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## **Continuing professional development of teachers in Uzbekistan: From challenges to opportunities\*\***

### **Summary**

This article examines the continuing professional development (CPD) of teachers in Uzbekistan, focusing on their perspectives, motivations, and challenges. An online survey was conducted in April-May 2024, gathering 315 valid responses from primary and secondary school teachers across various regions. The study explores participation trends, preferred CPD formats, and barriers to engagement. Findings indicate that while many teachers are committed to professional growth, they face significant obstacles, including heavy workloads, limited access to high-quality training, financial constraints, and insufficient institutional support. Age and workload were found to influence CPD participation: respondents in higher age brackets reported greater engagement and satisfaction, whereas those in lower age brackets preferred online learning but collaborated less with colleagues. Despite ongoing CPD reforms, many teachers report that training programmes do not fully align with their needs, particularly in practical application and relevance to classroom challenges. The study situates Uzbekistan's CPD landscape within broader educational reforms and global frameworks, emphasising the need for differentiated CPD approaches. As Uzbekistan expands its education sector amid demographic shifts, investing in accessible, well-structured CPD initiatives is crucial for enhancing teacher effectiveness and student outcomes. The article concludes with policy recommendations to improve CPD accessibility, alignment, and impact, contributing to a more equitable and effective teacher development system in Uzbekistan.

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## Introduction

Globally, Continuing Professional Development (CPD) for teachers is recognised as essential to improving education systems and meeting the demands of the 21st century. Technological advancements, changing societal needs, and evolving economies require teachers to continuously update their skills to remain effective. International research shows that high-quality CPD enhances both teaching practices and student outcomes. Many countries have reformed CPD frameworks to address these challenges, though gaps in implementation and access remain (Darling-Hammond et al., 2005; Goodwin, 2020; Nkundabakura et al., 2023; O'Shea et al., 2000; Schleicher, 2012). Similarly, Uzbekistan has introduced educational reforms to strengthen CPD, but issues such as outdated training models and resource limitations persist (Gulyamova et al., 2014; Shaturaev, 2022).

The landscape of teacher education (TE) and CPD for teachers in Uzbekistan is undergoing significant transformation, shaped by both global trends and local shifts in educational priorities, policies, and practices (Mamadaminova & Khadjikhanova, 2023; Shaturaev, 2021). In recent years, the Uzbek government has placed a renewed emphasis on education reforms, aiming to modernise the system of education to meet international standards while also addressing the issues and needs of teachers in Uzbekistan (Cytlak & Mamadaminova, 2021; Madalińska-Michalak & Misirova, 2020; Shaturaev, 2021; World Bank Group, 2023). Central to these reforms is CPD of teachers, recognised worldwide as a cornerstone for educational improvement and a driver of quality teaching and student success (Darling-Hammond et al., 2005; Schleicher, 2012) as educational demands become more complex, the need for teachers to engage in lifelong learning has intensified (Abakah et al., 2023; Darling-Hammond, 2000; Madalińska-Michalak & Bavli, 2018). In Uzbekistan, where rapid educational reform is underway, enhancing the effectiveness and accessibility of CPD is essential for aligning teacher competencies with the nation's evolving educational goals.

Uzbekistan's recent educational initiatives, largely led by the Ministry of Education, have prioritised strengthening teacher quality and continuous development (lex.uz; Odilova, 2022; Sheykhmetova et al., 2022). By placing teacher skill enhancement at the forefront, these reforms emphasise the importance of equipping teachers with the knowledge and adaptability needed to address modern educational challenges (Mamadaminova & Khadjikhanova, 2023). However, despite advances in establishing CPD frameworks, several challenges persist, including limited access,

inconsistent engagement levels, and practical difficulties in translating CPD insights into everyday teaching practices (Gulyamova et al., 2014; Shaturaev, 2022).

This study explores five core areas of CPD of teachers in Uzbekistan's public school context that were identified in pilot research on CPD in Uzbekistan (Mamadaminova & Khadjikhanova, 2023): (1) teachers' perceptions and attitudes towards CPD, (2) motivational factors and obstacles influencing teacher participation, (3) frequency of engagement and relevance of CPD activities to classroom practice, (4) the impact of workload on CPD participation and opportunities for collaborative learning, and (5) the current state of CPD as measured against five effectiveness factors: relevance, accessibility, sustainability, applicability, and collaborative potential.

By addressing above mentioned core areas, the study seeks to offer a clearer and deeper understanding of both the strengths and limitations of current CPD practices in Uzbekistan. Ultimately, the insights gained aim to support policy-makers and teachers in developing more targeted, accessible, and impactful CPD opportunities, transforming challenges into pathways for teacher growth and educational advancement. This study holds international relevance by connecting Uzbekistan's CPD challenges to global issues in teacher development. By aligning with frameworks like **UNESCO's guidelines**, it situates Uzbekistan's experience within a broader context (unesco.org). This perspective enables **comparative research** and the **adaptation of best practices**, while also offering insights for **international stakeholders** supporting CPD in developing nations.

## Literature Review

### The importance of continuing professional development of teachers

To adequately prepare students for the demands of the 21st century, the rapidly evolving society and exponential growth of knowledge necessitate a global focus on improving schools (Abakah et al., 2023; Abdulrab, 2023; Darling-Hammond et al., 2005; Goodwin, 2020; Nkundabakura et al., 2023; O'Shea et al., 2000; Schleicher, 2012). In response to these shifts, there is a pronounced global trend towards enhancing educational institutions to address growing social and economic demands (Madalińska-Michalak, 2019; Schleicher, 2012; Srinivasacharlu, 2019; Xaso et al., 2017). As in other professional fields, teachers face significant challenges in the workplace, which demand ongoing adaptation and development (Abakah et al., 2023; Abu-Tineh et al., 2023; Day & Gu, 2007; Mabasa & Singh, 2020; Madalińska-Michalak, 2018). The pressures brought by technological advancements, diverse student populations, increased academic standards, and the expansion of knowledge-based economies have intensified the demands placed on teachers (Day & Gu,

2007; Goodwin, 2020; Goodwin & Darity, 2019; Xaso et al., 2017). To meet these expectations, teachers must engage in continuous learning and skill enhancement; neglecting professional development risks diminishing their effectiveness and capacity to meet modern educational challenges (Abakah et al., 2023; Abdulrab, 2023; Goodwin, 2020; Nkundabakura et al., 2023; Xaso et al., 2017).

CPD for teachers is widely acknowledged as a fundamental component in ensuring educational quality and meeting the demands of rapidly evolving educational contexts (Abakah et al., 2023; Avalos, 2011; Darling-Hammond et al., 2005; Darling-Hammond et al., 2017; Duta & Rafaila, 2014; Guskey, 2002; Hill et al., 2013; Kang & Yang, 2022; Muksin et al., 2021; Opfer, 2016; Schleicher, 2012; Xaso et al., 2017). Given that initial education alone is insufficient to sustain teacher effectiveness, CPD becomes essential for maintaining proficiency, adapting to educational changes, and staying current with evidence-based practices in teaching (Abakah et al., 2023; Day, 1999; Schleicher, 2012).

Professional development consists of natural learning experiences and planned activities aimed at benefiting individuals, groups, or schools by improving classroom education quality. It involves teachers in reviewing, renewing, and extending their commitment as change agents, developing the knowledge, skills, and emotional intelligence essential for effective professional practice (Day, 1999, p. 4).

CPD not only enhances teachers' skills but also directly benefits students and the broader educational ecosystem by improving instructional quality and promoting positive student outcomes (Desimone, 2009; Nkundabakura et al., 2024; Schleicher, 2012; Xaso et al., 2017). As Bates and Morgan (2018) emphasise, professional development should have a demonstrable impact on teachers' knowledge and practice, ultimately translating into gains in student learning (Abdulrab, 2023; Avalos, 2011; Darling-Hammond et al., 2005; Guskey, 2002; Kyriakides, 2007; Opfer, 2016; Xaso et al., 2017). Numerous studies highlight that effective, highly qualified teachers contribute significantly to student achievement, underscoring the critical role of rigorous CPD in fostering instructional growth (Berry et al., 2009; Darling-Hammond, 2000; Madalińska-Michalak & Bavli, 2018; Xaso et al., 2017). CPD involves a range of structured learning activities designed to deepen teachers' professional knowledge, skills, and attitudes, thereby improving their teaching practices and, by extension, student outcomes (Darling-Hammond et al., 2005; Desimone, 2009; Egert et al., 2018; Guskey, 2002; Opfer, 2016; Srinivasacharlu, 2019). By reshaping teachers' professional knowledge and practices, CPD serves as a critical tool in aligning educational efforts with student success (Taddese & Rao, 2021). Moreover, CPD enables teachers to adapt to evolving professional trends, prepares them for future responsibilities, and expands their career opportunities,

further underscoring its importance in teacher growth and retention (Muijs & Reynolds, 2017; Richter et al., 2019).

Additionally, effective CPD is instrumental in fostering teachers' personal and professional satisfaction, as it can enhance self-perception and positively influence teacher-student relationships (Day & Gu, 2007; Opfer, 2016). This not only supports teachers' personal development but also strengthens their impact within educational institutions (Day & Gu, 2007; Desimone, 2009; Guskey, 2002; Nkundabakura et al., 2024). Research consistently suggests that CPD's influence on teaching effectiveness is closely tied to its quality and relevance; when teachers engage in high-quality professional development activities, they enhance their instructional abilities and contribute to their school's collective capacity (Desimone, 2009; Miles et al., 2004). While the positive impacts mentioned are contingent upon the effectiveness of the CPD (Bates & Morgan, 2018; Desimone, 2009; Guskey, 2003; Schleicher, 2012; Sims & Fletcher-Wood, 2021; Walter & Briggs, 2012; Wei et al., 2009; Zhang et al., 2024), several key descriptors of effective CPD design have been identified across various studies.

Effective CPD:

- promotes *deep professional knowledge* (Desimone, 2009; Guskey, 2003; Schleicher, 2012; Sims & Fletcher-Wood, 2021; Walter & Briggs, 2012; Wei et al., 2009; Zhang et al., 2024);
- provides *adequate time and regular sessions* (Desimone, 2009; Guskey, 2003; Opfer & Pedder, 2011; Schleicher, 2012; Sims & Fletcher-Wood, 2021; Walter & Briggs, 2012; Wei et al., 2009; Zhang et al., 2024);
- encourages *active participation* (Blank & de las Alas, 2009; Desimone, 2009; Opfer & Pedder, 2011; Opfer, 2016; Sims & Fletcher-Wood, 2021; Wei et al., 2009; Zhang et al., 2024);
- supports *collective learning* (Blank & de las Alas, 2009; Desimone, 2009; Guskey, 2003; Opfer, 2016; Opfer & Pedder, 2011; Sims & Fletcher-Wood, 2021; Walter & Briggs, 2012; Wei et al., 2009; Zhang et al., 2024);
- emphasises the connection between *teacher learning and student outcomes* (Desimone, 2009; Opfer and Pedder, 2011; Schleicher, 2012; Sims & Fletcher-Wood, 2021; Walter & Briggs, 2012; Wei et al., 2009; Zhang et al., 2024), ensuring CPD improves both teaching skills and student achievement.

Overall, these principles highlight the need for well-designed CPD programmes to enhance professional growth and educational outcomes (Avalos, 2011; Darling-Hammond et al., 2017; Guskey, 2003; Opfer, 2016; Walter & Briggs, 2012). Linking these ideas clarifies that continuing professional development is indispensable for modern teachers. It not only equips them to meet the increasing demands of their profession but also ensures they can provide the highest quality education

to their students, thereby contributing to the overall improvement of educational systems worldwide.

### **Recent reforms and challenges in education in Uzbekistan**

According to the World Bank's Human Capital Index (HCI) 2020, young people in Uzbekistan acquire basic skills during their school years that could make them up to 40% less productive as adults compared to their potential. This is due to the slow implementation of a new National Curriculum aimed at developing 21st-century skills and addressing past educational shortcomings. Education indicators in Uzbekistan remain below the regional average and significantly lower than the OECD average. In 2018, Uzbek students scored 474 on an international test, far below the highest benchmark of 625 (World Bank, 2021). The lack of skilled labour is also a major challenge for businesses (Trushin, 2019; World Bank Group, 2023), while tertiary education enrolment remained low at 16% in 2020 (Cytlak & Mamadaminova, 2021).

Since 2017, the government has launched market-oriented reforms to enhance economic efficiency and sustainability (Madalińska-Michalak & Misirova, 2020; World Bank Group, 2023). Uzbekistan is also experiencing a demographic shift, with a growing number of children aged 0–9 (stat.uz), preparing for a youth population surge in the coming decades (UNICEF, 2019).

Uzbekistan's demographic shifts present both opportunities and challenges in education. In the 2022/2023 academic year, schools with a capacity of 5.2 million accommodated over 6.3 million students, often through double-shift systems (MPSE, 2023). By 2026, student enrolment is expected to surpass 7.6 million, potentially reaching 8.6 million by 2030, necessitating 1.2 million additional school seats to meet growing demand (MPSE, 2023). Expanding educational infrastructure is critical not only to accommodate this increase but also to develop a skilled workforce and enhance Uzbekistan's global competitiveness.

Besides, Uzbekistan's education sector continues to face complex challenges that demand targeted solutions (Lee, 2021; Shaturaev, 2022; World Bank Group, 2021). One of the most pressing issues is the widespread shortage of qualified teachers (Khaydarov, 2020; Shaturaev, 2022; World Bank Group, 2021), a problem exacerbated by low salaries that drive many teachers to seek additional income through private tutoring. Research conducted by Khaydarov (2020) reveals that private tutoring has become a common practice, with most teachers endorsing it as beneficial for students' academic success. However, this practice also raises concerns, as students sometimes perceive their teachers to be more dedicated

during private sessions, hinting at potential disparities in the quality of instruction provided during regular classes.

Moreover, the curriculum and assessment frameworks in Uzbekistan remain largely outdated (Gulyamova et al., 2014; Nurillaev, 2024; Shaturaev, 2022; World Bank Group, 2021). A reliance on traditional, instructor-centered teaching methodologies limits students' ability to develop critical thinking and problem-solving skills, competencies essential for a modern workforce (Nazirova et al., 2023). Antiquated teacher training and re-training programmes only reinforce these outdated practices, making it difficult for teachers to adopt more innovative, student-centered approaches (Mamadaminova & Khadjikhanova, 2023). To address this, the National Curriculum aims to incorporate 21st-century skills, yet its implementation has been slow, revealing a gap between policy and practice.

Resource limitations also present a substantial barrier, particularly for students and teachers in rural areas (Gulyamova et al., 2014; Shaturaev, 2022; World Bank Group, 2021). Access to up-to-date materials, technology, and even adequate learning environments is scarce, especially outside urban centres. Foreign language teachers, in particular, face challenges in accessing the resources and immersive opportunities available in larger cities, further limiting their students' language proficiency (Gulyamova et al., 2014; Nazirova et al., 2023). Classroom overcrowding is another ongoing issue, with many classrooms exceeding capacity limits and constraining the learning experience (Shaturaev, 2022; World Bank Group, 2021). In the 2022/2023 academic year, classrooms with up to 35–45 students were common, limiting individualised attention and adversely impacting the overall quality of education (Shaturaev, 2022).

The lack of a standardised national system for student assessment further complicates Uzbekistan's educational landscape (World Bank Group, 2021). Without a reliable, countrywide evaluation system, comparisons of student outcomes across regions remain inconsistent, hindering the development of a cohesive strategy for educational improvement (Uzbekistan Ministry of Preschool and School Education, 2023).

### **Continuing teacher professional development in Uzbekistan**

Uzbekistan's teacher professional development (TPD) initiatives are moving forward with promising reforms, yet they face a range of challenges in implementation. In recent publication (Mamadaminova & Khadjikhanova, 2023), we mentioned that TPD in Uzbekistan faces challenges related to expertise, leadership (Khayretdinova & Narkulov, 2020; Wolfenden, 2023), digital literacy (Gorshkova, 2022; Wolfenden, 2023), relevance (Wolfenden, 2023), lack of materials (Wolfenden, 2023), and motivation of teachers (Khayretdinova & Narkulov, 2020; Davronov, 2023).

The country's TPD efforts, managed by the Ministry of Preschool Education (MPSE), the Ministry of Public Education (MPE), and the Ministry of Higher and Secondary Specialised Education (MHSSE), continue to rely largely on outdated, top-down training models that limit the adaptability and continuity of teacher skills development (Mamadaminova & Khadjikhanova, 2023; Sheykhametova et al., 2022). A legacy of infrequent, centralised training – often offered every three to five years – produced a fragmented professional development cycle that inadequately prepared teachers for modern classrooms until 2020 (Sheykhametova et al., 2022). Distance and ICT-mediated TPD was approved for MPE and MHSSE teachers in 2020 and 2021, respectively, initiating reforms like credit-based CPD and needs-based TPD activities. However, these initiatives lack external evaluations, being mainly reviewed by ministry-affiliated organisations (Sheykhametova et al., 2022). Since 2017, the private education sector has expanded, with new legislation fostering private schools and international higher educational institutions (HEIs). This competition led private schools to offer local TPDs and launch online schools (Sheykhametova et al., 2022). International providers like TESOL and CELTA have also established TPD programmes in Uzbekistan. Moving forward, a more public-led approach is necessary to scale TPD, including quality-assured online learning.

Another persistent challenge lies in the weak inter-ministerial communication between MPSE, MPE, and MHSSE, which leads to inconsistencies in TPD approaches across education levels (Sheykhametova et al., 2022). Teachers trained under one ministry may find their skills misaligned with the standards of another, resulting in uneven TPD quality. Further complicating this, many TPD facilitators lack recent classroom experience or digital literacy, which limits the effectiveness of digital TPD programmes now in place (Wolfenden, 2023). School leaders often do not perceive TPD leadership as part of their roles, leading to minimal integration of TPD initiatives in schools and a lack of support for teachers' professional growth.

Reform efforts in Uzbekistan's ELT sector, supported by the British Council, introduced communicative and competency-based methods in higher education, replacing Soviet-era practices (Gulyamova, 2014). Programmes like DUET (2006–2008) and PRESETT empowered teachers with interactive approaches, enhancing professional growth and student engagement. Research highlights that Continuous Professional Development (CPD) differs from in-service training, occurring both consciously and unconsciously, and is most effective when collaboration exists at all levels (Gulyamova et al., 2014). The PRESETT project expanded professional development opportunities, demonstrating that gradual, research-backed reforms – rather than top-down enforcement – ensure sustainable change in Uzbekistan's ELT system. Further localised research is essential to tailor CPD programmes to Uzbekistan's diverse education system. While TESOL and CELTA provide valuable

insights, Uzbekistan needs TPD frameworks that align with its cultural and institutional context, especially in rural areas where teachers face access challenges (Davronov, 2023; Khayretdinova & Narkulov, 2020). The subsequent section of the article examines the methodology employed to assess Teacher Professional Development (TPD) efficiency and the challenges teachers encounter in Uzbekistan.

### Methodology

The primary goal of this study is to explore and understand the perceptions, attitudes, and experiences of teachers in Uzbekistan's public schools regarding their continuous professional development (CPD). To achieve this, the study addresses the following research questions:

1. What are the perceptions and attitudes of public school teachers in Uzbekistan towards CPD?
2. What motivates teachers to participate in CPD, and what challenges do they encounter that may limit their involvement?
3. How frequently do teachers participate in CPD activities, and to what extent are these activities applicable to their daily teaching practices?
4. How do teachers perceive their workload and its impact on their ability to engage in CPD, and what are the possibilities for collaboration within CPD initiatives?
5. What is the current state of CPD in Uzbekistan in relation to the five factors of effectiveness (Bates & Morgan, 2018; Desimone, 2009; Guskey, 2003; Schleicher, 2012; Sims & Fletcher-Wood, 2021; Walter & Briggs, 2012; Wei et al., 2009; Zhang et al., 2024)?

In our previous research (Mamadaminova, & Khadjikhanova, 2023), a pilot study at a prestigious high school in Tashkent, Uzbekistan examined teachers' motivations, perceptions, and the primary challenges they face in Teacher Professional Development (TPD). While initial face-to-face interviews provided valuable insights, the need for broader data collection led to the implementation of a survey. Surveys offer versatility in data collection, scalability for broader outreach, and cost-effectiveness, requiring fewer resources than other methods (Dillman et al., 2014; Groves et al., 2009). Their standardised format enables easy response comparison, while anonymity encourages honest feedback, enhancing reliability (Dillman et al., 2014; Leeuw, Hox & Dillman, 2008). The survey included both **quantitative (closed-ended questions) data and qualitative data (open-ended questions)**, allowing for a mixed-methods approach that provided both statistical insights and deeper contextual understanding of teachers' experiences. The collected data were analysed using **Microsoft Excel**, where **descriptive statistical**

**methods** such as frequency distributions and percentages calculations were applied to summarise quantitative responses. The qualitative responses were categorised thematically to identify key trends and recurring themes related to CPD challenges and opportunities.

The current study was conducted online in April and May of 2024 among primary and secondary school teachers in Uzbekistan. The survey also included teachers from special education but excluded university faculty. The survey was announced in a Telegram group that includes teachers from all regions and staff members working at public education institutions. Participation in the survey was totally voluntary. A total of 326 responses were collected, of which 14 were excluded as those respondents were not teaching staff at schools or secondary specialised lyceums. Consequently, the analysis is based on 315 valid responses. The survey comprised 25 questions, including both open-ended and close-ended questions.

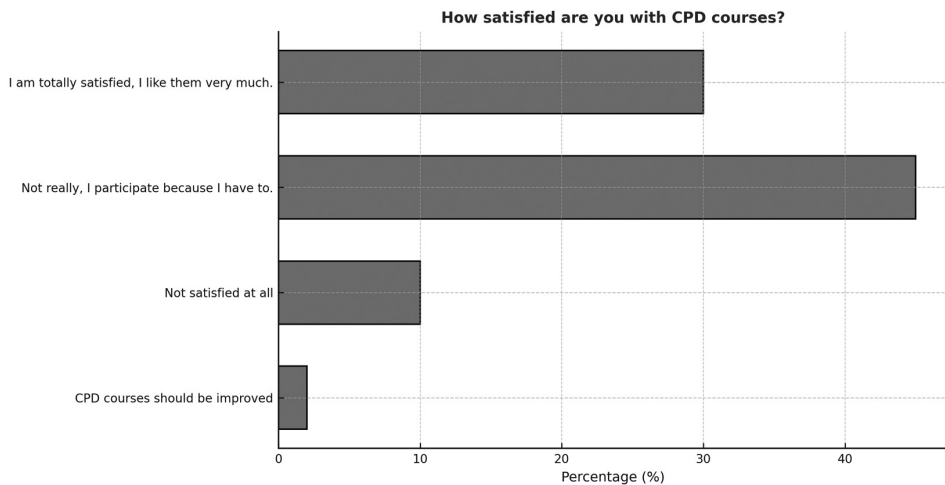
The survey explored Uzbekistan's public school teachers' perceptions of CPD, focusing on interests, challenges, motivation, participation frequency, and practical applicability. It also examined workload, CPD access, collaboration, informal learning, and classroom implementation. The survey, informed by a pilot study (Mamadaminova & Khadjikhanova, 2023) and a literature review, aimed to assess CPD effectiveness. The survey was conducted in Uzbek, and the findings were translated into English by the authors. It was anonymous, and participants were invited to participate voluntarily. The survey was administered online using Google Forms. Since the survey targeted adult participants, and it was conducted anonymously, and collected non-sensitive data with no risk of harm to participants, ethical committee approval was not required according to the applicable guidelines (Bryman, 2012; Creswell, 2009).

### Study participants

The majority of respondents were within the age ranges of 31–40 (39%) and 41–50 (31%), followed by 14.5% of respondents aged between 21–30 and 15.5% aged between 51–60. Participants represented all regions of Uzbekistan, with a notable concentration from Jizzakh and Tashkent. Regarding professional experience, the majority of respondents had 21–30 years of teaching experience. There were also participants with over 31 years of experience, and interestingly, 3% of respondents had less than one year of teaching experience. Most teachers reported working with graduating classes (forms 9–11), although there were also teachers who provided instruction across various levels, from primary to secondary school.

## Findings

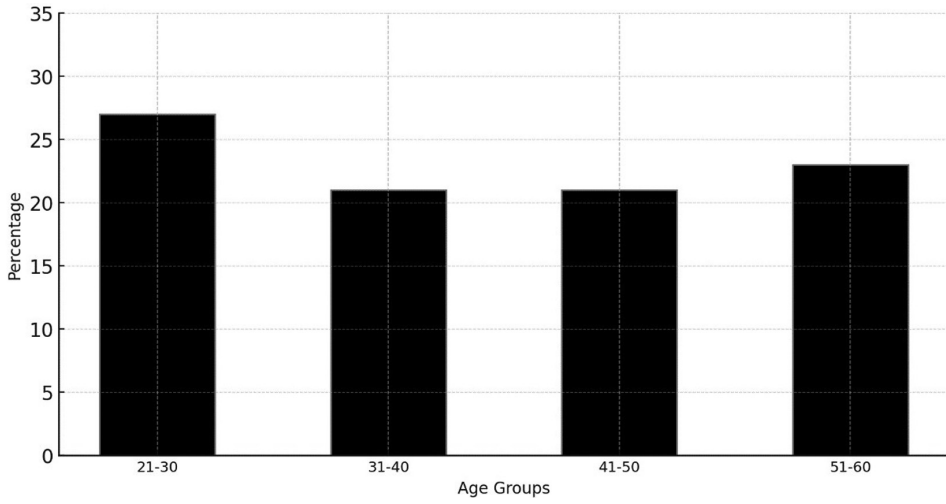
The findings are presented initially, followed by an analysis and discussion in relation to the research questions and relevant literature. The survey examined teachers' commitment to professional development, with 43.5% agreeing and 41% strongly agreeing that they regularly engage in CPD. However, nearly one-quarter showed disinterest in training courses. Regarding CPD participation, 3% attended in 2022, 55% in 2023, and 19.5% in 2024, while some had participated before 2022, and two teachers had never attended. 10% stated CPD was not mandatory at their workplace, while 5% were uncertain. Preferred CPD formats varied: 32% favoured online courses, 30% preferred blended learning. Access to CPD outside local areas was limited, with only one teacher having attended a course abroad, though all expressed interest in participating in CPD beyond their region.



Graph 1. Satisfaction of teachers with CPD in public schools of Uzbekistan.

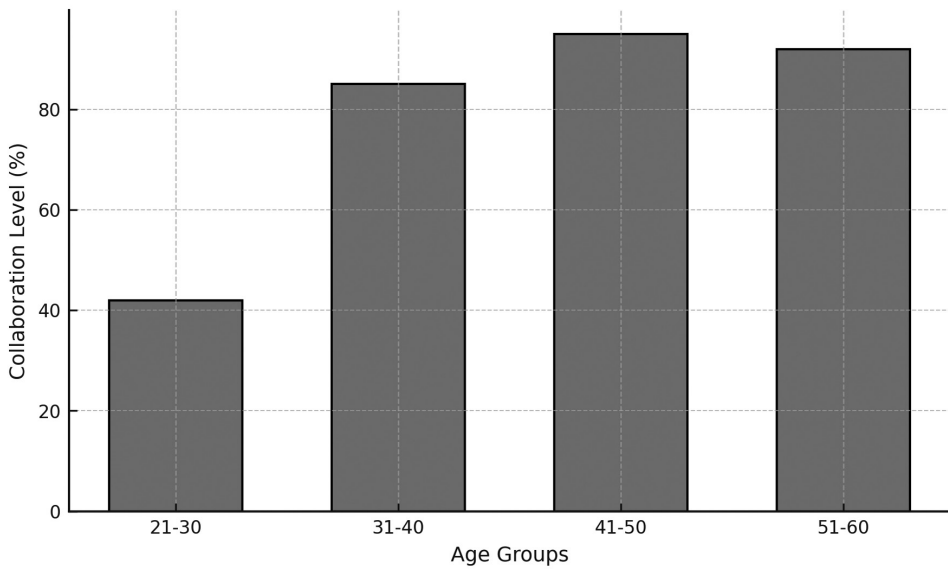
Source: Based on survey findings.

Graph 1 shows that Uzbekistan's teachers actively engage in professional development, but the system remains underdeveloped. The majority highlighted a need to improve computer skills, emphasising the gap between theoretical knowledge and practical application. Some teachers felt confident in their knowledge but lacked self-confidence, while others struggled with student behaviour management and parental cooperation. Financial concerns, particularly low salaries, were also noted. Regarding CPD alignment with teachers' needs, responses were split:



Graph 2. Participation in CPD programmes due to compulsion.

Source: Based on survey findings.



Graph 3. Collaboration in CPD programmes.

Source: Based on survey findings.

40% agreed, 40% were neutral, and 20% disagreed. Despite workload challenges, more than half found time for CPD. Beyond official training, teachers sought self-improvement through social media, peer observations, and international educational methods. Survey results showed age-based differences in CPD participation and preferences. The 51–60 age group was most interested, while the 31–40 age group showed the least interest. CPD format preferences varied: the 21–30 age group favoured online, the 51–60 age group preferred face-to-face, and the 41–50 age group preferred blended learning. Participation due to compulsory requirements was reported by 27% of those aged 21–30, 21% of persons aged 31–50, and 23% of the 51–60 age group.

Graph 2 shows the percentage of each age group participating in CPD programmes without a specific purpose, only because it is compulsory.

Graph 3 illustrates the collaboration levels of different age groups in professional development activities. Furthermore, an analysis of participants' workload revealed the following distribution:

Table 1. Workload of surveyed teachers

Group 1	24 teachers – 8%	2–7 hours
Group 2	64 teachers – 20%	8–14 hours
Group 3	158 teachers – 50%	15–24 hours
Group 4	64 teachers – 20%	25–36 hours
Group 5	1 teacher – 0.2%	48 hours

The analysis based on workload revealed several key trends regarding participation, preferences, and collaboration in CPD programmes. Participants with workloads of 15–24 hours per week (Group 3) showed the highest interest in CPD and preferred online formats. Unlike Group 4 (25–36 hours), which felt pressured to attend CPD, Group 3 participated voluntarily. Satisfaction levels were highest in Groups 2 (8–14 hours) and 3 (40%), while Group 4 reported the lowest (25%). Despite favouring online CPD, Group 3 engaged the least in professional collaboration, whereas Group 4 actively participated in non-compulsory CPD, suggesting that workload does not hinder professional engagement. Group 2, with the lightest workload, showed minimal involvement beyond mandatory training. These results indicate that the current online CPD format may not fully support teachers with heavy teaching responsibilities.

Table 2. Comparison of challenges across age groups

Age Group	Unique Challenges
Aged 21–30	<ul style="list-style-type: none"> <li>• Balancing workload with limited experience in managing responsibilities</li> <li>• Managing administrative tasks while maintaining enthusiasm for teaching</li> <li>• Difficulty in establishing authority and gaining respect</li> <li>• Emotional challenges in building strong connections with students</li> <li>• Navigating early career growth and professional development opportunities</li> </ul>
Aged 31–40	<ul style="list-style-type: none"> <li>• Balancing heavy workload with family and professional responsibilities</li> <li>• Managing multiple obligations due to limited financial flexibility</li> <li>• Limited access to additional resources and tools affecting classroom performance</li> <li>• Facing reduced motivation due to slowed career progression</li> <li>• Addressing student behaviour and low parental involvement</li> </ul>
Aged 41–50	<ul style="list-style-type: none"> <li>• Handling large class sizes with limited opportunities for individualised teaching</li> <li>• Coping with ongoing administrative responsibilities and reporting</li> <li>• Limited availability of up-to-date teaching materials and technology</li> <li>• Managing psychological stress resulting from administrative responsibilities and students' lack of engagement in learning</li> <li>• Balancing mentoring responsibilities alongside systemic constraints</li> </ul>
Aged 51–60	<ul style="list-style-type: none"> <li>• Maintaining motivation amidst slow-paced reforms and evolving policies</li> <li>• Supporting academically weaker students to meet educational standards (DTS)</li> <li>• Adapting to new technologies and teaching approaches</li> <li>• Addressing challenges related to professional recognition and work-life balance</li> <li>• Managing low student engagement and limited parental cooperation</li> </ul>

## Discussion

Through the research questions posed, next we aim to uncover key insights into the current CPD landscape in Uzbekistan and connect them to international literature where relevant.

### Perceptions and attitudes towards CPD

The findings show a varied outlook among public school teachers in Uzbekistan regarding CPD, with most respondents (84.5%) showing a commitment to professional growth, recognising its role in improving teaching effectiveness. However, about one-quarter expressed limited interest in CPD, possibly due to past experiences with programmes seen as irrelevant (Sankar, 2021; Wolfenden, 2023). These responses highlight the need for CPD offerings that are better aligned with teachers' practical challenges (Almeida & Richit, 2023; Galvin et al., 2023; Kang & Yang, 2022; Timperley et al., 2007).

## Motivation and challenges in participation

Teachers' motivations for participating in CPD often align with aspirations for professional growth and the perceived relevance of training (Abakah, 2023; Belay & Melesse, 2024). Many value acquiring new skills, particularly in technology, which meets current educational demands (Gorshkova, 2022; Mamadaminova & Khadjikhanova, 2023; Wolfenden, 2023). However, obstacles such as high workloads, lack of financial incentives, and limited administrative support hinder their involvement (Gorshkova, 2022; Sheykhmetova et al., 2022; Wolfenden, 2023).

Survey participants also expressed concerns about the efficiency of online CPD systems, with one participant stating that "[t]he online system is not working efficiently for CPD courses". Additionally, low salaries and systemic challenges contribute to demotivation, underscoring the need to address these barriers to boost teacher engagement in CPD (Belay & Melesse, 2024; Cadero-Smith, 2020; Day & Gu, 2007; Karlberg & Bezzina, 2022; Khaydarov, 2020; Lafferty et al., 2024; Mamadaminova & Khadjikhanova, 2023; Morgan & Neil, 2003; Shaturaev, 2022). Several participants emphasised the need for better administrative decisions in CPD implementation. One respondent pointed out: "There should be teachers involved in higher administration. If leaders are not selected from among ordinary teachers, the implementation of new rules may lack efficiency and effectiveness."

## Frequency of participation and practical application

The frequency (Njenga, 2019; Velikova, 2020) and applicability (Rajendran et al., 2023; Sims & Fletcher-Wood, 2021) of these training sessions to daily teaching practices emerged as a critical concern. Teachers expressed a desire for CPD courses to focus more on practical skills and real classroom scenarios rather than theoretical knowledge alone. "Practical knowledge should be improved in all subjects, such as chemistry, biology, and physics. Most schools do not use laboratory equipment because even the teachers do not know how to use them, as they were not taught this at university. However, significant money was spent on buying these instruments."

This gap points to the necessity for a more pragmatic approach in CPD offerings, where hands-on training and peer collaboration are prioritised to ensure that teachers can effectively translate their learning into actionable teaching strategies (Desimone, 2009; Nyenga, 2020; Opfer and Pedder, 2011; Schleicher, 2012; Velikova, 2020).

## Workload perception and collaboration opportunities

Increasing demands from paperwork and classroom management often hinder this participation (Gorshkova, 2022; Sheykhametova et al., 2022; Wolfenden, 2023). Collaboration among teachers is crucial for facilitating TPD, as many teachers engage in informal learning through peer observations and social media despite limited formal opportunities (Bahriadi et al., 2022; Belay & Melesse, 2024; Mukan et al., 2019; Bett & Makewa, 2020; Cadero-Smith, 2020).

Concerns about class sizes were also prevalent in the survey findings. A participant highlighted the difficulty of maintaining quality education in overcrowded classrooms, saying:

There should be no more than 20 students in each group for good quality lessons. There are 40 students in a class. How is it possible to deliver a good lesson? To solve the problems, leaders in higher administration should experience being an ordinary teacher for a day without revealing their real identity.

Fostering a collaborative culture within schools can enhance professional growth and collective efficacy among teachers (Avalos, 2011; Desimone, 2009; Guskey, 2002; Postholm, 2018; Schleicher, 2012). Survey participants also raised concerns about leadership transparency and decision-making, with some stating “Not all school leaders are transparent. Not all well-qualified teachers make good leaders.”

## Effectiveness of CPD in Uzbekistan

Continuous Teacher Professional Development (CPD) in Uzbekistan faces significant challenges, including a lack of depth in training content, which prevents teachers from mastering essential skills (Desimone, 2009; Guskey, 2003; Rajendran et al., 2023; Sims & Fletcher-Wood, 2021). The qualitative responses further reinforced these findings. For example, one teacher noted: “There are not enough books on critical thinking or literature on programming in Uzbek language. Teaching materials change every year...”

The infrequent and sporadic nature of CPD sessions disrupts the continuity necessary for sustained professional growth (Desimone, 2009; Njenga, 2019; Opfer & Pedder, 2011; Velikova, 2020), while lecture-based formats limit active participation, reducing engagement and knowledge application (Blank & de las Alas, 2009; Desimone, 2009). Moreover, opportunities for collective learning are scarce, and a disconnect exists between teacher learning and student outcomes, undermining

the perceived value of CPD initiatives (Desimone, 2009; Schleicher, 2012; Sims & Fletcher-Wood, 2021; Walter & Briggs, 2012; Wei et al., 2009; Zhang et al., 2024).

## Conclusion

This study examines challenges in Uzbekistan's public education system, highlighting the need for continuous professional development. Combining a literature review with survey data, it aligns with World Bank recommendations, stressing the urgency of improving teacher education. While CPD initiatives have progressed, key areas need attention, including deeper professional knowledge, regular sessions, active participation, and linking CPD to student outcomes. Differentiated CPD approaches based on age, workload, and career stage are crucial for long-term engagement and growth. This study connects Uzbekistan's CPD challenges to global frameworks like UNESCO's guidelines, offering insights for policymakers to refine strategies. It contributes to research on teacher development in transitional education systems, emphasising the role of international collaboration in educational reforms. A key strength is its pioneering analysis of CPD challenges in Uzbekistan's public schools, providing a foundation for future studies. Future research should include larger sample sizes, a broader regional scope, and a mix of qualitative and quantitative methods for better representation. Insights from administrative and ministry specialists are essential to ensure systematic and effective teacher development strategies.

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