

Systemic strategies for enhancing elementary school teachers' competence in the use of instructional media in Kosovo

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Article Information:

Received 2025-11-02

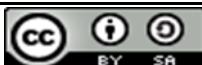
Revised 2025-12-17

Accepted 2025-12-31

ABSTRACT

Keywords: Teacher Competence; Instructional Media; Professional Development; Digital Infrastructure; Elementary Schools.

Elementary school teachers in Kosovo demonstrate positive attitudes toward instructional media, yet their classroom implementation remains limited. Structural constraints, unequal digital infrastructure, insufficient professional development, and weak teacher retention systems hinder the effective integration of instructional media, ultimately constraining pedagogical innovation and the quality of learning in elementary education. This study examines Kosovo primary teachers' instructional media competency needs, identifies implementation barriers, and formulates effective enhancement strategies by analyzing teacher readiness and contextual constraints in integrating digital and non-digital media into classroom practice. This study employed a descriptive qualitative design involving purposively selected primary teachers, principals, and supervisors from urban and rural schools in Kosovo. Data were collected through interviews, observations, document analysis, and focus group discussions, and analyzed thematically to ensure credibility and contextual depth. This study concludes that teacher competence in Kosovo is shaped by interconnected structural, institutional, and motivational factors rather than individual capacity alone. Limited infrastructure, insufficient professional development, teacher attrition, and weak retention systems undermine learning quality. Despite positive attitudes toward innovation, inadequate educational ecosystems hinder implementation, highlighting the need for integrated, sustainable, and context-sensitive systemic reforms. The findings imply that education improvement in Kosovo requires systemic policy reforms, including sustained professional development, teacher retention strategies, curriculum renewal, and equitable digital infrastructure, to effectively translate teachers' positive attitudes into improved instructional practices and learning quality.



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To cite this article (APA Style):

Lama, A. V., & Munir, A. (2025). Systemic strategies for enhancing elementary school teachers' competence in the use of instructional media in Kosovo. *EDUCARE Journal of Primary Education*, 6(2), 197-210.
<https://doi.org/10.35719/educare.v6i2.392>

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INTRODUCTION

The development of teachers' competencies in using educational media remains a critical issue in elementary education, particularly in contexts characterized by limited resources and unequal access to technology. Although instructional media especially digital media are recognized for their potential to enhance students' motivation and understanding, their effective use is still constrained by practical challenges faced by teachers. Abdulrahaman et al. (2020) report that many teachers struggle with digital media due to training that is insufficiently practical and comprehensive. These challenges are compounded by inadequate technological infrastructure and limited internet access, particularly in rural areas (Ahmad et al., 2024). Furthermore, teachers' limited technical skills prevent the pedagogical potential of digital media from being fully realized (Haleem et al., 2024). The lack of sustained technical support and continuous mentoring from educational institutions further intensifies these difficulties (Huang et al., 2024). In the context of elementary education in Kosovo, these interconnected issues reflect broader social and systemic constraints that hinder effective media integration and perpetuate inequalities in learning quality.

Previous studies indicate that enhancing teacher competency requires a contextual and continuous professional development approach. School-based professional development has been shown to improve teaching quality and learning outcomes through targeted training, collaborative workshops, peer observation, and reflective practice (Kurteshi et al., 2025). Training also plays a critical role in supporting inclusive education, as teachers generally demonstrate positive attitudes that can be strengthened across different ages and levels of experience (Uka, 2024). However, research also reveals persistent challenges. Lindner et al. (2023) report that teachers' attitudes toward inclusion remain ambivalent and vary depending on the type of disability, while recent studies offer limited strategies to address this issue. Similarly, Geletu (2024) argues that existing professional development initiatives have not sufficiently fostered pedagogical innovation due to the lack of contextually relevant policies and practical guidelines. Therefore, Bicaj et al. (2024) and Hennessy et al. (2022) emphasize the importance of specialized training and expert-supported, technology-based guidance to ensure the effectiveness and sustainability of teacher professional development.

The existing literature reveals substantial challenges in the use of instructional media in Kosovo's primary schools, yet also exposes important research gaps. Studies indicate that the integration of digital and remote learning has been limited by inadequate institutional preparedness and uneven technological infrastructure (Nikocević-Kurti, 2023; Cocaj, 2023). In addition, insufficient practical training and weak technical support have reduced teachers' confidence in employing interactive instructional media, particularly in classroom settings (Gjelaj et al., 2020). Disparities in facilities between urban and rural schools further exacerbate inequalities in learning quality (Shabanhaxhaj & Wendt, 2025). Although these studies provide valuable insights into infrastructural and training-related constraints, they tend to address these issues in isolation. There remains a lack of comprehensive research that systematically examines teachers' competency needs, contextual barriers, and strategic responses to instructional media use in Kosovo's primary education. This gap underscores the need for context-sensitive analysis to inform effective and sustainable interventions (Ozturk et al., 2025).

This study aims to examine the competency needs of primary school teachers in Kosovo in relation to the use of instructional media, identify the challenges and barriers they face in its implementation, and formulate effective strategies for enhancing these competencies. By analyzing teachers' needs and contextual constraints, the study seeks to provide a comprehensive understanding of their readiness to integrate both digital and non-digital instructional media into classroom practice. Theoretically, this research contributes to the literature on teacher professional development by extending discussions on educational technology use within post-conflict and resource-constrained educational contexts. Practically, the findings are expected to inform policymakers, educational institutions, and professional training providers in designing sustainable, targeted, and contextually relevant competency development programs for primary school teachers

in Kosovo. Through these contributions, the study supports efforts to improve instructional quality and promote more equitable learning opportunities in primary education.

In summary, the effective use of instructional media in Kosovo's primary schools remains a complex challenge influenced by teachers' limited technical skills, unequal access to technological facilities, and insufficient opportunities for practice-based professional development. These conditions indicate that strengthening teachers' capacity to use instructional media requires structured, continuous, and context-responsive approaches. Accordingly, improvement strategies should focus on hands-on training, sustained professional development, infrastructure enhancement, and institutional collaboration. Based on these considerations, this study addresses the following research questions: (1) What competencies are required by primary school teachers in Kosovo for the effective use of instructional media? (2) What challenges and barriers do teachers encounter in integrating instructional media into classroom practice? and (3) What strategies are most effective for enhancing teachers' competencies in using instructional media? Addressing these questions is expected to provide theoretical insights and practical implications for primary education development in Kosovo.

RESEARCH METHOD

This study adopts a descriptive qualitative research design aimed at exploring the competencies of primary school teachers in Kosovo in using instructional media and understanding the real conditions surrounding its implementation. A qualitative approach is considered appropriate because it allows for an in-depth exploration of teachers' experiences, behaviors, and professional practices that cannot be adequately captured through quantitative measures alone (Bazen et al., 2021). Furthermore, interpreting the social and cultural context of schools is essential for understanding how instructional media are used in teaching and learning processes (Korkko et al., 2024). Accordingly, this study examines teachers' utilization of both digital and non-digital instructional media, the pedagogical support provided by these media, and their perceived effectiveness in classroom practice.

The research was conducted in selected primary schools across urban and rural areas of Kosovo to capture contextual variations in access to resources and instructional practices. The participants included primary school teachers as the main instructional implementers, school principals as internal policy decision-makers, and education supervisors as monitors of learning quality. Participants were selected using purposive sampling, which enables researchers to obtain rich and relevant data from individuals who possess direct experience and knowledge related to the research focus (Curtis et al., 2000). Consistent with Yan et al. (2025), the inclusion of schools from diverse geographical and institutional backgrounds was essential to reveal disparities in teachers' capacity and access to instructional media.

Data collection employed multiple qualitative techniques to ensure depth and credibility. Semi-structured interviews were conducted to capture participants' experiences, perceptions, and challenges in using instructional media. Classroom observations were carried out to examine actual teaching practices and the integration of instructional media during learning activities. In addition, document analysis was used to review lesson plans, training records, and school policy documents related to media use. To strengthen collective understanding and capture shared perspectives, Focus Group Discussions (FGDs) were conducted with groups of teachers to identify common challenges and collaboratively propose context-based solutions. The use of multiple data collection methods allowed for a comprehensive and in-depth understanding of teachers' professional practices (Walwey & Kajfez, 2023), while FGDs facilitated the exploration of collaborative experiences and contextually relevant issues (Ochieng et al., 2018).

Data were analyzed using thematic analysis to identify recurring patterns and key themes related to teachers' competency needs, challenges, and strategies for improving the use of instructional media. The analysis followed systematic stages of data familiarization, initial coding, theme development, and interpretation, enabling the identification of meaningful insights from

participants' narratives (Rahimi & Khatoon, 2024). To ensure the trustworthiness of the findings, data validity was enhanced through source triangulation, technique triangulation, and member checking, allowing participants to confirm the accuracy of interpretations and ensuring alignment between the data and the research findings (Ahmed, 2024).

Ethical considerations were addressed throughout the research process. Informed consent was obtained from all participants prior to data collection, and their anonymity and confidentiality were strictly maintained. Participation was voluntary, and participants were informed of their right to withdraw from the study at any stage. Through this rigorous methodological approach, the study is positioned to generate contextually grounded, credible, and practically applicable insights that can inform strategies for strengthening instructional media competencies among primary school teachers in Kosovo.

RESULTS AND DISCUSSION

Result

Teachers' needs in the use of instructional media

Based on interviews with teachers and school principals from both rural and urban primary schools in Kosovo, this study identified a range of interconnected challenges related to the use of instructional media. The findings indicate that teachers continue to experience limited access to relevant professional training, encompassing both digital and non-digital instructional media. These limitations are compounded by administrative constraints and gaps in teachers' digital competencies, which reduce their capacity to integrate media effectively into classroom practice. Furthermore, low levels of teacher participation in training and professional development activities reflect not only motivational issues but also insufficient institutional support. These challenges collectively shape teachers' preparedness and confidence in utilizing instructional media and are elaborated in detail below.

Table 1

Teachers' Needs-Related Problems

No	Problem Findings	Description
1	Limited Access to Training	Teachers in Kosovo, particularly those in rural areas, experience limited access to relevant and contextually appropriate training
2	Digital Access Barriers	Digital infrastructure in Kosovo remains limited, making it difficult for teachers to access digital-based training and to utilize digital learning media optimally
3	Low Teacher Engagement	Teachers tend to be less active in training programs, either due to heavy workloads or a lack of motivation to participate in the available training opportunities
4	Limited Competence	Teachers' competence in designing and managing instructional media remains low, particularly in terms of creativity and the use of diverse media
5	Integration of Curriculum and Learning Media	The integration of instructional media with the existing curriculum is often not carried out organically, resulting in the use of media that is less aligned with the learning objectives

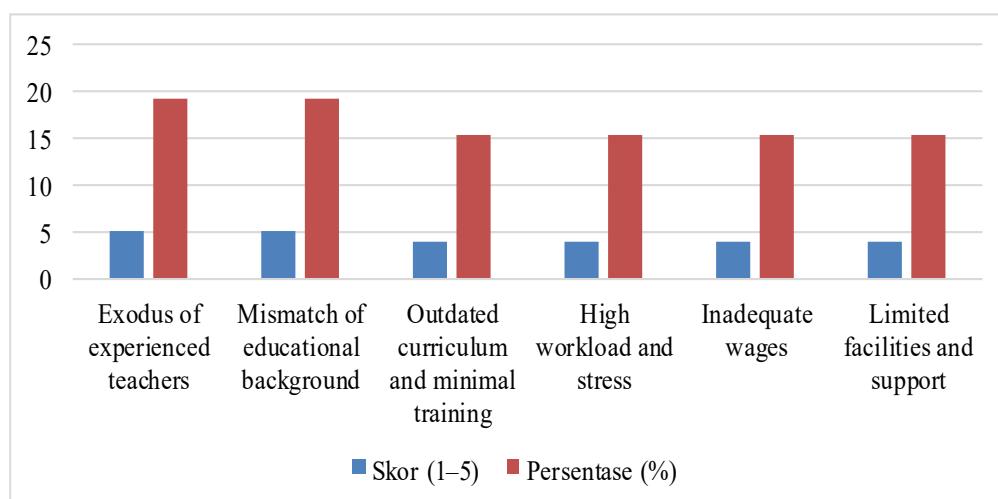
The data suggest that teacher competency issues in Kosovo are systemic rather than isolated. Limited access to professional training and inadequate digital infrastructure represent structural barriers that significantly hinder the development of teachers' pedagogical and technological skills. Insufficient devices, unstable internet connectivity, and regional disparities further restrict equitable opportunities for improving digital literacy. Moreover, low engagement in training reflects deeper motivational and organizational challenges, including heavy workloads, weak incentive systems, and limited institutional encouragement for continuous professional development. Consequently, teachers' ability to design and manage creative, responsive, and pedagogically aligned instructional media remains constrained. These challenges are intensified by weak integration between instructional media and the curriculum, leading to sporadic and misaligned media use. Addressing these issues therefore requires a comprehensive and coordinated strategy encompassing expanded

access to quality training, improved technological resources, strengthened motivation and support mechanisms, and curriculum reforms that promote systematic and meaningful media integration.

Challenges faced by teachers in teaching and learning

Based on the results of interviews and questionnaire data, this study identified multiple challenges faced by elementary school teachers in Kosovo that extend beyond instructional practice and reflect broader structural conditions. One major issue is the migration of experienced teachers to other countries, particularly Germany, driven by unfavorable working conditions and difficult socio-economic circumstances. This outmigration has resulted in a decline in professional teaching manpower and has disrupted staffing stability in many schools. In addition, mismatches between teacher student ratios and actual classroom needs were frequently reported, alongside misalignment between teachers' academic backgrounds and their assigned teaching responsibilities. These challenges are further compounded by the continued use of outdated curricula and the limited application of post-conflict pedagogical approaches, which constrain teachers' ability to respond to contemporary educational demands.

Table 2
Challenges Faced by Teachers



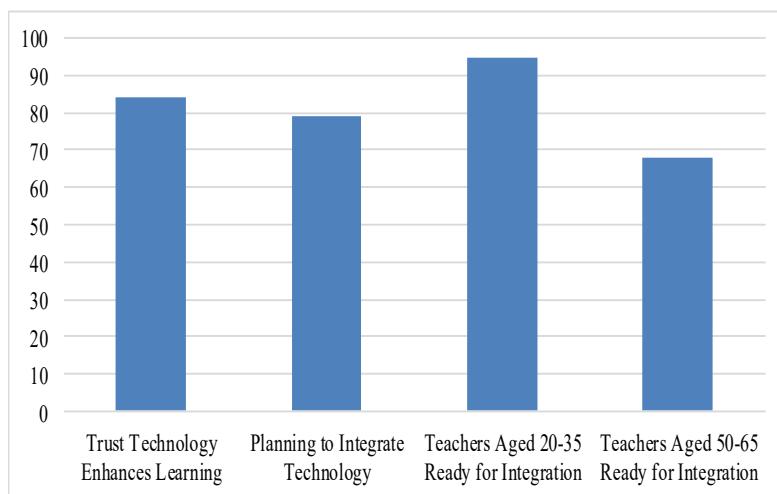
The analysis presented in Table 2 demonstrates that the challenges encountered by teachers in Kosovo are personal, institutional, and systemic, and are deeply interconnected. The highest-ranked issues namely the outmigration of experienced teachers and the mismatch between teachers' qualifications and their teaching assignments (each accounting for 19.23%) highlight significant weaknesses in government strategies to retain qualified educators and ensure equitable teacher distribution. While many skilled teachers leave the profession or migrate abroad due to poor working conditions, those who remain often occupy positions that do not correspond to their professional training. Furthermore, the persistence of outdated curricula and the limited provision of post-conflict professional training (15.38%) suggest that educational reforms have not been fully effective in equipping teachers with relevant pedagogical competencies. High workloads, low salaries, inadequate facilities, and weak institutional support (15.38%) further intensify teacher stress and job dissatisfaction, thereby limiting motivation and constraining innovative classroom practices. Collectively, these conditions underscore the urgent need for comprehensive and sustained interventions that address teacher retention, working conditions, resource availability, continuous professional support, and equitable policy implementation to strengthen elementary education in Kosovo.

Teacher competence in the use of instructional media

Based on the analysis of teachers' competencies in using digital instructional media in Kosovo's primary schools, the findings indicate a generally positive disposition toward educational technology alongside substantial variation in actual readiness and instructional integration. While most teachers express favorable attitudes toward the pedagogical potential of digital media, their ability to employ these tools effectively is uneven and shaped by demographic and contextual factors, including age, geographical location, and self-perceived digital competence. These disparities suggest that positive attitudes alone are insufficient to ensure meaningful integration of digital instructional media into classroom practice.

Table 3

Teachers' Ability to Use Instructional Media



The data presented in Table 3 demonstrate that the development of teachers' digital instructional competence in Kosovo requires a structured and context-sensitive pedagogical approach rather than ad hoc implementation. A large proportion of teachers (84%) perceive digital technology as capable of enhancing learning quality, and 79% report intentions to integrate digital media into their teaching. However, this reported readiness varies significantly across age groups. Teachers aged 20-35 exhibit the highest levels of digital competence, with 95% indicating preparedness to integrate technology, whereas only 68% of teachers aged 50-65 report similar confidence, largely due to limited digital skills. Moreover, regional disparities between urban and rural schools further accentuate inequalities in access to digital resources and professional development opportunities. These findings underscore the necessity of targeted interventions that prioritize differentiated digital skills training, equitable access to technological resources, and sustained mentoring systems. Such measures are critical for ensuring effective and inclusive integration of digital instructional media and for promoting equitable improvements in educational quality across Kosovo's primary education system.

Discussion

Strengthening teacher competence in the utilization of learning media in kosovo

The findings of this study conceptually indicate that strengthening teachers' competence in the use of learning media in Kosovo is influenced by a complex interaction of technical, structural, and motivational factors. Limited access to professional training and unequal digital infrastructure function as structural variables that directly hinder the mastery of educational technology. These factors interact with teachers' pedagogical competence, creating an imbalance between technology, pedagogy, and content, as explained by Santos and Castro (2021). Mechanistically, structural barriers mediate the relationship between teachers' positive attitudes toward technology and their actual ability to integrate media effectively, in line with the views of Bosch et al. (2025) and

Wardoyo et al. (2021) that the quality of the educational ecosystem determines the success of competence development, regardless of individual teacher motivation.

Compared with previous studies, these findings confirm that challenges to teacher competence in Kosovo are not merely individual but also systemic and multilayered. The exodus of experienced teachers and mismatches in academic backgrounds weaken schools' institutional capacity, widen competency gaps, and hinder the transfer of pedagogical knowledge, as also noted by Simpson et al. (2022), Ben Moussa and El Arbi (2020), and Landberg and Partsch (2023). However, the novelty of this study lies in its emphasis that in post-conflict contexts such as Kosovo, reliance on individual teacher adaptation as highlighted by Zahid and Nawab (2025) is insufficient to ensure learning quality when structural and motivational barriers coexist. This finding extends the literature by demonstrating that the loss of experienced human resources acts as a reinforcing (moderating) variable that exacerbates the impact of limited infrastructure and training.

Within Kosovo's social and institutional context, low teacher participation in training reflects issues of professional motivation influenced by workload, job satisfaction, and minimal institutional recognition. This aligns with the Teacher Motivation and Professional Identity framework and the findings of Montenegro-Rueda and Fernández-Batanero (2025) and Mitev et al. (2024) regarding professional burnout. In addition, outdated curricula lead to the instrumental use of learning media rather than its integration as a comprehensive pedagogical strategy, as criticized by Mhlongo et al. (2023) and Purvis et al. (2020). Limited digital devices and technical support (van de Werfhorst et al., 2022) further reinforce this condition, underscoring that digital transformation in education, as emphasized by McCarthy et al. (2023), requires systemic reform. Therefore, enhancing teacher competence in Kosovo must be situated within a comprehensive reform framework that includes needs-based continuous professional development (Abakah, 2023), teacher retention policies (Noel & Finocchio, 2022), equitable infrastructure provision (Gkrimpizi et al., 2023), and the systematic integration of media into the curriculum (Demir, 2024).

The impact of teacher performance on the quality of learning in Kosovo

The findings of this study conceptually indicate that the quality of learning in Kosovo's primary schools is determined by a direct relationship between teachers' working conditions, the management of educational human resources, and pedagogical capacity. The high rate of experienced teacher exodus (19.23%) and mismatches between teachers' educational backgrounds and their teaching assignments indicate weaknesses in systems of teacher retention and competency distribution. Mechanistically, the loss of senior teachers directly reduces schools' pedagogical capital, which in turn mediates the decline in learning quality (Parveen et al., 2024; Gibbons et al., 2021). Competency mismatches also function as a moderating factor that weakens the effectiveness of the learning process, as emphasized by Zahid and Nawab (2025). Thus, the core problem is not merely a shortage of teachers, but a structural failure in managing teacher competence and workforce sustainability (Nguyen et al., 2024).

In relation to the literature, these findings extend the discussion on Pedagogical Content Knowledge (PCK) by demonstrating that weak curriculum renewal and limited teacher training (15.38%) systematically constrain pedagogical innovation capacity. Amador et al. (2022) emphasize that PCK depends not only on subject matter mastery but also on the alignment of instructional strategies with students' needs. When curricular support and professional training are inadequate, teachers tend to adopt traditional, teacher-centered approaches, as confirmed by Tatik et al. (2025). This is consistent with Barta et al. (2022), who argue that such approaches fail to foster students' critical and analytical thinking. Accordingly, the novelty of this study lies in its assertion that pedagogical stagnation in Kosovo is not the result of teacher resistance to change, but rather of a weak learning support ecosystem.

Within Kosovo's social and institutional context as a post-conflict country, high workload pressure, inadequate salaries (15.38%), and limited facilities (15.38%) create conditions that undermine teachers' psychological well-being and directly reduce the quality of classroom

interactions. Xu et al. (2025) and Singleton et al. (2024) show that unsupportive working conditions trigger professional burnout and rigid teaching practices, negatively affecting students' learning experiences (Leijon et al., 2021). Structurally, limited facilities reflect the low policy priority accorded to education (Donkoh et al., 2023; Ventista & Brown, 2023), which, according to Blomeke et al. (2022), represents a macro-level governance issue rather than an individual teacher weakness. Therefore, as emphasized by Trevisan et al. (2024), Mena-Guacas et al. (2025), and Lentini et al. (2024), improving teacher competence in Kosovo can only be achieved through systemic reforms that integrate teacher retention policies, curriculum renewal, improved teacher welfare, and the sustained provision of resources and technical support (Sari et al., 2024).

Strategies for sustainable professional development for teachers in Kosovo

The findings of this study synthesize that teacher professional development in Kosovo is at a critical stage, characterized by high awareness of the benefits of digital technology but weak transformation into actual instructional practice. Although 84% of teachers believe that digital technology can improve learning quality and 79% plan to integrate it, this readiness has not yet resulted in consistent implementation. Mechanistically, teachers' perceptual readiness is directly related to their intention to innovate; however, this effect is mediated by the level of digital competence and the availability of institutional support. Lohr et al. (2024) emphasize that the provision of technological devices without strengthening competencies and systemic support is insufficient to drive changes in practice. Thus, the gap between positive attitudes and actual implementation reflects a weak professional development ecosystem, as also criticized by Khanolainen et al. (2024).

Comparatively, these findings reinforce the literature highlighting differences in digital competence across age groups. Teachers aged 20-35 demonstrate very high readiness levels (95%), which Brocca (2024) associates with younger generations' familiarity with digital technology. In contrast, teachers aged 50-65 reach only a 68% readiness level, reflecting limited digital literacy and technological experience, as identified by Ndibalema (2025). These findings strengthen the argument of Paetsch et al. (2023) that technology integration requires simultaneous mastery of pedagogy, content, and technology, which is more difficult to achieve for teachers who did not grow up in digital environments. The novelty of this study lies in emphasizing that age is not a single determining factor, but rather interacts with historical experience and opportunities for professional development in shaping teachers' capacity for technological adaptation.

Within Kosovo's social and institutional context, gaps in teacher competence are also influenced by unequal access to training and infrastructure between urban and rural areas. Teachers in urban regions receive more training opportunities and technical support, making them better prepared to adopt digital learning (Kingsford-Smith et al., 2023), while teachers in rural areas lag behind due to limited facilities and restricted access to professional development. Yun (2023) asserts that such structural inequalities constitute a major barrier to technology-based educational transformation. Therefore, as suggested by Mgaiwa and Milinga (2024), sustainable professional development strategies in Kosovo should include level-based digital competence strengthening, equitable access to training and infrastructure, and long-term mentoring through professional learning communities. This approach aligns with Guggemos and Seufert (2021) and is reinforced by the findings of Pragusta et al. (2022), which demonstrate that systematic professional development can improve both the quality and equity of learning outcomes. Consequently, enhancing teacher competence in Kosovo requires sustained systemic reform rather than short-term technical interventions.

CONCLUSION

This study concludes that strengthening teacher competence and performance in Kosovo cannot be understood merely as an individual issue, but rather as the result of a complex interaction among structural, institutional, and motivational factors within a post-conflict context. Limited digital infrastructure, low access to continuous professional training, the exodus of experienced

teachers, and weak systems of teacher retention and curriculum renewal simultaneously undermine the quality of learning. Although most teachers demonstrate positive attitudes toward technology and pedagogical innovation, this readiness is not optimally actualized due to a weak supporting ecosystem. The findings further indicate that the loss of senior teachers and mismatches between academic backgrounds and teaching assignments act as reinforcing factors that exacerbate competency gaps and learning quality. Therefore, improving the quality of basic education in Kosovo requires integrated, sustainable, and context-sensitive systemic reforms.

From both theoretical and practical perspectives, this study contributes significantly to research on teacher competence and learning quality by deepening understanding of the interrelationship between TPACK, Pedagogical Content Knowledge (PCK), and teacher motivation in post-conflict contexts. The findings demonstrate that the development of technological and pedagogical mastery is not linear, but mediated by structural constraints and moderated by the loss of experienced human resources, highlighting the educational ecosystem as a decisive factor in shaping individual teacher competence. Moreover, this study challenges universal assumptions about teachers' technological readiness by revealing the intersecting influences of age, historical experience, and access to professional development. Practically, the results emphasize the need for systemic policy reforms, including tiered and needs-based professional training, sustained mentoring, teacher retention strategies, equitable digital infrastructure—particularly in rural areas—and the systematic integration of learning media into curricula to enhance the quality and equity of student learning outcomes.

This study has several limitations that should be acknowledged. First, the data are limited to the context of primary education, requiring caution in generalizing the findings to other educational levels. Second, the research approach places greater emphasis on structural and institutional analysis, leaving classroom practices and micro-level pedagogical interactions less explored. Third, the impact of technology use and teacher competence on student learning outcomes has not been examined longitudinally. Therefore, future research is recommended to adopt longitudinal designs and mixed methods to capture sustained changes in teacher competence and learning quality. Comparative studies across post-conflict countries are also important to deepen understanding of effective education reform patterns under conditions of structural constraints and social transition.

ACKNOWLEDGEMENT

The authors would like to express their sincere gratitude to the teacher informants at the educational institutions who were willing to dedicate their time and share their experiences through interviews. Their participation, openness, and valuable contributions were essential to the successful completion of this study.

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