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The Role of Digital Competencies of Elementary School Teachers in the Inclination Toward Lifelong Learning and the Desire for Innovative Teaching

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Abstract

Teachers' digital competencies are essential for effective teaching and sustainable professional development in contemporary education. As digital technologies become increasingly integrated into education, teachers' ability to use them effectively may influence lifelong learning and innovative teaching practices. This study examined the predictive role of teachers' digital competencies in lifelong learning and innovative teaching orientation among elementary school teachers in Shiraz. Using a quantitative descriptive-correlational design, 290 teachers were selected through proportionate stratified random sampling during the 2023–2024 academic year. Data were collected through three standardized instruments measuring digital competencies, lifelong learning orientation, and innovative teaching orientation. Descriptive statistics, Pearson's correlation, and multiple linear regression were used for data analysis. The findings indicated that teachers' digital competencies significantly predicted both lifelong learning orientation and innovative teaching practices. Teachers with higher digital competencies showed greater readiness for continuous professional learning and instructional innovation. These findings highlight digital competence as a key professional resource beyond technical skills, supporting teachers' development and instructional improvement. Educational policymakers and school administrators should prioritize professional development programs to enhance teachers' digital competencies, foster lifelong learning, and promote pedagogical innovation.

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Extended Abstract

Introduction

The rapid advancement of digital technologies has fundamentally transformed educational systems worldwide, requiring teachers to develop competencies that extend beyond traditional instructional skills. Digital competence has become an essential component of teachers' professional practice, enabling them to integrate technology effectively into teaching, facilitate student learning, and adapt to continuously changing educational environments. In addition to supporting instructional effectiveness, digital competence is increasingly viewed as a catalyst for teachers' professional growth. Teachers who possess stronger digital competencies are more likely to engage in lifelong learning, continuously update their professional knowledge, and adopt innovative teaching approaches that respond to the evolving needs of learners. Consequently, digital competence contributes not only to technological proficiency but also to broader professional development and educational innovation. Although previous studies have examined the educational benefits of digital competence, limited evidence is available regarding its simultaneous relationship with teachers' orientation toward lifelong learning and innovative teaching, particularly among elementary school teachers. Therefore, this study investigated whether teachers' digital competencies could predict their inclination toward lifelong learning and innovative teaching.

Method

This study employed a quantitative descriptive-correlational research design. The statistical population consisted of elementary school teachers in District 1 of Shiraz during the 2023–2024 academic year. Using proportionate stratified random sampling, 290 teachers participated in the study. Data were collected using three standardized questionnaires measuring teachers' digital competencies, lifelong learning orientation, and innovative teaching orientation. The psychometric properties of all instruments were evaluated before analysis, and their validity and reliability were confirmed using established statistical procedures. Descriptive statistics were first computed to summarize the data. Pearson's correlation coefficient was then used to examine the relationships among the study variables, followed by multiple linear regression analysis to determine the predictive role of teachers' digital competencies in explaining variation in lifelong learning orientation and innovative teaching.

Results

The findings revealed significant positive relationships among teachers' digital competencies, lifelong learning orientation, and innovative teaching. Regression analyses demonstrated that digital competence significantly predicted teachers' willingness to engage in continuous professional learning as well as their inclination to implement innovative instructional practices. Teachers with higher levels of digital competence showed greater readiness to update their professional knowledge, utilize digital educational resources, and incorporate emerging technologies into classroom instruction. They also demonstrated stronger acceptance of innovative pedagogical approaches and greater flexibility in responding to educational change. These findings indicate that digital competence functions as an important professional capability that supports both continuous learning and instructional innovation. Rather than representing merely technical skills, digital competence appears to facilitate broader professional development by increasing teachers' confidence, adaptability, and willingness to engage with new educational practices.

Discussion and Conclusion

The findings highlight the strategic importance of digital competence in contemporary teacher development. As educational systems increasingly rely on digital technologies, teachers' ability to effectively integrate these technologies into instructional practice becomes closely associated with their professional growth and their willingness to innovate. The positive relationship between digital competence and lifelong learning suggests that digitally competent teachers are more inclined to seek new knowledge, participate in professional development opportunities, and continuously improve their instructional practices. Similarly, the association between digital competence and innovative teaching indicates that teachers with stronger technological capabilities are better prepared to implement creative, student-centered, and technology-enhanced instructional strategies. From a practical perspective, educational policymakers and school administrators should regard digital competence as a core component of teacher professionalism rather than merely a technical skill. Professional development initiatives should therefore move beyond basic technology training and focus on developing teachers' capacity to integrate digital tools into pedagogically meaningful and innovative learning environments. Overall, this study provides empirical evidence that digital competence serves as a significant predictor of teachers' lifelong learning orientation and innovative teaching practices. Strengthening teachers' digital competencies may therefore contribute not only to more effective technology integration but also to sustained professional learning, instructional innovation, and improved educational quality. Future research is encouraged to investigate additional organizational and psychological factors that may influence these relationships across different educational contexts.

Author Contributions: Raana Ara conceived the research idea, collected the data, designed the research framework, and prepared the initial draft of the manuscript. Ghodratollah Khalifeh contributed to the research methodology, performed the statistical analyses, interpreted the findings, and critically revised the manuscript. Fariba Khoshbakht was responsible for data organization, interpretation of the results, and scientific review of the manuscript. All authors participated in the discussion of the findings, contributed to the revision of the final version of the manuscript, read and approved the final manuscript, and agreed to its publication.

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Ethical Approval: This study followed ethical guidelines for educational research. Participation was voluntary, informed consent was obtained, and participants' confidentiality and anonymity were ensured. The data were used solely for research purposes.