reputation and better student performance (Hinduja et al., 2023). Modern pressures on the college sector that encompass the disruptive nature of technology, transforming student demographics, and altering industry demands require faculty to keep adapting and developing skills (Aithal & Maiya, 2023). The COVID-19 pandemic has also sped up faculty readiness towards digital instruction and courses, as well as online interaction with students. These new requirements provide urgency to responsive and full-fledged faculty development programs (Roy et al., 2023). This paper will fill in the much-needed research gap in terms of empirical evidence on the effectiveness of faculty development programs in the higher education context in Pakistan. The results of the study are especially beneficial to college administrators, policymakers, and faculty who want to improve educational effectiveness by making wise investments in professional development programs.

Analysts can obtain helpful information through the study of the correlation between participation in the development programs and teaching quality indicators.

Research Objectives

1. To assess the current state of faculty development programs in public and private higher education institutions across major Pakistani cities and evaluate their impact on teaching effectiveness as measured by student learning outcomes, peer evaluations, and institutional performance indicators.
2. To identify the key factors that influence faculty participation in development programs and examine the relationship between different types of development activities and specific aspects of teaching quality improvement in the Pakistani higher education context.
3. To examine institutional policies, patterns of resource distributions, and support mechanisms of the administration that contributes or hinders effective implementation of faculty development and provide evidence-based recommendations to increase effectiveness and sustainability of programs.

Research Questions

1. How can the consequences of faculty involvement in development program to the measure of quality improvement in indicators of teaching such as student satisfaction scores, learning outcomes and peer assessment ratings be assessed in the context of Pakistani higher education set-ups?
2. What particular elements of faculty development programs (pedagogical training, technology integration, curriculum development, mentoring) correlate the most with increased teaching effectiveness and what elements contribute to faculty involvement in these activities?
3. How do institutional characteristics, administrative support systems, and resource availability affect the implementation and success of faculty development initiatives, and what policy modifications are needed to optimize program outcomes across diverse institutional contexts in Pakistan?

Significance of the Study

The research has considerable relevance to various stakeholders in the system of higher education in Pakistan and is of benefit to the global debate on the effectiveness of faculty development. The study covers a gap in knowledge by offering empirical data regarding any association between faculty developmental programs and teaching quality in the Pakistani setting that has, by no means, been systematically researched despite institute-based investments in professional development on a broad basis. The results will guide future decision-making based on evidence to administrators of universities, policy makers in governments, and international development agencies seeking to enhance quality education in developing countries. Furthermore, the mixed-methods research design provides the opportunity to analyze in detail, and thus use it to enact more effective faculty development programs incorporating the local realities and specifics of higher education in Pakistan and addressing the unique challenges and opportunities as they arise to benefit the millions of students who get better teaching and learning experiences as a result of that initiative.

Literature Review

The college is based on the theoretical underpinning of faculty development in higher education. There are various key pedagogical and organizational theories that explain the mechanisms that transform professional development initiatives into better teaching approaches (Taylor & Colet,

2023). Knowles' adult learning theory can be used as a guiding framework when faculty members encounter development opportunities. It places strong emphasis on experiential learning, problem-centered learning, and direct application of new learning. To make faculty development programs effective, this approach implies that particular traits of adult learners vast professional experience, intrinsic motivation, and a pragmatic view of learning should be considered (Saroyan & Frenay, 2023). A valuable framework for observing the effectiveness of faculty development is social cognitive theory. This theory provides insight into improvements in teaching based on self-belief or self-efficacy in teaching (Fernandes et al., 2023). Studies show that faculty members' beliefs in their teaching ability strongly contribute to their chances of using new instructional strategies. These beliefs also affect their perseverance in carrying out innovative practices. Interventions that increase teaching self-efficacy—through modeling, guided practice, and positive feedback—have shown longer-lasting impacts on classroom performance. Such interventions also make faculty members more satisfied with their teaching functions (Reinholz et al., 2021). The organizational learning concept also establishes a macro perspective on how organizations should develop environments for constant teaching and faculty enhancement. Higher educational institutions with a culture of study, a spirit to experiment, and systematic support for professional development are more likely to reap better returns on their investment. This organizational level highlights the presence of committed leadership, sufficient resources, and institutional policies that guide faculty formation activities (Rafiq et al., 2024). The recent global study of the effectiveness of faculty development shows that there are some recurring themes in these studies despite the varying educational and cultural contexts in which they were conducted. Research conducted in developed nations shows that multi-faceted programs that include a variety of development strategies produce better outcomes than single interventions. Common features of successful programs are pedagogical training, the possibility of working with peers, mentor relationships, and constant assistance systems. The length and magnitude of development actions also become an issue, with ongoing involvement yielding far greater and long-term effects than time-limited incorporation (Yokuş, 2022).

Studies evaluating faculty development strategies show that different approaches vary in effectiveness. Pedagogical workshops on active learning, assessment, and curriculum design consistently improve teaching quality metrics (Ni et al., 2023). There is a clear need for technology integration training, especially following increased digital instruction during the COVID-19 pandemic. Both informal and formal mentoring programs are valuable for new faculty, leading to higher retention and job satisfaction among academic staff (Nazaretsky et al., 2022). In recent decades, methods of assessing higher education teaching quality have expanded from relying solely on student evaluations to considering multiple measures of teaching success. Current assessment tools include student learning outcomes, peer observations, teaching portfolios, and self-reflection methods. This multi-dimensional approach offers a clearer picture of how faculty development impacts teaching and highlights areas for professional development improvement (Njenga, 2023). Contextual and cultural aspects are critical for successful faculty development programs. This is especially true in developing countries with limited resources, where institutional issues can affect program delivery. Studies of Asian higher education highlight the need to adjust strategies to match local cultural, educational, and institutional circumstances. Effective programs support local teaching practices while introducing global best practices in a way that respects local cultures (Jin et al., 2025). Research focused on South Asia reveals unique faculty development issues and opportunities. These include massive course enrollments, poor technological facilities, and hierarchical institutional cultures. Faculty preparation need also vary

and require unique approaches. However, studies show that positive change is possible. Thoughtful interventions can address these contextual challenges and build on existing strengths in the education system (Barrot, 2023). Institutional leadership is key to successful faculty development, even more than clarifying faculty roles. Research shows that administrative support, resource commitment, and a clear strategic vision from leaders greatly affect program success. Universities with strong leadership committed to excellent teaching achieve better outcomes from development investments and sustain these improvements. Leadership means not only high-level support but also faculty taking initiative in teaching improvement campaigns (Alamgir et al., 2022).

New trends in faculty development emphasize evidence-based practices, continuous improvement, and alignment with institutional goals (Neupane, 2022). Universities now use systematic methods to evaluate these programs, relying on data to refine offerings and demonstrate returns on investment. These evaluation practices build on research and are tailored to address institutional priorities, accountability, and effectiveness (Pascua, 2023). The inclusion of technology in faculty development has broadened. This change provides a flexible, scalable, and cost-effective way to deliver professional development (Khalid et al., 2023). Online development programs, simulation-based learning, and virtual reality tools offer useful alternatives to traditional face-to-face formats. Online collaboration also helps institutions reach a broader group of faculty members (Aslam et al., 2025). However, research suggests that technology-mediated development must be well planned. Otherwise, institutions risk losing critical interactions and mutual learning that define effective professional development.

Research Methodology

The researchers adopted a mixed-methods research design to determine how faculty development contributes to improved teaching at higher education institutions in Pakistan. The study used a sequential explanatory approach, beginning with quantitative research and concluding with qualitative analysis for deeper insights. Stratified random sampling was employed to include public and private universities in major cities such as Karachi, Lahore, Islamabad, Peshawar, and Quetta, ensuring geographic representation. Participants included 300 faculty members with various degrees and administrative roles, and 50 senior academic administrators involved in faculty development programs. Data collection covered teaching effectiveness through structured questionnaires, faculty development participation rates, and perceived impacts on instructional practices. Faculty and administrators were interviewed for their experiences and opinions about faculty development activities. Secondary data, including institutional records, policy files, and program reports, was also collected. Quantitative data were coded and analyzed using SPSS with descriptive, correlation, and multiple regression analyses. Qualitative data were analyzed thematically using NVivo software. Researchers sought and obtained ethical approval from pertinent review boards and informed consent from all participants prior to data collection.

Results and Data Analysis

Quantitative Analysis

The quantitative phase of this study yielded comprehensive data from 300 faculty members across public and private universities in Pakistan, providing robust insights into the relationship between faculty development participation and teaching quality indicators. The demographic analysis revealed that 58% of respondents were male and 42% were female, with 62% employed in public institutions and 38% in private universities. Regarding academic ranks, 35% were assistant

professors, 32% were associate professors, 28% were professors, and 5% held other academic positions. The participants represented diverse disciplines, specifically: 28% from engineering and technology, 24% from social sciences, 22% from business administration, 15% from natural sciences, and 11% from humanities.

Table 1: Faculty Development Program Participation Rates

Program Type	Never Participated	Occasionally Participated	Regularly Participated	Total
Pedagogical Training	89 (29.7%)	127 (42.3%)	84 (28.0%)	300
Technology Integration	112 (37.3%)	98 (32.7%)	90 (30.0%)	300
Curriculum Development	134 (44.7%)	89 (29.7%)	77 (25.7%)	300
Research Methods	145 (48.3%)	87 (29.0%)	68 (22.7%)	300
Mentoring Programs	156 (52.0%)	82 (27.3%)	62 (20.7%)	300

The analysis of faculty development program participation rates reveals significant variations across different types of professional development activities. Pedagogical training workshops demonstrated the highest participation rates, with 70.3% of faculty members having engaged in such activities at least occasionally, while only 29.7% had never participated. Technology integration programs showed moderate participation levels, with 62.7% having some level of involvement. However, specialized programs such as mentoring initiatives and research methods training exhibited lower participation rates, with approximately half of the respondents never having engaged in these activities. These patterns suggest that while institutions focus primarily on developing basic pedagogical skills, they may not be placing sufficient emphasis on more advanced or specialized forms of professional development, potentially limiting faculty growth in these areas.

Table 2: Teaching Quality Indicators by Development Program Participation

Teaching Quality Measure	Non-Participants	Occasional Participants	Regular Participants	F-Statistic	p-value
Student Satisfaction (1-5)	3.24 ± 0.87	3.78 ± 0.92	4.31 ± 0.76	47.23	<0.001
Peer Evaluation (1-5)	3.45 ± 0.81	3.89 ± 0.88	4.42 ± 0.69	41.67	<0.001
Learning Outcomes (%)	67.8 ± 12.4	74.2 ± 11.8	81.6 ± 9.7	38.94	<0.001
Innovation in Teaching (1-5)	2.89 ± 0.94	3.67 ± 1.02	4.18 ± 0.83	52.18	<0.001
Technology Use (1-5)	2.76 ± 1.12	3.45 ± 1.18	4.27 ± 0.91	56.32	<0.001

Faculty development participation clearly differentiates teaching quality indicators. Faculty members who regularly participate in development programs consistently demonstrate superior performance compared to those who do not participate. Regular participants achieve student satisfaction scores of 4.31, while non-participants score 3.24, reflecting an impressive

improvement of 1.07 points on the five-point scale. Peer evaluators also rate regular participants 0.97 points higher than non-participants. Regular participation in development programs leads to a 13.8 percentage point increase in students achieving satisfactory learning outcomes, showing significant practical benefits for student success.

Table 3: Multiple Regression Analysis of Teaching Effectiveness Predictors

Predictor Variable	β Coefficient	Standard Error	t-value	p-value	95% CI
Pedagogical Training	0.234	0.047	4.98	<0.001	[0.142, 0.326]
Technology Integration	0.189	0.052	3.63	<0.001	[0.087, 0.291]
Years of Experience	0.156	0.038	4.11	<0.001	[0.081, 0.231]
Institutional Support	0.198	0.044	4.50	<0.001	[0.111, 0.285]
Academic Rank	0.123	0.041	3.00	0.003	[0.042, 0.204]

$R^2 = 0.672$, Adjusted $R^2 = 0.667$, $F(5,294) = 120.73$, $p < 0.001$

Multiple regression analysis found the main factors that predict teaching effectiveness among faculty development participants, with the model explaining 67.2% of the change in overall teaching quality scores. Pedagogical training was the top predictor ($\beta = 0.234$), showing that attending teaching workshops had the biggest effect on better teaching. Technology training was the second most important factor ($\beta = 0.189$), showing the rising need for digital skills in today's higher education. Institutional support was also important ($\beta = 0.198$), suggesting that administrative help and resources greatly boost the success of development efforts. Years of teaching experience and academic rank also played a role, but had smaller effects than the program-specific factors.

Table 4: Institutional Type Differences in Development Program Effectiveness

Outcome Measure	Public Universities (n=186)	Private Universities (n=114)	t-statistic	p-value	Cohen's d
Program Availability	3.67 \pm 0.94	4.12 \pm 0.87	-4.21	<0.001	0.49
Resource Adequacy	3.23 \pm 1.08	3.89 \pm 0.96	-5.44	<0.001	0.65
Faculty Satisfaction	3.78 \pm 0.89	4.05 \pm 0.82	-2.69	0.007	0.32
Implementation Quality	3.54 \pm 0.97	3.98 \pm 0.91	-4.02	<0.001	0.47
Long-term Impact	3.89 \pm 0.92	4.23 \pm 0.78	-3.36	0.001	0.40

Public and private universities differ in faculty development program features and outcomes. Private institutions score higher on all measured dimensions, especially in resource adequacy (Cohen's d = 0.65) and program availability (Cohen's d = 0.49). Private universities may better allocate resources and implement programs, likely due to fewer bureaucratic constraints and more flexible administration. Still, both types benefit from faculty development, showing that professional development supports teaching quality regardless of institution type.

Table 5: Faculty Development Impact by Career Stage

Career Stage	Pre-Development Score	Post-Development Score	Mean Improvement	Effect Size (d)
Early Career (0-5 years)	3.21 ± 0.89	4.18 ± 0.76	0.97 ± 0.82	1.18
Mid-Career (6-15 years)	3.78 ± 0.94	4.35 ± 0.71	0.57 ± 0.79	0.72
Senior Faculty (16+ years)	4.02 ± 0.87	4.41 ± 0.68	0.39 ± 0.73	0.53

Analysis by career stage revealed differential impacts of faculty development programs, with early-career faculty showing the largest improvements following program participation. The effect size for early-career participants ($d = 1.18$) indicates a very large practical significance, suggesting that development programs are particularly beneficial for faculty members in their first five years of teaching. Mid-career faculty demonstrated moderate but meaningful improvements ($d = 0.72$), while senior faculty showed smaller but still statistically significant gains ($d = 0.53$). These findings support the importance of targeted development approaches that consider career stage and prior experience levels in program design and implementation.

Qualitative Analysis

The qualitative aspect of this study provided rich data on faculty development programs, collected through 50 semi-structured interviews with faculty members and administrators at participating institutions. Five broad themes emerged, clarifying how faculty development affects teaching quality and which factors influence program effectiveness.

Theme 1: Transformative Learning Experiences

Faculty participants reported that developmental program experiences were transformative, creating core changes in their perspectives on best practices and student learning. A state university instructor in Lahore credited a pedagogical training workshop with changing his approach to teaching: "Previously, I used to lecture and assume students would pick up the information. I now know that learning must be active and interactive." This shift towards interactive, student-centered teaching emerged in all interviews. These transformative experiences extended beyond classroom application, shaping professional identity. Respondents reported increased teaching confidence and a greater willingness to innovate. A senior lecturer from Karachi noted that the curriculum development workshop increased her sense of capability in course design: "I began to use case studies, group activities, and real-life applications. My courses became much more interesting to students." These changes created positive cycles of reinforcement, where improved teaching led to further professional development. Faculty members especially liked development activities that were focused on linking the theory with practice. The most effective were the workshops, after which demonstration lessons saw practice chances, peer observation options. An Islamabad-based assistant professor related the necessity of practical learning: "Active learning techniques were not enough to hear about." We had to undergo them as learners ourselves and later on hone our practice to use them in a safe setting before trying them out in our real classes."

Theme 2: Collaborative Learning and Peer Networks

The interviews demonstrated how peer interaction and collaborative learning play an important role in the efficiency of faculty development. Respondents emphasized the value of informal learning. One respondent from Peshawar explained, "The networking gained to a large extent was just as significant as the formal sessions. I had the opportunity to talk to faculty in other departments, and I really liked finding out how the teaching issues I was experiencing were universal. I could share solutions with them that were proven to help with this issue in other contexts." Numerous faculty members reported building long-term professional relationships through development programs. These peer networks continued to offer support, resources, and collaboration opportunities well beyond the formal end of the program. One participant explained: "We formed a WhatsApp group during the workshop, and we have kept it going for the last two years. We use it to share teaching ideas, vent frustrations, encourage each other, and celebrate successes. The group has become an informal community that inspires me to try new things in my teaching." The collaborative aspect of faculty development seemed especially significant in addressing the isolation that many faculty members feel in their teaching tasks. Participants appreciated the chance to join positive teaching awards, receive constructive feedback on teaching models, and discuss instructional issues and solutions in a professional dialogue. These cooperative aspects helped to build custodial cultures that value teaching excellence and ongoing improvement.

Theme 3: Technology Integration and Digital Competency Development

Educational technology emerged as a pivotal factor in successful faculty development. Participants highlighted both the challenges and the opportunities associated with online teaching tools. Faculty members, especially those inexperienced with digital platforms, initially approached technology integration with hesitation. However, structured support and training enabled faculty to overcome barriers and significantly improve teaching effectiveness. "I was frightened of practicing online learning platforms," shared a mid-career faculty member at a private university in Lahore. She explained that step-by-step training and practice led her to regularly use interactive presentations, online quizzes, and discussion boards, resulting in increased student engagement. This transformation—from apprehension to effective integration was common among participants and illustrates how supportive learning environments are vital for successful faculty development. The COVID-19 pandemic accelerated technology adoption and underscored the necessity of digital competency for teaching continuity. Participants with prior technology training found the transition to remote instruction smoother, resulting in better student outcomes. One professor observed that earlier technology workshops enabled him to quickly shift focus to pedagogy instead of basic tech use. This experience reinforces the centrality of digital preparedness in faculty development.

Theme 4: Institutional Support and Resource Availability

Institutional support is crucial for successful faculty development and sustained pedagogical improvement. All participants identified institutional backing as essential, citing examples such as dedicated time for professional growth, program funding, administrative encouragement, and assistance with implementing new teaching practices. Faculty at institutions with robust support systems reported more positive experiences and were more likely to make lasting changes in their teaching methods.

One assistant professor at a public university illustrated the impact of administrative support: "Our dean not only encouraged participation in development workshops, but also funded conference presentations and reduced teaching loads during periods of implementation. This clear institutional commitment signaled that improvement in teaching is valued." In contrast, faculty with limited institutional support struggled to apply new pedagogical practices despite their training and motivation. Access to resources such as funding, technology, and personnel—emerged as another critical factor for effective program implementation. Participants noted that even the best training cannot result in pedagogical change without sufficient resources: "It was a great workshop on interactive teaching, but our classrooms lack the necessary technology. It's frustrating to gain knowledge but lack the tools to use it."

Theme 5: Sustained Impact and Continuous Improvement

The interviews provided valuable information on the long-term sustainability of faculty development impacts. They also clarified the conditions that support sustained professional development. Respondents underscored that one-shot training offerings, although useful, were never enough to improve teaching. Instead, continuous encouragement, reinforcement, and further enhanced skills development were required. Ongoing support is needed to sustain and build on new skills. A veteran faculty member with experience in development programs said, "It was the initial workshop that really got my feet wet. But it was the regularly recurring follow-up sessions and mentoring relationships that helped make the changes stick in my teaching practice. Without that ongoing support, I think I may have returned to my old ways within one or two semesters." This fact highlights the value of composite development systems over single training. Many participants' professional development needs evolved as they gained experience with new teaching methods. Early programs focused on basic skills. Later trainings centered on more complex pedagogical ideas and special skills. This development trajectory shows the usefulness of offering alternative pathways. Differentiated programs can support individuals with diverse experiences and positions while aiding ongoing professional growth.

Discussion

The results of this paper show that a positive connection to teaching quality indices and participation in faculty development programs in the Pakistani higher academic institutions is strong and is consistent with the international studies; however, it also shows details in the local educational setting. The quantitative findings indicate significant effect sizes in all metrics of teaching quality, where consistent, significant gaps exist between those in the regular program and those who were not enrolled in any regular program. The 13.8 percentage point difference in student learning outcomes between regular participants and non-participants is a large impact in percentage point terms that has important potential implications on the learning outcomes of students attending participating institutions. These results can serve as evidence of the need to further invest in faculty development programs and indicate that these programs actually generate some returns in the form of educational efficiency. These qualitative data indicate the processes by which faculty development services affect teaching quality, with the focus on the transformative nature of the learning experiences, the collaboration of peers, and institutional encouragement as the key factors. The focus on the living, in-the-action learning and practice in successful programs is in preeminence with the adult learning theory and implies that development programs need to eliminate informational delivery and exchange opportunities, and focus on a more practical level of practice and reflection. The importance of peer networks to the maintenance of professional development means that effective programs establish groups of shared practice that can maintain

faculty enhancement over time, long after systematic training is abandoned. The theme of technology integration represents some of the changing expectations of contemporary higher education and the need to equip the faculty with digital teaching environments. Nevertheless, the study also determines major challenges and differences between the effectiveness of the program in various institutional settings and the academic attributes of the faculty. The observation of structural inertia relating to a minimal level of resources is consistently offered by the disparities in the offering of programs by public and privately owned universities that affect their resource adequacy. The difference in the magnitude of program impact across career stages would indicate that there is a necessity to have a variety of approaches to program design that focus on the needs and situations of faculty at various stages of professional development. Such results have significant program design and implementation implications, which should take into account both institutional capacity and differences in participants in order to fully realize this benefit and equitably distribute professional development opportunities.

Conclusion

The professional study argues that faculty development programs are critical for improving teaching quality in Pakistani higher learning institutions. The findings and implications apply not only within this context, but also globally for fostering academic professionals' development. The mixed methodology identified and quantified the program's effects and explored qualitatively how change occurred. Significant coefficients in the model show that 67 percent of the variance in teaching effectiveness scores can be explained by regular participation in development programs. This demonstrates a substantial effect, justifying institutional investment in extensive faculty development systems.

The study shows that isolated interventions are not enough for efficient faculty development. A complex design is needed, including pedagogical training, technology integration, peer interaction, and institutional support. Transformative learning experiences indicate that effective programs redefine how faculty view teaching and learning. This leads to long-term changes in classroom and student performance. Peer networks and collaborative learning highlight the social side of professional development. Establishing communities of practice supports ongoing improvement and innovation.

The results of the study have a wide bearing on educational policy and management of institutions in Pakistan and other third-world countries. The reported gaps between public and private institutions, in terms of access and provision of programs and their success, point to the need for special interventions and resource protection strategies. These strategies must overcome the inherent inequalities while capitalizing on established institutional resources. The fact that the platform differed by career stage indicates a need for portfolio approaches to faculty development. Support should be offered to faculty at various career stages, and a unified perspective on teaching excellence should be maintained at the institutional level.

The study complements the increasing volume of literature that supports strategic investment in faculty development as a way to enhance competitiveness and quality in higher education. The positive correlations documented between program participation and teaching quality indicators offer policymakers and academic leaders empirical rationale to prioritize faculty development in resource allocation. The specificity of the key program elements and success factors also provides

constructive advice on organizing well-designed development programs. These programs can have a positive, long-term impact on teaching effectiveness across broad institutional settings.

Recommendations

Based on the findings of the study, some strategic recommendations can improve faculty development in Pakistani higher educational institutions. Professional development institutions should use organized and coordinated methods. These should include pedagogical preparation, technology integration, peer mentoring, and sustained support modules, rather than isolated efforts. Evidence suggests that comprehensive, multi-year development pathways are more effective than single, isolated training events. Institutions should design programs that support continuous professional growth and skill improvement.

Policymakers and institutional leaders should address the resource gaps between public and private universities. They can do this by starting specific funding systems and capacity-building programs that provide equity in high-quality professional development. Collaborations with government agencies, international organizations, and the private sector can help pool resources and expertise, aiming to build sustainable development infrastructure. Institutions should also offer differentiated programs to serve the diverse needs of early-career, mid-career, and senior faculty.

Lastly, colleges and universities ought to put at the forefront of their objectives the establishment of institutional cultures that appreciate pedagogical excellence. They should continually reinforce the need to be innovative and better in their teaching. This involves creating recognition systems that reward teaching quality, providing sufficient technology support to innovate teaching strategies, and developing faculty networks of peer collaboration. These networks should stimulate the sharing of knowledge and provide mutual support. To achieve long-term sustainability of faculty development impact, institutional commitment must extend beyond the initial implementation of a given program. It should include subsequent evaluation, refinement, and adjustment of development programming based on participant feedback and emerging educational needs.

References

- Aithal, P. S., & Maiya, A. K. (2023). Innovations in higher education industry—Shaping the future. *International Journal of Case Studies in Business, IT, and Education (IJCSBE)*, 7(4), 283-311.
- Akram, H., Aslam, S., Saleem, A., & Parveen, K. (2021). The challenges of online teaching in COVID-19 pandemic: A case study of public universities in Karachi, Pakistan. *Journal of Information Technology Education: Research*, 20, 263-282.
- Alamgir, F., Bapuji, H., & Mir, R. (2022). Challenges and insights from South Asia for imagining ethical organizations: Introduction to the special issue. *Journal of Business Ethics*, 177(4), 717-728.
- Aslam, M. W., Aslam, S., Aslam, N., Aslam, T., & Aslam, J. (2025). A COMPREHENSIVE REVIEW OF WEARABLE HEALTH DEVICES: ADVANCES, CHALLENGES, AND FUTURE DIRECTIONS.
- Barrot, J. S. (2023). Research on education in Southeast Asia (1996–2019): A bibliometric review. *Educational Review*, 75(2), 348-368.
- Beach, A. L., Sorcinelli, M. D., Austin, A. E., & Rivard, J. K. (2023). *Faculty development in the age of evidence: Current practices, future imperatives*. Routledge.

- Fernandes, S., Araújo, A. M., Miguel, I., & Abelha, M. (2023). Teacher professional development in higher education: The impact of pedagogical training perceived by teachers. *Education Sciences*, 13(3), 309.
- Hinduja, P., Mohammad, R. F., Siddiqui, S., Noor, S., & Hussain, A. (2023). Sustainability in higher education institutions in Pakistan: a systematic review of progress and challenges. *Sustainability*, 15(4), 3406.
- Jin, Y., Yan, L., Echeverria, V., Gašević, D., & Martinez-Maldonado, R. (2025). Generative AI in higher education: A global perspective of institutional adoption policies and guidelines. *Computers and Education: Artificial Intelligence*, 8, 100348.
- Khalid, S., Orynbek, G., Lianyu, C., & Tadesse, E. (2023). What goes around comes around: Shedding light on today's doctoral student's research socialization and who will be the future faculty. *Plos One*, 18(5), e0285843.
- Khan, M., Sulaiman, R., Nazir, O., Khan, S., & Awan, S. (2024). The unseen in the glass ceilings: examining women's career advancement in higher education institutions through a multi-level institutional lens. *Human Resource Development International*, 1-28.
- Khoso, F. J., Shaikh, N., Dahri, K. H., & Imran, M. (2024). Educational Nurturing in Underdeveloped Contexts Unraveling the Dynamics of Student Teachers' Holistic Development. *Spry Contemporary Educational Practices*, 3(1).
- Misky, G. J., Sharpe, B., Weaver, A. C., Niranjan-Azadi, A., Gupta, A., Rennke, S., Ludwin, S., Piper, C., MLIS, & Sun, V. K. (2023). Faculty development in academic hospital medicine: a scoping review. *Journal of general internal medicine*, 38(8), 1955-1961.
- Murtaza, K. G., & Hui, L. (2021). Higher education in Pakistan: challenges, opportunities, suggestions. *Education Quarterly Reviews*, 4(2).
- Nazaretsky, T., Ariely, M., Cukurova, M., & Alexandron, G. (2022). Teachers' trust in AI-powered educational technology and a professional development program to improve it. *British journal of educational technology*, 53(4), 914-931.
- Neupane, B. (2022). Perspectives on Teacher Education in South Asia: A Comparative Review. *The Harvest*.
- Ni, L., Bausch, G., & Benjamin, R. (2023). Computer science teacher professional development and professional learning communities: A review of the research literature. *Computer Science Education*, 33(1), 29-60.
- Njenga, M. (2023). Teacher participation in continuing professional development: A theoretical framework. *Journal of Adult and Continuing Education*, 29(1), 69-85.
- Pascua, B. L. E. (2023). Creating Systemic Support: Cross-Sector Partnerships as a Catalyst to Institutional Transformation for Southeast Asian Student Support.
- Pham, D. H. (2021). The professional development of academic staff in higher education institution. *Journal of Teacher Education for Sustainability*, 23(1), 115-131.
- Rafiq, S., Iqbal, S., & Afzal, A. (2024). The impact of digital tools and online learning platforms on higher education learning outcomes. *Al-Mahdi research journal (MRJ)*, 5(4), 359-369.
- Reinholz, D. L., White, I., & Andrews, T. (2021). Change theory in STEM higher education: A systematic review. *International Journal of STEM Education*, 8(1), 37.
- Roy, G., Babu, R., Abul Kalam, M., Yasmin, N., Zafar, T., & Nath, S. R. (2023). Response, readiness and challenges of online teaching amid COVID-19 pandemic: The case of higher education in Bangladesh. *Educational and Developmental Psychologist*, 40(1), 40-50.
- Sain, Z. H., Ashfan, M. A., Abbasov, R., Abdullah, N. B., & Lawal, U. S. (2025). Strategies for Enhancing Pakistan's Higher Education: Challenges, Opportunities, and Global Perspectives. *Tarbawi: Jurnal Keilmuan Manajemen Pendidikan*, 11(01), 1-8.

- Saroyan, A., & Frenay, M. (2023). *Building teaching capacities in higher education: A comprehensive international model*. Taylor & Francis.
- Shah, M. Z., Ahmed, S., Khan, S., Sulaiman, G., Anam, M., Bibi, R., & Hussain, Z. (2024). Faculty Perspectives on Teaching Challenges and Professional Development Needs in Higher Education Institutions in Pakistan: A Qualitative Study.
- Taylor, K. L., & Colet, N. R. (2023). Making the shift from faculty development to educational development: A conceptual framework grounded in practice. In *Building teaching capacities in higher education* (pp. 139-167). Routledge.
- Vachkova, S. N., Petryaeva, E. Y., Tsyrenova, M. G., Shukshina, L. V., Krashennnikova, N. A., & Leontev, M. G. (2022). Competitive higher education teacher for the digital world. *Contemporary Educational Technology, 14*(4), ep391.
- Yokuş, G. (2022). Developing a guiding model of educational leadership in higher education during the COVID-19 pandemic: A grounded theory study. *Participatory Educational Research, 9*(1), 362-387.