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The need for professional development in improving teaching practices in primary schools in Kosovo

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Introduction: This study investigates elementary school teachers’ perceptions of school-based professional development (SBPD) in Kosovo, with an emphasis on the need for sustainable, context-responsive professional growth.

Methods: A quantitative descriptive design was applied. Data were gathered from a representative sample of 150 primary school teachers across three municipalities in Kosovo. Variables analyzed included teaching experience, identified professional development needs, preferred training modalities, and mentoring frameworks.

Results: The findings indicate a strong demand for updated and differentiated professional development programs, irrespective of teaching experience or training background. Professional development activities were found to enhance instructional practices and pedagogical skills. Perceptions of mentoring differed: experienced teachers valued modeling and peer support, while early-career teachers preferred structured guidance.

Discussion: The results underscore the need for flexible and targeted SBPD strategies. Integrating mentoring into PD programs emerges as a key component for sustainable capacity building and overall educational improvement.

KEYWORDS

teacher development, school-based professional development, mentoring, continuous learning, educational innovation

Introduction

As educational systems strive to respond to the demands of the 21st century, School-Based Professional Development (SBPD) has emerged as an effective and sustainable model for empowering teachers and enhancing the quality of education. Contemporary professional development practices are increasingly oriented toward the creation of sustainable, competency-based frameworks that align with the evolving roles of educators. SBPD represents a structured, context-sensitive approach that directly integrates professional learning into the school environment—where teachers work, collaborate, and reflect daily.

In Kosovo, teacher professional development has become a strategic priority within national education reforms. The Ministry of Education, Science, Technology, and Innovation (MASHTI) has introduced a comprehensive licensing system designed to incentivize continuous professional improvement and ensure high standards of teaching quality (MASHTI, 2023b,c,d).

Administrative Instructions No. 14/2023, No. 15/2023, and No. 16/2023 formalize a unified framework that regulates teacher licensing, professional development, and performance evaluation. These documents outline:

- Transparent criteria for career progression;
- Standardized procedures for performance assessment;
- Requirements for maintaining or attaining advanced teaching licenses (MASHTI, 2023b,c,d).

However, the effective implementation of this framework is contingent upon its alignment with evidence-based standards for quality teaching. For this purpose, the Strategic Framework for the Professional Development of Teachers (MASHTI, 2017) defines core competencies across career stages—from initial entry into the profession to advanced expertise. This framework serves as a foundational policy instrument linking legislation, teacher standards, and professional advancement.

The teacher performance evaluation process comprises two essential components: internal and external evaluation. This system ensures compliance with legal norms and promotes transparency through consistent, criteria-based assessment practices (MASHTI, 2024).

1. Internal evaluation involves:

- Teacher self-assessment;
- Peer review;
- Principal evaluation;
- Student feedback.

All procedures utilize MASHTI-approved instruments (MASHTI, 2024).

2. External evaluation is administered by:

- The Ministry, particularly when teachers apply for advanced licensing, involving written assessments;
- The Education Inspectorate, where curriculum experts conduct in-depth evaluations of teaching practices (MASHTI, 2024).

SBPD plays a central role in the national context of Kosovo as well as in broader international reform movements. Structured in-school activities—such as collaborative training sessions, peer observations, professional learning communities, and data-informed planning—are essential for fostering instructional competencies that translate into improved learning outcomes (Darling-Hammond et al., 2009; Mehmeti, 2024). SBPD contributes to cultivating a shared culture of educational excellence and achieving strategic goals for inclusive and high-quality schooling.

It is implemented under the leadership of school principals and governing councils and is tailored to the needs of individual schools. This continuous process begins with individual teacher engagement and extends across the professional lifespan (Craft, 2000). SBPD not only enhances accountability and motivation but also serves as a dynamic mechanism for sustaining and expanding pedagogical expertise. It ensures teachers remain professionally agile, equipped with the competencies needed to meet educational

demands and support holistic student development (Mphahlele and Rampa, 2013).

The ongoing evolution of educational policy and practice demands that teachers consistently update their professional knowledge and skills. This encompasses both deepening expertise in subject-specific pedagogy and embracing innovations in global teaching methodologies and technology integration (Darling-Hammond et al., 2009).

Teacher development is a continuous and balanced process that includes both formal and informal learning modalities. Formal learning includes workshops, seminars, and accredited training programs. Informal development involves peer collaboration, engagement in professional networks, and exchange of best practices. Teachers often participate in mentoring, access scholarly resources, and engage with digital platforms to strengthen their instructional practices (OECD, 2019).

Ultimately, SBPD must be aligned with the overarching aim of improving student achievement. It is imperative that teacher development initiatives be context-specific, responsive to school needs, and grounded in pedagogical evidence (Avalos, 2011). Effective teaching is not an innate talent but a set of competencies that can be cultivated through guided practice, reflection, mentoring, and school-embedded professional learning (Mehmeti, 2024).

Organized opportunities for professional development offer teachers structured pathways to refine subject knowledge, assess instructional effectiveness, and implement adaptive strategies that respond to student learning needs (Darling-Hammond et al., 2009).

In light of persistent challenges in education, this study underscores the relevance of SBPD as a reflective, collaborative, and evidence-informed model for teacher growth. It emphasizes the importance of strategic planning, leadership, and professional dialogue in fostering a culture of continuous instructional improvement (OECD, 2019; MASHTI, 2023a).

Literature review

The reviewed literature conceptualizes school-based professional development (SBPD) as a structured and sustainable learning process embedded within the school environment. Its core objective is to enhance teachers' pedagogical competencies and content knowledge through systematic training, mentoring, collegial collaboration, and critical analysis of classroom-specific practices. This form of development is tailored to address the distinct needs and challenges faced by schools, with a particular emphasis on improving teaching performance, student learning outcomes, and overall institutional effectiveness. OECD reports highlight SBPD as a lifelong learning process that enables teachers to adopt new curricular content, refine instructional strategies, and foster professional collaboration (OECD, 2020).

Professional development should not be viewed as a short-term intervention but as a longitudinal continuum beginning with initial teacher education and extending into ongoing workplace-based learning (Richter et al., 2011). For such processes to be impactful, teachers must be granted sufficient time, institutional support, and structured opportunities to engage meaningfully with

professional learning activities, leading to substantive changes in classroom practice. Continuous support and mentoring within the school context are pivotal for improving instructional quality and student achievement. Teaching competence is intrinsically linked to educational excellence, as the quality of learning ultimately depends on professionally developed educators (Olawale, 2025).

These practices are essential for ensuring that teachers remain current and responsive to students' evolving academic and developmental needs. Marcuccio (2015) argues that sustained teacher training enhances the quality of instruction and equips educators with the capacity to make increasingly complex pedagogical decisions. Professional development commonly encompasses formal activities such as conferences, seminars, and workshops, as well as collaborative learning embedded within school-based teams. It provides avenues for deepening teachers' professional capacities—including content knowledge, pedagogical beliefs, motivation, and self-regulatory skills (Delvaux et al., 2013).

Bredeson (2000) emphasizes that professional development fosters creativity and reflective practice, while Mizell (2010) describes it as the engagement in diverse educational experiences directly relevant to one's role. Desimone (2009) highlights its effectiveness in improving instructional practices and promoting student achievement. Fullan (1991) characterizes teacher learning as a lifelong professional journey, whereas Craig (1987) defines it as an individual process of developing understanding to enhance instructional performance.

Acknowledging that teachers' professional practice is a key determinant of student learning outcomes, numerous studies affirm the necessity of sustained in-service development throughout a teacher's career (Desimone et al., 2002; Borko, 2004). Such development enhances practical teaching skills and deepens instructional knowledge (Stiggins, 1991; Plake, 1993; Koh, 2011; Pastore and Andrade, 2019; Yan, 2021). Other researchers emphasize its impact on the overall quality of teaching and learning outcomes (Borko, 2004; Teemant et al., 2011; Andersson and Palm, 2017). Day and Sachs (2004) consider professional development as the totality of career-long activities designed to improve teaching effectiveness.

The school-based development framework encompasses activities tailored to strengthen instructional skills and improve teaching quality. This process is situated within the school setting and aligns with teachers' specific needs and interests. It aims to foster a culture of professional collaboration and continuous learning, grounded in instructional practices that are directly relevant to classroom realities.

Well-structured and purposefully planned school-based professional development activities have been shown to significantly enhance teachers' knowledge, understanding, and instructional competencies (Bandara, 2018). Such opportunities help educators remain up-to-date with evidence-based strategies and best practices. Effective SBPD must be responsive to teachers' individual needs and school-wide objectives, with an emphasis on instructional advancement and improved student performance. Collaboration and mutual support among teachers are fundamental, enabling peer learning and shared growth (Pickering et al., 2007; Street and Temperley, 2005).

School leaders who prioritize and facilitate meaningful professional development create the enabling conditions for

sustained instructional improvement (Jackson and Street, 2005). Each school is encouraged to design a context-specific professional development strategy aligned with its pedagogical priorities and committed to continuous refinement of teaching practices.

According to Cheng (2017), effective school leadership involves dynamic adaptations that promote feedback, collaboration, and the sharing of exemplary practices, thereby cultivating environments where teachers feel empowered, supported, and capable of delivering high-quality education. SBPD planning should be grounded in the assessment of teachers' individual needs and be guided by developmental planning frameworks. These plans not only steer the design of specific SBPD activities but also provide a data-driven foundation for addressing institutional priorities. They also highlight the internal capacities of the school (i.e., human resources) for implementing mentoring and other professional growth initiatives.

Ongoing monitoring is essential to ensure that development activities are contextually relevant and effective. This involves collecting data to assess progress, identify emerging needs, and refine SBPD programs in pursuit of improved student learning outcomes. Collaborative engagement and peer support greatly enhance instructional effectiveness. As Fulton et al. (2005) suggest, active teacher participation in such initiatives fosters professional knowledge-sharing, collective growth, and improved teaching and learning outcomes.

Career planning for teachers should incorporate a structured approach to identifying personal strengths, growth areas, and improvement goals, thereby supporting meaningful professional trajectories. Teachers are encouraged to begin with self-assessment and use tools such as SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) to pinpoint development areas. Reviewing past performance evaluations and gathering feedback from colleagues or students can also inform professional learning plans. Ultimately, ongoing self-reflection is recognized as a cornerstone of both personal and instructional advancement, yielding long-term benefits for educators and their students. Periodic review of this process ensures that teachers remain adaptive and proactive in elevating their practice and progressing in their careers.

Research methodology

Research questions

This study was guided by the following research questions, designed to explore the nature and effectiveness of school-based professional development (SBPD) for primary school teachers:

1. What are teachers' perceptions of the need to enhance and update school-based professional development (SBPD) practices?
2. How do teaching experience and prior participation in professional development programs relate to teachers' ongoing professional growth needs?
3. Which forms of professional development are perceived as most effective in improving instructional practices?
4. In what ways does mentoring influence teachers' professional development, particularly across varying levels of teaching experience?

5. Is there a statistically significant relationship between engagement in professional development activities and improvements in teaching competencies?

Research design

This study employed a quantitative research methodology aimed at analyzing the relationships among key variables through the collection and statistical analysis of numerical data. This approach enabled the evaluation and testing of existing theoretical models using statistical techniques, thus allowing for precise measurement of the influence of specific factors. As noted by Creswell (2022), this method supports evidence-based conclusions and promotes a comprehensive understanding of the interconnections between selected variables.

A correlational research design was utilized to examine the associations among variables without introducing any experimental manipulation. This design was chosen for its capacity to facilitate in-depth analysis of the relationships between teachers’ professional experience, developmental needs, and the various forms of professional development in which they participate. The application of rigorous statistical procedures contributed to the generation of robust and reliable inferences regarding the strength and direction of these associations.

Study population and sample

The research sample consisted of $N = 150$ primary school teachers from three urban centers in Kosovo: Prishtina, Gjilan, and Ferizaj. Participants were selected to reflect a diversity of experiences and perspectives related to school-based professional development (SBPD). A simple random sampling technique was employed to ensure that every individual in the target population had an equal chance of selection, thereby minimizing selection bias and enhancing the generalizability of the findings (Cohen et al., 2020).

By implementing this sampling strategy, the study ensured that the data accurately reflect the broader population of elementary educators and provide insights into the implementation and perceived effectiveness of SBPD initiatives across diverse educational contexts.

Research instrument

Data were collected using a structured questionnaire specifically developed to capture teachers’ attitudes toward peer collaboration, institutional support, and engagement in professional development activities. The instrument included items that assessed the frequency and nature of participation in trainings, workshops, and conferences, as well as teachers’ perceptions of how school policies influence their professional growth.

Table 1 reports the reliability coefficients for the research instrument. The Cronbach’s Alpha value of 0.995 indicates an exceptionally high level of internal consistency, providing strong evidence for the reliability and coherence of the instrument

TABLE 1 Reliability statistics.

Measure	Value
Cronbach’s alpha	0.995
Number of items	15

employed in this study. Such a result confirms that the 15-item questionnaire was highly consistent in measuring the intended constructs related to professional development among teachers.

Data collection

Data collection was carried out over a 4-week period. Prior to distribution, the research team engaged with school principals and teachers to explain the purpose and scope of the study. Participants were assured of the anonymity and confidentiality of their responses, in line with ethical research standards.

Upon obtaining institutional consent, the questionnaires were distributed in print format across participating schools. Teachers were invited to complete the instrument during non-instructional time to avoid disruption of classroom activities. The anonymous and voluntary nature of participation was emphasized to encourage honest and uninfluenced responses.

Once collected, the completed questionnaires were systematically coded and entered into the Statistical Package for the Social Sciences (SPSS), Version 20, for quantitative analysis. The structured and ethically informed approach ensured the credibility and validity of the data collection process.

The reliability of the instrument was evaluated using Cronbach’s Alpha, which yielded a value of 0.985, indicating an exceptionally high level of internal consistency. This result confirms that the questionnaire is both psychometrically robust and appropriate for measuring constructs related to professional development within the framework of school-based learning environments.

Data analysis

To analyze the collected data and respond to the research questions, the study employed a range of quantitative statistical techniques designed to ensure validity, reliability, and interpretability of the findings:

1. Descriptive statistics

Descriptive measures—including frequencies, means, and standard deviations—were used to summarize and present an overview of the participants’ responses (Fraenkel and Wallen, 2009).

- Frequencies provided insight into the distribution of categorical variables.
- Means represented the central tendency of continuous variables.

- Standard deviations indicated the extent of variability within the dataset, thereby revealing the consistency or dispersion of responses.

2. Analysis of Variance (ANOVA)

ANOVA was conducted to examine whether statistically significant differences existed in the means of three or more independent groups. For instance, this method was applied to assess whether teachers from different municipalities (e.g., Prishtina, Gjilan, Ferizaj) demonstrated significant variations in their responses regarding professional development practices (Bates, 2021).

3. Correlation analysis

Pearson's correlation coefficient was used to assess the strength and direction of linear relationships between key variables (Fraenkel and Wallen, 2009). This analysis facilitated the identification of positive, negative, or non-significant relationships between variables such as teaching experience, mentoring, and participation in professional development programs.

The use of these complementary statistical procedures enabled a comprehensive understanding of both the associative and comparative dimensions of the data. Moreover, these methods enhanced the precision and empirical grounding of the conclusions drawn from the study.

Enhanced interpretation of results and findings

The presentation and interpretation of the findings were refined in accordance with the methodological and stylistic standards of *Frontiers in Education*. The revised approach offers a clearer linkage between the empirical data and the research objectives, thereby contributing to a nuanced and evidence-based discussion of school-based professional development in the context of Kosovo.

Table 2 illustrates the distribution of participants according to age and professional experience, offering valuable insights into the demographic composition of the sample. Notably, a substantial proportion of respondents (42.6%) reported having more than 20 years of teaching experience, indicating a high level of professional stability and longevity within the teaching workforce.

This significant representation of experienced educators provides a strong foundation for intergenerational professional collaboration, particularly in contexts that emphasize school-based mentoring and peer-led learning. The coexistence of early-career and veteran teachers within schools fosters an environment conducive to the reciprocal exchange of innovative pedagogical approaches and practical classroom wisdom.

These findings underscore the importance of designing differentiated professional development (PD) programs that are responsive to the specific needs of teachers across the experience spectrum. As highlighted by Darling-Hammond and Hyler (2022), effective PD frameworks should incorporate structured mentoring opportunities, leveraging the expertise of senior educators while simultaneously addressing the evolving competencies of novice teachers.

TABLE 2 Distribution of teachers by age and work experience.

Age group	Work experience (years)	Percentage (%)
20–30	0–5	18.2
31–40	6–10	22.5
41–50	11–20	16.7
> 50	> 20	42.6

TABLE 3 Necessity for professional development across classroom scenarios.

Classroom scenarios	Correlation (<i>r</i>)
Addressing classroom challenges	0.259
Supporting students with learning difficulties	0.601
Licensing requirements	0.378
Understanding PD as an ongoing professional process	0.487

TABLE 4 Utilization and impact of professional development resources.

Resource type	Participation (%)	Impact (<i>p</i> -value)
Conferences/training	28.8	<0.001
Peer observation	15.2	0.045
Self-reflection	10.4	0.032

Table 3 presents the correlation coefficients between selected classroom scenarios and perceived needs for professional development (PD). The results reveal statistically significant associations (ANOVA, $p < 0.001$), indicating that specific pedagogical challenges substantially influence teachers' demand for professional learning opportunities.

A moderate correlation was observed for scenarios involving general classroom challenges ($r = 0.259$), while a strong correlation was found in relation to supporting students with learning difficulties ($r = 0.601$). These findings suggest that teachers increasingly recognize the need for specialized PD in areas where learner diversity and inclusivity are most pronounced.

Furthermore, understanding PD as a continuous professional commitment demonstrated a considerable association ($r = 0.487$), underscoring the evolving conceptualization of PD beyond compliance-based models such as licensing ($r = 0.378$). This aligns with research emphasizing the transformative potential of PD when it is adaptive, sustained, and embedded in classroom realities (UNESCO, 2023; Darling-Hammond et al., 2023a,b).

As shown in Table 4, the most commonly utilized resource for professional development is participation in conferences and training programs, accounting for 28.8% of total engagement. This category demonstrated the most statistically significant impact on teaching practices ($p < 0.001$), reinforcing findings from Darling-Hammond and Hyler (2022) on the importance of structured and content-rich PD experiences.

While less frequently used, peer observation (15.2%) and self-reflection (10.4%) also showed statistically meaningful contributions to teaching improvement ($p = 0.045$ and $p =$

0.032, respectively). These findings underscore the untapped potential of reflective and collaborative practices in advancing pedagogical effectiveness.

Schools are therefore encouraged to integrate peer observation and self-reflection into formal PD frameworks. Collaborative initiatives such as lesson study models, reflective practice journals, and structured observation feedback loops can enhance teacher agency and professional learning (Smith et al., 2022).

Table 5 reveals the dominant role of teachers' requests (54.5%) and ministerial policies (38.6%) in shaping professional development agendas. This highlights the increasing recognition of teachers as active contributors in designing development plans that align with their classroom realities and instructional needs.

However, the minimal involvement of school management (4.8%) and parents (0.7%) indicates a gap in stakeholder engagement. Effective PD design should adopt a multi-stakeholder approach that includes parents, school leaders, and educational policymakers to ensure alignment with broader institutional goals and community expectations (Darling-Hammond et al., 2023a,b).

A more inclusive framework may enhance the relevance, coherence, and sustainability of PD efforts, especially when contextualized within local educational needs.

To maximize the effectiveness of PD initiatives, institutional efforts should prioritize targeted interventions—particularly in areas addressing special educational needs, differentiated instruction, and inclusive pedagogical practices. Such approaches support the development of teacher agency, professional resilience, and responsiveness to the dynamic nature of 21st-century classrooms.

As shown in Table 6, mentoring preferences vary significantly across different career stages, suggesting the need for a differentiated approach to mentoring in school-based professional development (SBPD) programs.

Experienced teachers (>20 years of service) show a strong preference for supportive and modeling-based mentorship ($r = 0.95/0.92$). These educators often serve dual roles as both mentors and reflective practitioners, utilizing mentorship to refine pedagogical practices and contribute to the professional growth of less experienced colleagues.

TABLE 5 Key influences in the design of professional development plans.

Influencing factor	Percentage (%)
Teachers' requests	54.5
Ministry policies	38.6
School management	4.8
Parents	0.7

TABLE 6 Mentoring preferences by career stage.

Career stage	Preferred mentoring approach	Correlation (r)
Experienced (>20 years)	Supportive/modeling	0.95/0.92
Mid-career (15–20 years)	Purposeful	0.82
Early-career (5–10 years)	Structured	0.55

Mid-career teachers (15–20 years) prefer purposeful mentoring ($r = 0.82$) that aligns with personal and professional development objectives, such as specialization, leadership roles, or curriculum design. This supports prior findings by Jones et al. (2020), who emphasized the motivational value of goal-aligned mentoring.

Early-career teachers (5–10 years) benefit most from structured mentoring ($r = 0.55$), reflecting their need for clear guidance in classroom management, instructional strategies, and adapting to school culture (Mehmeti, 2024).

These patterns highlight the importance of designing adaptive mentoring frameworks that account for teachers' professional trajectories. When aligned with career stages, mentoring becomes a strategic tool not only for individual capacity building but also for promoting a collaborative, innovative, and sustainable school culture.

Integrating tiered mentoring into SBPD systems can enhance professional learning communities, increase teacher retention, and improve overall instructional quality (Darling-Hammond et al., 2023a,b).

Discussion

The findings of this study underscore that teacher professional development (TPD) should be understood as a continuous, iterative process, closely linked to individual teaching experience, contextual classroom challenges, and institutional support structures. Approximately 42.62% of participating teachers in this study had over 20 years of experience, indicating a strong potential for pedagogical mentoring and leadership. This aligns with OECD (2018) data, which reveal that over 47% of European teachers report a need for professional learning focused on classroom management and student diversity.

This is further supported by Colbert et al. (2008), who emphasize that professional experience does not negate the need for development—on the contrary, it intensifies the necessity for continuous updating of pedagogical practices. Teachers' training needs are closely tied to situational challenges in practice, such as behavioral management or working with students with learning difficulties, thereby necessitating personalized and context-relevant professional development models.

All forms of professional development—ranging from formal trainings, conferences, and peer observations to self-reflective practices—demonstrated a statistically significant impact on the enhancement of professional competencies. These results corroborate the arguments of Cochran-Smith and Lytle (1999) and Cordingley et al. (2015), who highlight the centrality of collaboration and reflective inquiry in cultivating a shared professional learning culture.

A particularly noteworthy theme that emerged from the data is the role of mentoring. Experienced teachers expressed a preference for mentorship that is grounded in modeling and supportive scaffolding, whereas less experienced educators tended to favor more structured and formalized mentoring frameworks. This variability supports the necessity of adapting mentoring approaches to suit teachers' experience levels, echoing the findings of Rani (2023), Billett and Rose (1996), and Ashton (2004), who stress the

importance of collegial support in facilitating the effective transfer of new knowledge into practice.

The influence of institutional support was also evident. Approximately 38.6% of professional development support reported by participants originated from central authorities—consistent with the analyses of Darling-Hammond et al. (2017, 2023a,b), who underscore the importance of systemic infrastructure in sustaining long-term professional learning. However, the relatively low proportion of development initiatives driven by school-specific or student-centered needs suggests the necessity of reorienting professional development efforts toward more flexible, practice-led approaches.

In this context, Echave (2024) emphasizes the critical role of collaboration between practitioners and policymakers in designing a sustainable and responsive TPD system. Furthermore, participants reported that engaging in communities of practice, sharing knowledge, and building trust with colleagues significantly influenced the quality of their teaching—aligning with the findings of Chu et al. (2017) and Kolb (1984).

Finally, illustrative models such as those presented by Ohlsson and Johansson (2010), as well as STEM-based professional learning initiatives described by Costa et al. (2022), demonstrate that flexible platforms integrating real-world scenarios and reflective practice enhance teacher motivation and promote the effective implementation of contemporary pedagogical concepts in the classroom.

Conclusion

Based on the empirical findings of this study, school-based professional development (SBPD) emerges as a critical driver for the continuous enhancement of teaching practices. It not only fosters the professional growth of educators but also contributes significantly to improving instructional quality and student learning outcomes. The data underscore that context-sensitive and needs-driven PD initiatives are markedly more effective and sustainable over time.

Core activities such as targeted training sessions, collaborative workshops, peer observation, and structured self-reflection promote a culture of continuous learning and professional dialogue. The effectiveness of these initiatives further highlights the indispensable role of institutional support and policy alignment in embedding PD within school systems as an ongoing, strategic process aimed at elevating educational quality.

Limitations of the study

This study is subject to several limitations. Primarily, the findings are based on self-reported data derived from teachers' perceptions, which may introduce subjective bias and limit the external validity of the results across varied educational contexts. Furthermore, the study's cross-sectional design and constrained timeframe preclude an analysis of long-term effects on teaching practices.

Future research should consider longitudinal designs and mixed-method approaches to capture both short-term

and sustained impacts of SBPD. Additionally, involving a broader range of stakeholders—such as school leaders, policy-makers, and students—would offer a more holistic perspective on the systemic influence and effectiveness of school-based professional development.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

The requirement of ethical approval was waived by Ethics Committee of the University “Kadri Zeka” for the studies involving humans because the study involved anonymous surveys and non-invasive observation of teaching practices, with no personal or sensitive data collected. All participants provided informed consent. The studies were conducted in accordance with the local legislation and institutional requirements. Written informed consent for participation in this study was provided by the participants' legal guardians/next of kin.

Author contributions

VK: Writing – original draft, Writing – review & editing. MB-I: Writing – original draft, Writing – review & editing. JR: Writing – original draft, Writing – review & editing.

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