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Transforming Teacher Professional Development for a Sustainable Educational Future: University Lecturers' Perspectives in Kandahar, Afghanistan

Habiburahman Rahmani[1,*]
[1]*English Language and Literature Department, Education Faculty, Kandahar University, Kandahar, Afghanistan*

Abdul Rahman Saeed[2]
[2]*Department of Law, Law and Political Science Faculty, Malalay University, Kandahar, Afghanistan*

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Abstract: *This study investigates the current state and transformative potential of Teacher Professional Development (TPD) in public and private universities in Kandahar, Afghanistan. The research aimed to assess the availability, effectiveness, and challenges of TPD programs while exploring innovative, technology-based methods for enhancing sustainability. The study used a mixed-methods design, involving 218 participants selected through Simple Random Sampling (SRS) and Purposive Sampling. Data were collected using questionnaires and structured interviews. The study's findings show that although some TPD programs exist, they are few and some are not aligned with lecturers' professional needs. The existing TPD programs are deemed beneficial for developing basic knowledge in teaching and research. Significant barriers to participation included a lack of time due to a heavy teaching workload, limited availability and access to TPD programs, outdated traditional methods, insufficient technology integration, an emphasis on theoretical ideas, and a lack of practical work. Despite these challenges, a majority of participants expressed a willingness to engage in more creative and participatory approaches, with a preference for blended learning, collaborative learning, AI-powered and online learning platforms as innovative solutions. This paper emphasizes the importance of inclusive, flexible, and locally appropriate TPD models to support sustained educational growth in Kandahar universities. The findings offer important implications for universities, policymakers, and future research into effective TPD models for sustainable education.*

Keywords: availability, challenges, effectiveness, innovative, sustainable education, TPD

INTRODUCTION

Teacher Professional Development (TPD) programs improve teachers' professional competencies, teaching skills, pedagogical knowledge, research skills, subject mastery, and technology usage, ultimately improving student learning outcomes. These programs provide instructors with current, practical teaching approaches to keep them up-to-date with advancements in teaching, research, and academic writing. TPD helps instructors improve their professional skills and stay current with national and global education trends.

Although TPD is not a new concept, several educational institutions globally have prioritized it in recent years. Additionally, it has generated discussions both inside and outside of academia (Pitsoe & Letseka, 2014). Higher education achievement depends on the quality of educators. Higher education development requires qualified, motivated faculty (Aturupane, 2013). Observational studies and teacher self-assessments show that well-structured TPD programs improve teaching and student learning (Darling-Hammond, Hyler & Gardner, 2017).

Global experiences show that successful TPD boosts student achievement. Teachers learn more about teaching and learning from such programs (Zakaria & Yusoff Daud, 2009). According to Garet et al. (2001), professional development is most effective when it is closely tied to teachers' everyday teaching experiences and is aligned with standards and assessments. Additionally, Gaible & Burns (2005) also emphasize the need for teachers to have access to ongoing professional learning opportunities in order to improve their skills, while Angadi (2013) emphasizes that effective and successful TPD requires high-quality and relevant training.

Universities in Afghanistan have established Professional Development Centers to enhance lecturers' professional, pedagogical, research, and teaching skills. The PDCs marked a significant step toward modernizing education by introducing workshops on modern teaching methods, research techniques, and e-learning technologies (HEDP, 2021).

Problem Statement

Teacher Professional Development (TPD) is vital for improving teachers' competencies and enhancing educational quality. However, in Kandahar's universities, the availability, effectiveness, and challenges of existing TPD programs remain largely unexplored. Despite global evidence supporting technology-driven and collaborative learning approaches such as e-learning and Professional Learning Communities (PLCs), their adaptation to Kandahar's context marked by digital and infrastructural limitations has not been adequately studied. Moreover, there is limited empirical research examining how professional development centers influence lecturers' professional growth and instructional practices. This lack of localized evidence underscores the need for a comprehensive investigation into the state of TPD in Kandahar's universities, aiming to identify existing gaps and propose innovative, sustainable, and context-appropriate models for improving professional development and educational outcomes.

Research Objectives

1. To assess the availability of TPD programs for lecturers in the universities of Kandahar.

2. To evaluate the effectiveness of current TPD programs in Kandahar's universities.
3. To identify the key challenges that lecturers face in accessing and participating in existing TPD programs.
4. To explore innovative, modern and technology-based methods for transforming TPD.

Research Questions

1. To what extent are TPD programs available for lecturers in the universities of Kandahar?
2. How effective are the existing TPD programs in improving lecturers' teaching, research and professional skills?
3. What challenges do university lecturers face in current TPD programs?
4. What innovative and practical approaches can be used to transform TPD for sustainability?

Significance of the study

This study is significant because it addresses the need by exploring the availability, effectiveness, and challenges of TPD programs for university lecturers in Kandahar. It also aims to identify innovative, technology-driven approaches that can transform TPD and promote sustainable educational practices in this context. By identifying challenges and proposing innovative methods, this study found ways to enhance lecturers' professional growth, ultimately improving the quality of education for students. Additionally, the findings of this study offer valuable insights for policymakers, educators, and stakeholders seeking to enhance the quality of higher education in Afghanistan and similar contexts. Additionally, the findings contribute to policy development and help univeristies design more effective professional development programs to enhance the quality of teaching. The study also contributes to existing literature and serves as a reference for future research in the field of teacher professional development.

LITERATURE REVIEW

This literature review employs a narrative approach, which is the most suitable for this study due to its flexibility and ability to synthesize a wide range of sources thematically. A narrative review enables a comprehensive examination of the existing body of knowledge on teacher professional development. This approach is ideal for addressing the research objectives, which include assessing the availability of TPD programs, evaluating their effectiveness, identifying challenges, and exploring innovative, technology-based methods for transforming TPD.

The review draws on a wide range of scholarly articles, reports, and books, with a focus on TPD in both global and local contexts. Special attention is given to studies that address TPD in developing countries, particularly Afghanistan, to ensure relevance to the research context. The review is organized into the following themes:

(1) definitions and importance of TPD, (2) TPD and sustainability, (3) The role of Technology in Transforming TPD, (4) Types of TPD, (5) Different approaches of TPD used in the world, (6) Challenges in TPD Implementation. By synthesizing these themes, this review aims to provide a comprehensive understanding of TPD and identify gaps that the current research seeks to address.

Definition and Importance of Teacher Professional Development

The term teacher professional development refers to organized professional learning that enhances student learning outcomes and modifies teachers' practices and understanding. According to Darling-Hammond et al. (2017), the outcome of both job-integrated and externally supplied activities is that they broaden instructors' knowledge and assist them in modifying their teaching methods to enhance student learning. TPD, often referred to as "in service" or "teacher education," is defined by Gaible and Burns (2005) as training given to teachers to further their professional development in a particular field (e.g., technology, reading instruction, subject mastery, etc.). TPD communicates policymakers' transformation visions to teachers. The student is the ultimate intended benefit of TPD, even while the teacher is the recipient.

Successful professional development should help instructors learn and grow. According to Van Driel et al. (2001, p. 145), professional development should provide educators with the opportunity to enhance their own expertise, knowledge, and skills. Research has shown that professional development enhances lecturers' knowledge, skills, and instructional methods, which in turn improve student outcomes. TPD is recognized globally as a crucial component in enhancing student achievement and classroom instruction. Darling-Hammond et al. (2017) emphasize that TPD is essential for teaching students the sophisticated skills required for 21st-century education and employment. Teachers need to employ more advanced pedagogies to help students learn challenging material, solve problems, and develop strong skills in communication, teamwork, and self-direction. Teachers need effective TPD to learn and improve these pedagogies.

Yoon et al. (2007) employ three crucial steps to explain how TPD impacts student success. First, Professional development improves teachers' abilities and expertise. TPD theory, planning, design, and execution must be of high quality to achieve this. Second, classroom instruction is enhanced by increased knowledge and proficiency. This implies that educators must possess the drive, conviction, and abilities to integrate professional development into their instruction. Third, professional development improves teaching and student achievement. Student learning will suffer if any of these processes are poor.

At Rangitoto College in Auckland, New Zealand, Osama (2023) found that approximately 90% of teachers strongly believed that TPD improves student progress. Over 56% of instructors strongly agreed that experienced educators must commit to lifelong learning. An interviewee, a TPD expert, was also asked for this research. He claims that instructors may possess professional expertise in their field, but they may lack pedagogical knowledge. There should be a balance between both.

TPD and Sustainability

Training and professional development for educators are among the most significant ways that higher education can support sustainability. Teachers should get the knowledge and skills necessary to teach sustainability effectively. Additionally, it should also empower them to build a sustainable future (Preksha & Sonia, 2023).

Teacher education is the most important driver of sustainable innovation and the transformation of educational learning opportunities throughout the educational system (Ferreira et al., 2009;

Fischer et al., 2022). The same is true for Mulà and Tilbury (2023), who claim that one of the most important drivers of innovation and sustainability in our educational systems is teacher professional learning, which prepares students to help with this shift.

Teacher education enhances student sustainability learning (Andersson, 2017; Kostoulas-Makrakis, 2010) and motivates teachers to incorporate sustainability into their courses (Andersson et al., 2013). The specialized innovation, Teacher Education for Sustainable Development (TESD), prepares students to address global socio-environmental issues (Fischer et al., 2022).

Sustainability training can help instructors understand how ecological, social, and economic systems are interconnected. This will help them teach students critical thinking and systems-oriented methods, fostering sustainable attitudes from the start (Wiek et al., 2011). Educators have a significant influence on the ideals and attitudes of the next generation. Specialized training equips educators to become change agents and to promote sustainability in their classrooms, educational communities, and beyond (Mezirow, 2000).

Education and training play an important role in the rehabilitation and development of Afghanistan. Training in science and education will support sustainable development. It is essential to evaluate the credentials of teachers for different learning levels carefully. To address the massive educational problem that currently exists, both short-term and long-term programs must be created (Samady, 2007).

Research on the value of professional development and training for sustainability educators is expanding. Tilbury (2007) found that teachers with sustainability training were more likely to incorporate sustainability into their teaching and learning lessons. Wals (2007) found that Professional development programs can assist educators in cultivating a more comprehensive perspective on sustainability. According to Corcoran et al. (2021), professional development provides educators with the knowledge, skills, and confidence to incorporate sustainability into their teaching. Empowered teachers promote critical thinking and problem-solving via creative and participative methods. Students are challenged to examine sustainability concerns from multiple angles and develop innovative solutions. This method develops students' capacity for critical thinking on complex sustainability issues and equips them to make informed decisions (Thomas, 2009).

The role of Technology in Transforming TPD

Technology enables high-quality TPD, improving teaching and learning. Technology is not new in classrooms. However, recognizing how technology can improve education can help us adapt to the changing reality. Technology enhances teacher professional development, making it more interactive, especially in low-resource settings (Quota et al., 2022).

Technology reduces costs and improves TPD by providing more instructors with superior educational resources and encouraging peer-to-peer interactions. Technology is making professional development programs more scalable and sustainable. Technology has transformed TPD by providing new and scalable tools for teacher learning. In low-resource settings, learning

management systems (LMS), mobile apps, and hybrid methods that combine in-person and online instruction have been very successful (IDRC, 2024).

The Professional Development Center (PDC) at Kandahar University have adopted new teaching strategies, research methodologies, and e-learning approaches, highlighting the potential for technology-driven TPD (World Bank, 2021).

To ensure that instructors are not bound by their present understandings and experiences of digital technology as a frightening new classroom dimension. They note that instructors need opportunities to reflect on their work as they employ technologies to become active creators rather than passive consumers of knowledge. Teachers should be transformational actors who build "knowledge of practice" through professional development (Butler & Leahy, 2003).

Types of TPD

According to Gaible and Burns (2005), teacher professional development can be divided into three broad categories:

Standardized Teacher Professional Development: The most centralized method for teaching large numbers of teachers. Standardized teacher professional development often uses workshops, training, and the cascade model of scaled delivery. Standardized, training-based methods typically focus on exploring new concepts and demonstrating and modelling skills.

Site-based Teacher Professional Development: This type of intensive learning by groups of teachers in a school or area that affects teaching practices permanently. Schools, resource centers, and institutions host site-based teacher professional development. Instructors study gradually with local ("in-house") facilitators or master instructors, mastering pedagogy, subject, and technology. Site-based teacher professional development typically addresses the unique, situational issues that teachers encounter while implementing new classroom strategies.

Self-directed Teacher Professional Development: Independent learning utilizing computers and the Internet at the learner's choosing. In self-directed teacher professional development, teachers initiate and create their own professional development, sharing resources and ideas and discussing difficulties and solutions. This professional development method helps instructors become lifelong learners. Informal self-directed teacher professional development involves asking experienced colleagues for assistance or exploring the Internet for lesson plans. According to Pelgrum and Law (2003), online teacher communities facilitate professional growth across subject areas and themes.

Different approaches to TPD are used in the world.

In addition to the previously mentioned workshops, seminars, courses, webinars, learning management systems (LMS), mobile applications, hybrid models that combine in-person and remote training, and self-directed teacher professional development, the following are other TPD approaches utilized in some nations worldwide:

Professional Learning Community (PLC)

According to the findings of a study carried out by the Teachers' Council of Thailand to investigate the reasons behind and outcomes of the Professional Development Program in the form of a Professional Learning Community, educators at all levels agreed that professional development for teachers and education personnel in the PLC was essential and required for accreditation (Meesuk & Wongrugsa, 2021).

Peer coaching

Peer coaching is a novel approach to professional development that helps instructors acquire new teaching techniques in their classrooms, offering several benefits. Charner-Laird (2007), among others, states that: 1- coaching allows teachers to work collaboratively with a skilled colleague on issues rooted in their daily work with students; 2- a teacher's actual practice provides the data for conversations between the coach and the group of teachers, enabling teachers to learn new instructions based on their classes; and 3- coaching helps teachers incorporate new instructional strategies into their teaching to share the results with the coach and receiving feedback.

Collaborative learning

One component of successful and long-lasting teacher professional development is collaborative learning experiences (Campbell, 2019). Hargreaves and Fullan (2012) suggest that instructors develop their skills at work by exchanging ideas, cooperating, engaging in study groups, and conducting research. Many nations value teacher interaction as part of professional development. For instance, Darling-Hammond, Hyler, and Gardner (2017), who reviewed the professional development experiences of teachers in various nations, note that these nations (such as Singapore, the UK, Australia, and Canada) seek to give teachers the chance to share their leadership, teaching, mentoring, and educational content (curriculum) experiences with one another.

Tafael and Fischer (2001) point out that teachers view good professional development as the "opportunity to reflect on their work and to discuss their teaching and learning with colleagues." Additionally, effective professional development encourages teachers to take chances, test new classroom practices, and report back and share their experience with others.

Research-based TPD

According to a study by Iliško, Ignatjeva, and Mičule (2010), instructors who research to enhance their teaching methods acquire fresh insights into their classroom practices and receive new views on the environment in which they work. Teachers thus take an active role in making decisions about their profession. Harrison et al. (2006) state that effective teacher professional development should allow instructors to reflect on and learn about new methods and how they might be adjusted from current classroom practice.

Challenges in TPD Implementation

Innovative face-to-face training methods are necessary, as traditional methods have proven ineffective in changing teaching practices (Popova et al., 2018). Furthermore, the implementation of successful TPD programs is complicated by the lack of expertise among educators, the absence

of standardized guidelines and curricula, the scarcity of capacity-building and training opportunities, and the limited emphasis on sustainability in traditional teacher training programs (UNESCO, 2005).

The use of technology in Afghanistan (MATPD) was limited due to poor access to online resources. Digital literacy and infrastructural issues required further assistance and adaptations to ensure that all participants could utilize the technology effectively. The researchers emphasize the importance of TPD for enhancing instructional strategies and student performance, especially in underdeveloped nations like Afghanistan. This research aims to build on these insights by exploring the availability, effectiveness, and challenges of TPD programs in Kandahar's universities and proposing transformative strategies for a sustainable educational future. By addressing these issues, our research aims to support further initiatives that improve educational standards in the universities of Kandahar.

METHODS AND MATERIALS

Research Design

This study employs a mixed-methods research design, integrating both quantitative and qualitative approaches to provide a comprehensive understanding of Teacher Professional Development in Kandahar's universities. The mixed-methods approach was chosen because it allows for data triangulation, combining the strengths of numerical data (to measure trends and patterns) with rich, contextual insights (to explore experiences and perceptions) (Creswell & Plano Clark, 2018). This design is particularly suited to address the research objectives, which include assessing the availability, effectiveness, and challenges of TPD programs, as well as exploring innovative approaches for improvement.

Study Site and Duration

The study was conducted over a period of two months, from February 20**,** 2025**,** to April 12**,** 2025, in Kandahar province. It involved two public universities (Kandahar University and ANASTU University) along with five private universities (Malalay, Saba, Benawa, Lmar, and Mirwais Nika).

Population and Sampling

The population for this study consists of 500 lecturers from the above-mentioned two public and five private universities. The statistics were obtained from selected universities.

Sampling Techniques

Simple Random Sampling (SRS): Used for the quantitative phase to select 208 lecturers. This method ensures that every lecturer in the population has an equal chance of being included, minimizing bias and enhancing the generalizability of the findings.

Purposive Sampling: Used for the qualitative phase to select 10 lecturers who have participated in TPD programs and had ideas about the innovation of TPD programs. This approach ensures that participants can provide in-depth insights into the effectiveness, challenges, and potential areas for improvement of TPD.

Sample Size: The total sample size of 218 lecturers was determined using Krejcie and Morgan's (1970) sample size table, ensuring statistical reliability and representativeness.

Inclusion and Exclusion Criteria

The study applied specific inclusion and exclusion criteria to ensure focus and relevance. The inclusion criteria comprised lecturers currently employed at public or private universities in Kandahar who had participated in one or more teacher professional development programs such as workshops, trainings, or seminars. Participants were also required to be available during the data collection period and willing to provide informed consent. Conversely, the exclusion criteria covered lecturers with no prior participation in TPD programs, those not actively teaching during the study (such as retired or on-leave staff), individuals unwilling to participate or who did not provide informed consent, and lecturers based outside Kandahar province.

Data Collection

Data were collected using two main instruments:

Quantitative Data: A structured questionnaire was distributed to 208 lecturers. The questionnaire included closed-ended, Likert-scale and multiple-choice questions designed to assess the availability, effectiveness, and challenges of TPD programs. In addition, to investigate the innovative, modern and technology-based methods for transforming TPD. Questionnaires are an efficient method for collecting measurable data from a large sample, enabling statistical analysis of trends and patterns.

Qualitative Data: Structured interviews were conducted with 10 lecturers. The interview guide included four open-ended questions to explore participants' experiences, perceptions, and recommendations regarding types of TPD programs available, the evaluations of traditional programs, reasons for non-participation, and preferences for modern methods. Interviews provide rich, detailed insights into participants' experiences, complementing the quantitative data and addressing the "how" and "why" behind the findings.

Validity and Reliability

Validity: The questionnaire and interview guide were reviewed by a panel of education experts and TPD to ensure content validity. A pilot test was conducted with 15 lecturers to refine the instruments and ensure clarity and relevance. Expert review and pilot testing enhance the validity of the instruments, ensuring they accurately measure the intended constructs.

Reliability: The reliability of the questionnaire was evaluated using Cronbach's Alpha to ensure internal consistency. The section on the assessment of the current state and availability of TPD programs (5 items) achieved a Cronbach's Alpha of 0.780, indicating acceptable reliability. The section on the effectiveness of current TPD programs (10 items) recorded a Cronbach's Alpha of 0.918, demonstrating excellent reliability. These results confirm that the questionnaire was a consistent and reliable tool for data collection.

Data Analysis

Quantitative Data: The data were analyzed using SPSS Version 26. SPSS is a robust statistical tool that allows for comprehensive analysis of quantitative data, ensuring accurate and reliable results. Descriptive statistics (e.g., frequencies and percentages) were used to summarize the data.

Qualitative Data: Thematic analysis was employed to analyze the interview transcripts. This involved an iterative process of coding and categorization to identify key themes and patterns. Thematic analysis is a flexible and widely used method for identifying patterns in qualitative data, providing deep insights into participants' experiences.

Ethical Considerations

The study was conducted in full compliance with ethical research standards to ensure integrity and transparency. Participants were provided with clear information about the study's objectives and procedures, and their consent was obtained prior to data collection. To maintain confidentiality, all responses were anonymized. Formal permission was obtained from the administrations of the participating universities and participation was voluntary in the study. Furthermore, all information and literature referenced in the study are properly cited, ensuring that no sources are presented without acknowledging the authors and their work.

RESULTS

This study employed a mixed-methods approach to examine the availability, effectiveness, challenges, and potential innovations in TPD programs in Kandahar's universities. Data were collected through a questionnaire and structured interviews. The questionnaire was completed by 208 university lecturers, selected through simple random sampling. It included a combination of Likert-scale and multiple-choice questions. The responses were analyzed using descriptive statistics, including frequencies and percentages, via SPSS version 26.

Additionally, qualitative data were collected through interviews with 10 purposively selected university lecturers. Thematic analysis was applied to the interview transcripts, generating themes, codes, and patterns manually. The results from the quantitative and qualitative data are presented in separate sections to maintain clarity and depth in addressing each research objective.

Table 1: Socio-demographic characteristics of the participants (n=208)

(Variable)	(Frequency)	(Percentage %)
Age		
25–34	147	70.7
35–44	48	23.1
45–54	10	4.8
Above 55	3	1.4
Teaching Experience (Years)		
1–5	112	53.8
6–10	56	26.9
11–15	31	14.9
More than 16	9	4.3
Educational Qualification		
Bachelor's Degree	104	50.0
Master's Degree	85	40.9
PhD	19	9.1
Institution Type		
Public University	118	56.7
Private University	90	43.3
Total	**208**	**100.0**

The socio-demographic profile of the 208 participants shows that the majority (70.7%) were aged between 25 and 34 years. Participants aged 35–44 constituted 23.1%, while those aged 45–54 and above 55 made up 4.8% and 1.4% respectively. In terms of teaching experience, 53.8% had 1–5 years, followed by 26.9% with 6–10 years, 14.9% with 11–15 years, and only 4.3% with more than 16 years. Regarding academic qualifications, 50% held a Bachelor's degree, 40.9% a Master's degree, and 9.1% had completed a PhD. Furthermore, 56.7% of respondents were from public universities, while 43.3% were from private higher education institutions.

Section 1: Quantitative Data Analysis

The quantitative findings below summarize the responses from the 208 participants, focusing on the availability, effectiveness, challenges, and innovation of TPD programs.

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Table 2: Assessment of the current state and availability of TPD programs

Statements	Never	Rarely	Sometimes	Often	Always
1. My university regularly offers TPD programs (workshops, seminars, and courses).	3 (1.4)	54 (26.0)	50 (24.0)	72 (34.6)	29 (13.9)
2. I have sufficient opportunities to access TPD programs.	12 (5.8)	51 (24.5)	78 (37.5)	51 (24.5)	16 (7.7)
3. The TPD programs are designed according to the needs of teachers.	11 (5.3)	48 (23.1)	62 (29.8)	63 (30.3)	24 (11.5)
4. TPD program schedules are well-aligned with teachers' workloads.	24 (11.5)	47 (22.6)	48 (23.1)	59 (28.4)	30 (14.4)
5. I have access to technology-based TPD programs (e.g., online trainings, webinars, etc.).	32 (15.4)	39 (18.8)	52 (25.0)	56 (26.9)	29 (13.9)

(1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Often, 5 = Always) *Frequency (Percentage)*

Table 2 shows the assessment of the current state and availability of TPD programs. 34.6% of respondents reported that their university regularly offers TPD programs "often," while 26% said "rarely." 37.5% had "sometimes" sufficient opportunities to access TPD, and 7.7% had "always" sufficient access. 30.3% believed the programs were "often" designed according to their needs, while 29.8% felt they were "sometimes" aligned. Regarding scheduling, 28.4% felt that the programs were "often" aligned with their workload, and 23.1% felt that they were "sometimes" aligned. For technology-based TPD, 26.9% reported "often" having access, while 15.4% indicated "never" having access.

Table 3: The effectiveness of current TPD programs

Statements	(SD)	(D)	(N)	(A)	(SA)
1. The current TPD programs have improved my teaching and professional skills.	10 (4.8)	34 (16.3)	44 (21.2)	87 (41.8)	33 (15.9)
2. Traditional TPD methods (lectures, workshops, seminars) are effective for my professional growth.	4 (1.9)	31 (14.9)	40 (19.2)	94 (45.2)	39 (18.8)
3. The TPD programs help me effectively manage and solve classroom challenges.	15 (7.2)	19 (9.1)	49 (23.6)	98 (47.1)	27 (13.0)
4. The knowledge gained from TPD programs has increased my teaching effectiveness.	14 (6.7)	15 (7.2)	40 (19.2)	89 (42.8)	50 (24.0)

5. The TPD programs have significantly enhanced my research skills.	15 (7.2)	23 (11.1)	34 (16.3)	100 (48.1)	36 (17.3)
6. The current TPD programs provide innovative teaching techniques and recommendations.	7 (3.4)	35 (16.8)	46 (22.1)	85 (40.9)	35 (16.8)
7. The TPD programs have improved my classroom management and assessment strategies.	13 (6.3)	20 (9.6)	49 (23.6)	84 (40.4)	42 (20.2)
8. The TPD programs offered at the university contribute to a sustainable educational future.	7 (3.4)	21 (10.1)	40 (19.2)	76 (36.5)	64 (30.8)
9. The existing TPD programs include innovative teaching strategies (e.g., active learning, critical thinking, etc.).	12 (5.8)	19 (9.1)	38 (18.3)	93 (44.7)	46 (22.1)
10. Overall, the current TPD programs have enhanced my teaching, research, technological, and pedagogical skills.	15 (7.2)	27 (13.0)	43 (20.7)	79 (38.0)	44 (21.2)

(1 = (SD) Strongly Disagree, 2 = (D) Disagree, 3 = (N) Neutral, 4 = (A) Agree, 5 = (SA) Strongly Agree)

Table 3 shows the effectiveness of the current TPD program. Most participants (57.7%) agreed or strongly agreed that TPD programs improved their teaching and professional skills. 64% of participants agreed or strongly agreed that lectures, workshops, and seminars help them progress professionally. 60.1% said TPD programs assist with managing and solving classroom challenges. A similar proportion (66.8%) reported that TPD knowledge enhanced their teaching efficiency. A large percentage (65.4%) said TPD programs improved their research skills. Most respondents (57.7%) believed that TPD programs offer novel teaching methods and ideas, with 60.6% citing classroom management and assessment improvements as key benefits. A majority (67.3%) agreed or strongly agreed that TPD programs contribute to a sustainable educational future, while 66.8% stated that these programs incorporate innovative teaching strategies. Finally, 59.2% of respondents believed that overall, the TPD programs have enhanced their teaching, research, technological, and pedagogical skills.

Table 4: Challenges and barriers in accessing or participating in current TPD programs

Response Options	Frequency (N)	Percentage (%)
1. Lack of time due to heavy teaching workload	140	13.2%
2. Limited availability of TPD programs	110	10.4%
3. Limited access to TPD programs	113	10.7%
4. Mismatch between TPD programs and actual teaching needs	95	9.0%
5. Use of outdated traditional methods in TPD programs	104	9.8%
6. Lack of technology integration in TPD programs	93	8.8%
7. Low proficiency in using new educational technologies	108	10.2%
8. Some TPD programs are too long and exhausting	109	10.3%
9. Weak instructional skills of TPD trainers	105	9.9%
10. Most TPD program materials are in foreign languages	81	7.7%
Total	**1058**	**100.0%**

Table 4 presents the challenges and barriers faced by participants in accessing or participating in the current TPD programs. The most frequently cited challenge is the lack of time due to a heavy teaching workload, reported by 13.2% of respondents. This was followed by limited availability (10.4%) and access (10.7%) to TPD programs. Other notable barriers include a mismatch between TPD programs and actual teaching needs (9.0%), the use of outdated traditional methods (9.8%), and insufficient integration of technology (8.8%). Additionally, a significant proportion of respondents (10.2%) highlighted low proficiency in using new educational technologies as a challenge, and 10.3% found some TPD programs to be too long and exhausting. Weak instructional skills of TPD trainers were mentioned by 9.9% of respondents, while 7.7% identified language barriers, with most TPD materials being in foreign languages. These challenges indicate several areas for improvement in the design and implementation of TPD programs in the universities.

Table 5: Availability and use of modern TPD methods for professional development

Response Options	Frequency (N)	Percentage (%)
1. Online learning platforms (Coursera, edX, Udemy, FutureLearn, LinkedIn Learning)	68	12.1%
2. Blended learning (a mix of online and in-person training)	62	11.1%
3. AI-based learning methods (Century Tech, TeachFX, Edthena, Squirrel AI, Knewton, Carnegie Learning)	65	11.6%
4. LMS and mobile learning applications (Khan Academy, Google Classroom, Microsoft Teams, Duolingo, Moodle)	87	15.5%
5. Webinars and online workshops (Zoom, Microsoft Teams, Webex, Google Meet)	72	12.9%
6. Game-based learning (Kahoot!, Quizizz, Classcraft, Prodigy)	32	5.7%

7. Virtual Reality (VR) and Augmented Reality (AR) based trainings (ClassVR, Google Expeditions, Oculus Education, Merge Cube)	35	6.3%
8. Audio and podcast-based learning (The Cult of Pedagogy, EdSurge, Teach Better Podcast, The EdTech Podcast)	38	6.8%
9. Professional Learning Communities (PLCs) and peer mentoring programs	34	6.1%
10. None of the above	67	12.0%
Total	**560**	**100.0%**

Table 5 presents data on the use of modern TPD methods among participants. The most frequently used methods are LMS and mobile learning applications (15.5%), followed by webinars and online workshops (12.9%) and online learning platforms (12.1%). AI-based learning methods were used by 11.6% of participants, while blended learning was utilized by 11.1%. Other methods, such as game-based learning (5.7%), VR and AR-based training (6.3%), and audio/podcast-based learning (6.8%), were less commonly used. Additionally, 6.1% of participants engaged in Professional Learning Communities (PLCs) and peer mentoring programs. Interestingly, 12% of respondents reported not using any of the listed modern TPD methods, highlighting potential gaps in the integration of technology. This suggests that while some modern methods are employed, there is still a need to increase awareness and access to such tools for professional development.

Section 2: Qualitative Data Analysis

This section presents the findings from structured interviews and an open-ended question from the questionnaire regarding teacher professional development programs at universities in Kandahar. Using thematic analysis, key themes, codes, and patterns were identified to explore faculty perspectives on existing TPD programs, challenges in participation, and preferences for modern approaches.

A total of 10 interviewees from public and private universities were selected through purposive sampling, ensuring they had insights into modern TPD methods. To maintain confidentiality and anonymity, participants were assigned unique identification codes (e.g., I-01, Q-001), where: *I* refers to interviewees, and *Q* to questionnaire respondents.

Interview Questions

1. What types of TPD programs do you have access to at your university?
2. How do you evaluate the existing traditional TPD programs for improving your teaching and research skills and professional development?
3. Why do you think some faculty members do not actively participate in TPD programs?
4. Which innovative modern methods (platforms) do you prefer for conducting TPD programs through your university's professional development center?

The responses were analyzed to identify emerging themes, codes, and patterns that provide valuable insights into faculty members' experiences, needs, and perspectives concerning TPD.

Theme 1: Availability and Access to TPD Programs

Codes: OBE-SCL, Workshops, Seminars, Research Training, Technology Training, Peer Mentoring, Classroom Observation, Specialized Training

Patterns:

- OBE-SCL (Outcome-Based Education & Student-Centered Learning) is the core framework for many TPD programs available (I-02, I-03, I-06, I-08, I-09).
- Other commonly available programs include workshops and seminars that focus on teaching methodologies, research skills, and technology integration (I-01, I-04, I-05, I-06).
- Limited access to advanced opportunities like online learning, peer mentoring, or classroom observations (I-05).
- Specialized training is occasionally available, primarily focusing on research methodologies, SPSS, proposal writing, and academic paper writing (I-01, I-06).

Theme 2: Evaluation of Existing Traditional TPD Programs

Codes: Foundational, Useful, Valuable, Teaching and Research Focused, Lack of Practical Experience, Theoretical Focus, Outdated Methods

Patterns:

- Traditional TPD programs are considered helpful for building foundational knowledge in teaching and research (I-01, I-04, I-05, I-07).
- However, these programs often lack practical experience and focus too heavily on theoretical concepts (I-01, I-04, I-06).
- The methods used in traditional programs are often outdated and inflexible, making them less effective in modern educational environments (I-01, I-04, I-08).
- Participants expressed the need for more innovative and interactive methods in TPD programs (I-01, I-02, I-04).

Theme 3: Barriers to Participation in TPD Programs

Codes: Time Management, Heavy Workload, Scheduling Issues, Lack of Flexibility, Lack of Motivation and interest, Resistance to Change, Low Awareness, Outdated Programs, Repetitive Content

Patterns:

- Time constraints are the most frequently cited reason for low participation in TPD programs. Faculty members often have heavy workloads, including teaching, administrative duties, and research, which leave them with little time for additional professional development (I-01, I-04).
- The inflexibility of program schedules is another key issue. Many programs are not aligned with faculty members' busy schedules, making it hard for them to attend (I-01, I-04, I-08).

- Lack of motivation and interest are significant factors. Some faculty members do not see the value of TPD programs, feeling that they are not relevant to their teaching and research needs (I-01, I-04, I-05).
- Resistance to change is noted, with some faculty members feeling that their existing experience and methods are sufficient, and they do not need additional training (I-04, I-07).
- Low awareness of the benefits and importance of TPD programs also contributes to faculty not actively participating in these opportunities (I-05).
- Faculty members also complain about the outdated and repetitive content in programs, which can lead to disengagement, especially when programs do not offer new insights or align with contemporary needs (I-07, I-09, I-10).

Theme 4: Preferences for Innovative Modern TPD Methods

Codes: E-Learning, Online Platforms, AI-Powered Learning, Blended Learning, International Collaboration, Micro-Credentials, Workshops and Seminars

Patterns:

- E-learning platforms like Coursera, Udemy, and Google Classroom are highly favored due to their flexibility, wide range of resources, and self-paced learning opportunities (I-01, I-03, Q-006, Q-008).
- AI-powered learning platforms, such as Squirrel AI and Century Tech, are viewed as effective tools for personalized learning and enhancing teaching methods (I-01, Q-015, Q-018).
- Blended learning models, which combine in-person and online methods, are preferred for providing flexibility and engaging faculty (I-04, Q-008, Q-012).
- International collaboration and global exchange programs are desired to introduce diverse perspectives and advanced methodologies that bring international perspectives to teaching and research (I-01, I-09, Q-008).
- Micro-credentials and specialized short courses are recommended to provide more focused professional development, enabling faculty to develop specific competencies (I-09, Q-008).
- Participants also recommend webinars, online workshops, and interactive seminars led by international trainers to enhance engagement and skill development (I-08, Q-009, Q-010).

DISCUSSION

This study explored university lecturers' perspectives on transforming teacher professional development for a sustainable educational future in Kandahar, Afghanistan. Through a mixed-methods approach, the research explored the availability, effectiveness, challenges, and opportunities for innovation in TPD. The findings provide an important analysis of how present TPD practices function and what changes are required for sustained, context-relevant progress in higher education. The findings were discussed in relation to the research objectives and questions, drawing on insights from both quantitative and qualitative data, and supported by relevant literature to provide an understanding of the current state of TPD and pathways for transformation.

Participants are primarily young, with 70.7% aged 25–34, indicating a significant proportion of beginner lecturers who may require basic teacher professional development. Over half (53.8%) of

respondents have 1–5 years of teaching experience, suggesting that TPD programs that enhance essential teaching and research abilities may be advantageous. Approximately 50% held Bachelor's degrees, 40.9% held Master's degrees, and 9.1% held PhDs. This shows that lower-qualified professors may lack sophisticated research training. The difference in enrollment between public (56.7%) and private (43.3%) colleges may also indicate the availability and quality of the TPD program. These demographics demonstrate the necessity for customized TPD programs for early-career instructors at Kandahar's public and private colleges.

In Table 2, the assessment of the current state and availability of TPD programs revealed some important trends. 34.6% said TPD programs are offered "often," while 26% said they are "rarely" presented. According to Gaible & Burns (2005), lecturers need to have access to ongoing professional learning opportunities to improve their skills. The survey shows that 37.5% feel they have "sometimes" sufficient access, while 7.7% say they always have adequate opportunities. To address the massive educational problem that currently exists, both short-term and long-term programs must be created (Samady, 2007). Regarding program design, 30.3% stated TPD programs "often" matched their needs, while 29.8% answered "sometimes". Effective TPD programs should be tailored to meet teachers' needs (Garet et al., 2001; Yoon et al., 2007).

Technology-based TPD programs were "often" offered to 26.9% of respondents and "never" to 15.4%. This shows an increasing tendency toward technology-driven TPD. The use of technology in Afghanistan (MATPD) was limited due to poor access to online resources. This study shows that Kandahar universities require more regular, accessible, and well-designed TPD programs to suit instructors' professional development needs.

Table 3 showed that most respondents believe TPD programs have enhanced their teaching and professional skills. According to Darling-Hammond et al. (2017), successful TPD improves classroom instruction and student results, and 57.7% of participants said the programs improved their teaching. This suggests that professional growth is crucial to teaching improvement.

Workshops and seminars were also found to be useful by 64% of respondents. Traditional TPD methods, such as seminars and workshops, help instructors advance professionally, according to Gaible and Burns (2005). Although these strategies are helpful, the research suggests that TPD programs should be more inventive and technology-based. Only 26.9% of interviewees reported regular online or technology-driven TPD, indicating a delay in responding to current educational demands.

The majority of responders (60.1%) believed that TPD programs help manage classroom issues, demonstrating their practical impact on teaching methods. This suggests that well-designed TPD programs should address classroom issues (Darling-Hammond et al., 2017). According to research, professional development enhances teaching quality and students' progress (Osama, 2023), and 66.8% of participants reported that TPD programs improved their teaching effectiveness. The programs also helped instructors manage classroom obstacles (60.1%).

The absence of regular use of novel teaching tactics, such as active learning and critical thinking, implies that TPD programs should be better aligned with modern teaching methods. According to

the research, the TPD programs in Kandahar's universities are effective. However, they require more innovation, particularly in digital and technology-driven methods, to keep pace with global trends in teacher development. Thus, TPD programs should incorporate more current, technology-based, and innovative teaching methodologies for sustained teacher professional growth.

The data from Table 4 highlighted several challenges faced by lecturers in accessing or participating in TPD programs. The most significant barrier, reported by 13.2% of respondents, is a lack of time due to heavy teaching workloads, which aligns with previous studies emphasizing the need for TPD programs to be better aligned with teachers' schedules. Limited availability and access to TPD programs were cited by 10.4% and 10.7% of participants, indicating the need for more accessible and tailored professional development opportunities.

Additionally, the outdated traditional methods and a lack of technology integration in TPD programs (9.8% and 8.8%, respectively) suggest a demand for more modern, technology-driven programs. As Quota et al. (2022) state, technology enhances teacher professional development, making it more interactive, especially in low-resource settings. Other barriers include low proficiency in using new technologies (10.2%) and long, exhausting programs (10.3%). The weak instructional skills of TPD trainers (9.9%) and language barriers in TPD materials (7.7%) also highlight areas for improvement. These findings indicate a need for more effective, accessible, and contextually relevant TPD programs in Kandahar.

Another issue noted by 9.0% of participants is the mismatch between TPD programs and instructional needs. The evidence suggests that TPD programs should better reflect teachers' real-world teaching practices and needs (Yoon et al., 2007). Furthermore, Garet et al. (2001) stated that professional development is most successful when related to teachers' everyday teaching experiences. To address these issues and meet the professional requirements of university lecturers, TPD programs must be redesigned.

The data from Table 5 revealed that common modern TPD methods, such as LMS and mobile learning applications (15.5%) and webinars/online workshops (12.9%), are the most frequently used by lecturers. Although interest in more advanced methods, such as AI-based learning (11.6%), exists, the adoption of newer technologies, including game-based learning (5.7%) and VR/AR (6.3%), remains limited. Additionally, 12% of participants reported using none of the listed methods, indicating potential barriers in access or awareness.

Participants in the study strongly emphasized the need for modernization and innovation in TPD programs. They advised using Zoom, Google Classroom, Coursera, Udemy, and edX to improve accessibility and meet modern teaching requirements. They requested the use of AI, smart classrooms, and AR/VR to provide immersive and individualized learning experiences. Blended learning approaches that integrate online and face-to-face techniques for flexibility and participation were preferred by many. Participants also supported international collaboration and faculty exchange programs to learn global best practices. Micro-credentials and short courses on academically relevant abilities were also suggested. Finally, they sought more interactive and

practical workshops, especially those led by foreign trainers, to keep knowledge current, engaging, and relevant to teaching and research.

A significant strength of this research lies in its mixed-method design, which allowed for triangulation of data and a richer understanding of the issues. The quantitative survey provided broad trends and general perceptions, while the qualitative interviews offered more profound insight into lecturers' lived experiences. This methodological complementarity enhanced the credibility and robustness of the findings.

Another important strength is the contextual relevance of the study. The research was grounded in the real-life experiences of lecturers working in Kandahar's public and private universities, making the findings highly applicable for policy and institutional planning within Afghanistan's higher education sector. Furthermore, by involving diverse participants across different faculties, the study captured a wide range of perspectives, adding depth and validity to the conclusions.

Despite its contributions, the research has limitations. First, the sample size, although adequate for a mixed-method study, may not fully represent all universities or lecturers in Afghanistan. Perspectives from university lecturers in other provinces were not included, which limited generalizability.

Second, due to the study's short timeframe, it was not possible to observe the long-term impact of TPD programs on teaching practices and student outcomes. Future longitudinal studies are necessary to evaluate the sustained changes in educator behavior and institutional culture.

Implications and Recommendations

For Institutions: Universities should treat TPD as a continuous, strategic process by creating structured training plans, allocating resources, and establishing monitoring systems. Greater investment in technology and training is needed to modernize TPD delivery.

For Lecturers: University lecturers are encouraged to take active roles in their professional development. Beyond participation in institutional training, they should engage in self-directed learning through online courses, educational webinars, and academic networks. Also, through peer collaboration, reflective practices, and participation in learning communities.

For Policymakers and Donors: System-wide support is essential to strengthen TPD centers, develop local trainers, and improve digital infrastructure. Policies should promote flexible, locally relevant and modern TPD models.

CONCLUSION

This research investigated how university lecturers in Kandahar perceive the transformation of TPD to support a sustainable educational future. The research aimed to assess the availability and effectiveness of TPD programs, identify the challenges lecturers face, and explore innovative methods for improvement. The study addressed four key questions aligned with these goals and used a mixed-methods approach to gather both quantitative and qualitative data from public and private universities.

The findings revealed that while TPD programs are available, some of them are not consistently accessible or effectively aligned with lecturers' professional needs. Many programs rely on outdated, theoretical content with limited integration of modern technologies. Challenges such as time constraints, poor scheduling and lack of relevance were consistently reported. Despite these barriers, lecturers showed strong motivation and interest in adopting innovative, context-relevant strategies such as micro-credentials, blended learning, peer mentoring, and online platforms. These insights highlight both the gaps in current practices and the opportunities for reform.

The significance of these findings lies in their practical implications for institutional planning, educational policy, and faculty empowerment. In a fragile context like Kandahar, developing sustainable, inclusive, and modern TPD systems is crucial for long-term educational quality. This study adds to the limited literature on TPD in Afghanistan and demonstrates the value of incorporating lecturer voices in designing relevant professional development models. Although limited by its sample and geographic scope, the study opens pathways for future longitudinal and comparative research. By addressing systemic challenges and embracing innovation, TPD programs can play a transformative role in strengthening higher education in similar fragile contexts. Future studies are encouraged to adopt longitudinal and comparative designs to explore further the impact and evolution of TPD practices across diverse educational settings.

Future Research

Future studies should examine the long-term impact of TPD on teaching, research, and student outcomes, using longitudinal designs. Comparative research on centralized versus decentralized models in fragile contexts like Afghanistan is recommended. Further investigation into technology-driven approaches, blended learning, micro-credentials, and the role of institutional support and policy frameworks can inform the design of innovative, context-specific, and sustainable TPD programs.

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