



The Relationship Between Digital Professional Development and Pre-Service EFL Teachers' Instructional Effectiveness

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Abstract

The increasing reliance on digital platforms in education necessitates effective professional development for English as a Foreign Language (EFL) teachers. While digital professional development is widely used, its influence on the instructional effectiveness of pre-service teachers has received limited attention. This study utilized a quantitative correlational design to examine the relationship between participation in digital professional development and the instructional effectiveness of 50 pre-service EFL teachers at a private university in East Jakarta. Participants completed a survey that measured their engagement in digital training and their self-reported instructional effectiveness. The results of a correlation analysis indicate a positive association, with active participation in online training corresponding to higher self-reported confidence in lesson planning and delivery. This research underscores the need to incorporate digital professional development into teacher preparation curricula to enhance the teaching preparedness and overall effectiveness of aspiring educators.

Keywords: Digital professional development, English as a Foreign Language (EFL) teachers, Instructional effectiveness, Pre-service teachers

Introduction

In recent years, the rapid integration of digital technologies in education has significantly reshaped how teachers are trained and how they deliver instruction. For pre-service English as a Foreign Language (EFL) teachers, the shift toward digital learning environments demands not only subject-matter competence but also digital pedagogical skills. Pre-service teachers need opportunities to design their own digital interactive instructional materials, which can be provided during their teaching candidature through offering multiple digital literacy courses. As global classrooms increasingly adopt online, hybrid, and technology-assisted learning formats, the need for future educators to engage in meaningful digital professional development becomes more urgent.





This focuses specifically on quality of the online learning as a technology, the use of analytics, open resources, a mix of blended and hybrid course models. At the same time, the requirements for digital competencies are increasing, which makes teachers in today's environment to effectively use digital tools to deliver online learning experiences. The implementation of digital technologies in education will be effective if it is teacher and pedagogy will take the lead rather than technology.

However, while various digital training programs are now available, there is limited empirical understanding of how these initiatives actually influence the instructional development of pre-service EFL teachers. Questions remain as to whether digital professional development truly enhances their ability to design, manage, and evaluate instruction effectively or whether such efforts are merely superficial engagements with technology. Understanding this relationship is essential, particularly in preparing teachers who can thrive in 21st-century language classrooms that demand adaptability, creativity, and digital.

Research Method

This study employed a quantitative survey research design with a correlational approach. A correlational design was chosen because it allows researcher to examine the degree of association between two variables without manipulating (Creswell, 2014). The purpose on this design was to investigate the relationship between pre-service EFL teachers' participation in digital professional development (DPD) programs and their perceived instructional effectiveness. Recent studies have emphasized the role of digital professional development in shaping teachers' competencies and classroom practice (Garcia-Martin et al, 2023; Sehar & Alwi, 2023). The participant of this study was 40 pre-service EFL teachers enrolled English Education programs at private universities in East Jakarta. Ethical principles were maintained throughout the research. Prior to participation, students were informed about the aim of the study, the voluntary nature of their involvement, and the guarantee of confidentiality. No personal identifying information was collected, and participants' anonymity was preserved. Informed consent was obtained digitally before the questionnaire was completed. The study followed the general ethical guidelines for research involving human participants (American Psychological Association [APA], 2010).

The questionnaire was distributed online via Google Forms. Participants were given one week to complete the survey. Reminders were sent twice through class group chats to increase response rates. A total of 40 valid responses were collected for analysis. The inclusion criteria were that participants had to be pre-service EFL teachers enrolled in an English education program. The sampling technique used was purposive sampling, as participants were deliberately selected to ensure that they met the study objective (Etika, Musa, & Alkassim, 2016). The data were analyzed quantitatively using descriptive statistics (mean, frequency, percentage) and inferential statistics. Pearson Product-Moment Correlation was used to test the relationship between DPD participation and perceived instructional effectiveness. The analysis was conducted using SPSS version 25, following the guidelines of Field (2018).



The main research instrument was a Likert-scale questionnaire (1 = strongly disagree to 5 = strongly agree). The questionnaire consisted of two main parts:

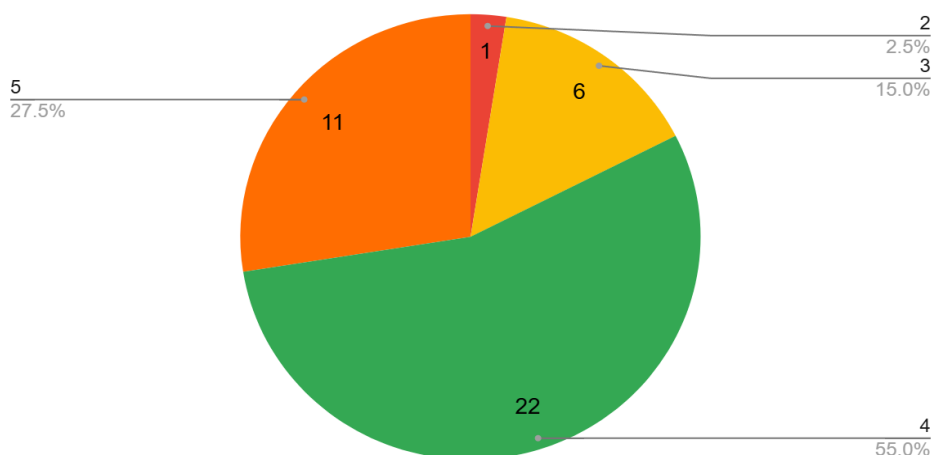
1. Digital Professional Development Participation (DPD): measured the extent of students' engagement in digital training activities, workshops, online courses, and technology-enhanced learning practices (García-Martín, Cantón-Mayo, & Rodríguez-García, 2023; Sehar & Alwi, 2023).
2. Perceived Instructional Effectiveness: measured participants' confidence and perceived ability to design, manage, and evaluate English teaching with digital tools (Teachers' Participation in Digitalization-Related Professional Development, 2023).

The questionnaire was distributed online via Google Forms. Participants were given one week to complete the survey. Reminders were sent twice through class group chats to increase response rates. A total of 40 valid responses were collected for analysis.

Findings and Discussion

The purpose of this study was to examine the relationship between participation in Digital Professional Development (DPD) and perceived instructional effectiveness among pre-service English as a Foreign Language (EFL) teachers in East Jakarta. The study used a quantitative correlational design with data collected through an online questionnaire distributed to 50 pre-service teachers. Two main variables were analyzed: (1) participation in DPD activities such as webinars, online courses, and technology-based workshops, and (2) perceived instructional effectiveness in lesson planning, classroom delivery, and technology integration.

5. The teacher integrates educational technology effectively to support learning.



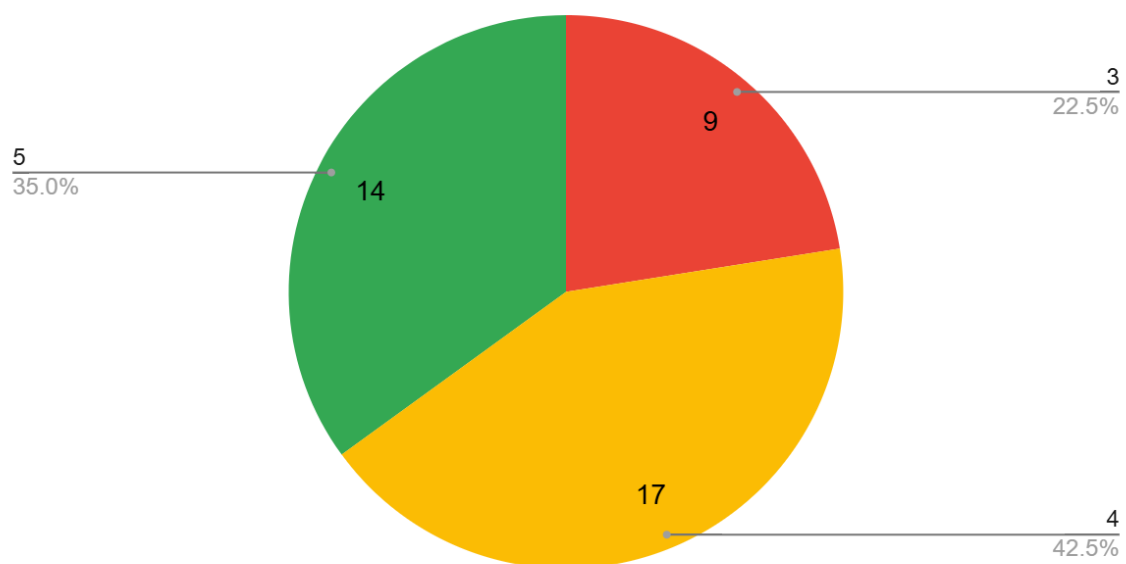
Based on the results from item number 5 (“The teacher integrates educational technology effectively to support learning”), it was found that:

- a) 55% of respondents strongly agreed (score 4),

- b) 27.5% agreed
- c) 15% were neutral, and
- d) only 2.5% disagreed

These findings indicate that the majority of teachers are able to integrate educational technology effectively in the teaching and learning process. The use of platforms such as Canva, Google Classroom, and Zoom, which appeared most frequently in the digital platform chart shows that teachers are relatively adaptive to digital media.

6. The teacher models accurate spoken English during instruction.



For item number 6 (“The teacher models accurate spoken English during instruction”), the results showed that:

- a) 42.5% of respondents strongly agreed,
- b) 35% agreed, and
- c) 22.5% were neutral

This suggests that teachers are generally perceived as capable of modeling accurate spoken English during instruction. Although some respondents remained neutral, most believe that teachers’ spoken English proficiency meets the standards of language teaching. This finding indicates that teachers’ English proficiency also contributes to the effectiveness of technology

integration. When teachers have strong language skills, they are more confident in using digital media and English-based platforms.

From the overall data, it was found that:

- a) 87.5% of respondents felt motivated to participate in digital training,
- b) 92.5% believed that technology improves students' learning outcomes, and
- c) 82.5% reported having adequate internet access and devices.

These results indicate that teachers hold positive perceptions toward digital training and the use of technology in language teaching. They believe that digital training helps them better understand how to integrate technology into their teaching practices.

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	301,0906484	301,0906484	42,33113966	1,15377E-07
Residual	38	270,2843516	7,112746096		

This shows a significant and positive relationship between teachers' digital integration and instructional effectiveness. In other words, the more proficient teachers are in applying digital technology, the more effective their teaching becomes.

The findings align with previous research emphasizing the impact of professional development on teachers' self-efficacy and performance. Studies by [\(Adavi, Amiri, & Nourizadeh, 2025\)](#) and [\(Ravandpour, 2019\)](#) found that professional development activities especially those with online or digital components significantly improve teachers' self-efficacy, particularly in online education contexts. Similarly, [\(Safari, Davaribina, & Khoshnevis, 2020\)](#) reported that reflective digital practices enhance teachers' job satisfaction and confidence, confirming that professional learning through technology strengthens instructional capabilities.

The correlation found in this study extends these insights to pre-service teachers, a group often overlooked in research on digital competence. The findings show that early exposure to digital professional development helps prospective teachers integrate technology effectively into their instructional design and delivery. This outcome is consistent with [\(Su, Musarokah, & Tristiana, 2023\)](#), who argued that developing digital competencies helps EFL teachers overcome instructional challenges and leverage technology for pedagogical innovation.

In the context of EFL education, digital professional development offers unique advantages. English language instruction increasingly relies on digital tools for pronunciation, vocabulary building, and assessment. Research by [\(Erizara & Wijirahayu, 2024\)](#) and [\(Widyasari & Wijirahayu, 2025\)](#) demonstrated that applications such as Duolingo and Quizizz improve



language learning outcomes and learner engagement. The present study corroborates these findings by showing that pre-service teachers who engaged with such tools during professional development also felt more confident and capable of applying them in their future classrooms.

Furthermore, digital professional development appears to strengthen pre-service teachers' instructional adaptability a key component of 21st-century teaching competence. Exposure to virtual teaching environments allows them to practice classroom management, lesson delivery, and assessment in digital settings, building both technical and pedagogical confidence.

The findings support Bandura's (1997) self-efficacy theory, which posits that mastery experiences such as successfully participating in digital professional learning strengthen individuals' belief in their capabilities. For pre-service EFL teachers, engagement in DPD represents a mastery experience that builds teaching confidence through repeated, supported practice. This aligns with the structural equation modeling approach used by (Rozati, 2017) and (Ravandpour, 2019), who identified professional identity and continuous learning as central to teaching efficacy.

The study also extends the framework of teacher digital competence as proposed by (García-Martín, Cantón-Mayo, & Rodríguez-García, 2023), demonstrating that professional development participation enhances teachers' confidence in designing digitally mediated instruction. In essence, the findings suggest that digital learning opportunities do not merely increase technical knowledge but also foster a pedagogical mindset oriented toward innovation and reflective teaching.

Conclusion

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	2,555297757	3,418193522	0,747557955	0,459328147
X Variable 1	0,881026038	0,135412502	6,506238519	1,15377E-07

Based on the results of the simple linear regression analysis, the correlation coefficient (r) was found to be 0.7259, indicating a positive and fairly strong relationship between Digital Professional Development and Pre-service EFL Teachers' Instructional Effectiveness. The significance value ($p = 0.000 < 0.05$) shows that this relationship is statistically significant.

Furthermore, the coefficient of determination (R^2) of 0.5266 indicates that 52.7% of the variance in instructional effectiveness can be explained by digital professional development, while the remaining 47.3% is influenced by other factors.

Therefore, it can be concluded that Digital Professional Development has a positive and significant relationship with Pre-service EFL Teachers' Instructional Effectiveness.



The core contribution of this research lies in demonstrating that early exposure to digital learning environments strengthens instructional competence and adaptability among future teachers. Practically, teacher education programs should integrate structured digital professional development modules to enhance pre-service teachers' technological and pedagogical preparedness. Future research should expand the participant scope and employ longitudinal or mixed-method approaches to explore how digital professional learning influences real classroom performance over time.

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