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## Assessing the Efficacy of Nationwide Virtual Professional Development in Indonesia

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### Abstract

*This study presents a comprehensive evaluation of a national virtual professional development (VPD) programme in Indonesia, lasting over four months and involving a diverse cohort of teachers. Utilising a sequential explanatory mixed method design within an interpretivist paradigm, it aimed to assess the programme's effectiveness in enhancing in-service EFL teachers' pedagogical skills. The participants of this study were 76 in-service EFL teachers attending the Teacher Profession Education Programme (TPEP) over four months at a reputable private university in Jakarta, Indonesia. The study combined quantitative analyses of surveys and test scores—using descriptive statistics to examine perceptions of the programme's usefulness, content, design, and learning outcomes, and bivariate correlation to assess the relationships with test scores—with qualitative insights from the written interviews, which were analysed through deductive thematic analysis. Quantitative findings showed a high perceived efficacy of the TPEP ( $M = 3.96$ ,  $SD = .55$ ), with high ratings for perceived usefulness ( $M = 4.00$ ,  $SD = .69$ ), course content and design ( $M = 3.98$ ,  $SD = .72$ ), and learning outcomes ( $M = 3.91$ ,  $SD = .55$ ). However, no significant correlations were found between perceived efficacy and test scores ( $r = .06$ ,  $p = .60$ ) despite the strong correlations found among the perception variables themselves (e.g., usefulness and design:  $r = .88$ ,  $p < .001$ ). Qualitative findings echoed these results, highlighting the programme's flexibility, improved pedagogical knowledge, and confidence, alongside issues like inconsistent guidance and technological challenges.*

**Keywords:** In-service EFL teachers, learning outcomes, pedagogical skills, virtual professional development.

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## **1. INTRODUCTION**

The migration towards virtual professional development (VPD) within the educational sector marks a significant paradigm shift in the approach to teacher training, driven by the dynamic and evolving needs of the national and international teaching community (Alzahrani & Althaqafi, 2020; King, 2002). The pivotal transition towards online and blended learning modalities is not merely a response to technological advancements but a strategic evolution driven by the imperative to bridge geographical divides, enhance accessibility, and foster a globally interconnected community of educators (Ernest et al., 2013). Such a transformation is lauded for its potential to dismantle traditional barriers to professional development, offering unprecedented flexibility and enabling a cohesive, transnational exchange of pedagogical practices and insights.

Moreover, the commendations of VPD extend beyond its logistical advantages, delving into the domain of enhanced collaborative opportunities and access to a wealth of resources previously constrained by physical boundaries (O'Dowd & Dooly, 2022). The extensive body of research further corroborates the multifaceted advantages of this shift (Bragg et al., 2021; Paudel, 2020; Powell & Bodur, 2019), indicating not only the enhanced accessibility and inclusivity afforded by virtual platforms, but also the potential for creating expansive networks of collaboration that transcend local, national, and international boundaries.

Nonetheless, a significant gap exists in the research literature regarding the specific effectiveness of Indonesia's National in-service EFL Teacher Profession Education Programme (TPEP). Despite the broader integration of digital environments into professional development frameworks, there is a notable dearth of studies assessing the programme's success, particularly in enhancing Indonesian in-service EFL teachers' pedagogical skills and instructional expertise. This absence emphasises the critical necessity for thorough research to assess and potentially improve the TPEP's influence on in-service EFL teacher professional development in the Indonesian setting. Such findings could offer valuable insights into the implementation of national VPD programmes in other countries. Amid growing interest in VPD and the need for large-scale evidence of effectiveness, this study critically evaluates Indonesia's online National in-service EFL Teacher Profession Education Programme (TPEP).

Hence, this research endeavours to fill the existing gap by assessing the impact of such VPD initiatives on enhancing the pedagogical skills and competencies of Indonesian in-service EFL teachers. Two primary research questions guide the study:

1. How do in-service EFL teachers perceive the efficacy of the nationally implemented virtual Teacher Profession Education Programme (TPEP) in Indonesia over four months of engagement?
2. What is the correlation between in-service EFL teachers' perceived efficacy of the TPEP and their test scores?

## **2. LITERATURE REVIEW**

### **2.1 Professional Development within Virtuality**

Professional development (PD) within virtual environments has undergone a significant evolution over the past few decades, transitioning from traditional, in-person training sessions to dynamic, online platforms that offer flexibility and accessibility to English as Foreign Language (EFL) teachers across the globe (Al-Nofaie, 2020; Marie, 2021; Philipsen et al., 2019; Wang et al., 2023). The inception of virtual professional developments can be traced back to the early 2000s, when advancements in technology and the Internet began to reshape the educational landscape. Virtual learning environments emerged as powerful tools for teacher education, facilitating asynchronous and synchronous learning opportunities beyond the constraints of physical classrooms (Al-Qahtani, 2019; Manegre & Sabiri, 2022). These platforms have enabled EFL teachers to engage in continuous professional learning, reflecting the shift towards more learner-centred approaches in teacher education (O'Dowd & Dooly, 2022).

Concepts of virtual professional development (VPD) emphasise the integration of digital technologies to support the ongoing education of professionals. It involves teachers, structured programmes, courses, workshops, as well as active and collaborative learning communities delivered through online platforms (Dille & Røkenes, 2021; Waluyo & Rofiah, 2021; Yurtseven Avcı et al., 2020). These virtual environments not only provide access to a wide range of resources and contents but also facilitate interactions among EFL teachers, allowing for the exchange of ideas, practices, and feedbacks across different contexts and borders (Kohnke, 2021). VPD programmes offer flexible, previously unattainable growth and collaboration opportunities for EFL teachers in remote or underserved areas (Moser & Wei, 2023).

The implementation of VPD varies significantly across countries and fields, reflecting diverse educational needs and technological infrastructures. In developed countries, such programmes often feature sophisticated learning management systems with a wide array of interactive tools and resources (Lay et al., 2020). Conversely, in developing countries, the focus may be on leveraging mobile technology and social media platforms to overcome barriers to Internet access and related online applications (Hennessy et al., 2022; McAleavy et al., 2018). Regardless of the context, successful implementations of VPD programmes share common elements: a clear structure and support for collaborative learning, enabling teachers to develop self-directed learning skills and alignment with their needs, such as improved online materials and assessments as well as curricular goals (Atmojo, 2021; Nguyen, 2021).

The effectiveness of VPD programmes has been a focal point of scholarly inquiry, with studies highlighting various benefits and challenges. Research indicates that such programmes can lead to enhanced innovative teaching practices, increased content knowledge and skills, collaborative academic initiatives, and improved student outcomes (O'Dowd & Dooly, 2022; Singh et al., 2022; Waluyo & Apridayani, 2024). Teachers participating in VPD often report a sense of empowerment and a stronger professional identity, as they are able to connect with new professional partnerships and experts in their field (O'Dowd & Dooly, 2022). However, challenges remain, including issues of digital literacy, engagement, self-regulation ability, Internet connection, and teachers' technical skills (Coman et al., 2020; Taghizadeh & Basirat, 2022; Truong & Murray, 2020).

## 2.2 EFL Teacher Professional Development within Virtuality

The evolution of virtual environments has significantly influenced English as a Foreign Language (EFL) Teacher Professional Development (PD), with a myriad of studies examining its impact across various educational settings and countries. Those studies, utilising diverse methodologies, have provided rich insights into the effectiveness, perceptions, challenges, and advantages of VPD programmes, as well as recommendations for their optimization. In the United States, a mixed-methods study addresses concerns about teachers' ability to keep pace with rapidly evolving educational technologies by developing a virtual coaching PD model aimed at strengthening their digital learning identities. Given teachers' concerns about staying current with technological advancements, the study highlights coaching as an innovative and supportive approach to professional development (Zimmer & Matthews, 2022). Similarly, semi-structured interview responses were studied to better understand the initial and ongoing motivations of nineteen EFL Vietnamese teachers participating in the PD programme. The results revealed a significant effect of technology in pushing EFL teachers to both start and stay in the course; a high influence of second language motivation on teachers' learning experiences; and a challenge to the known value of collaborative learning in virtual settings (Truong & Murray, 2019).

Bailey and Lee (2020) explored the experiences of 43 EFL university teachers who taught communication courses in South Korea and assessed the benefits and challenges of virtual environments in relation to teachers, students, communication channels, and activity types. Their analysis revealed notable differences among teachers with no, low, and high levels of online teaching experience. Key disparities included expected challenges faced by instructors and their selection of instructional activities. Teachers with more online teaching experience reported fewer difficulties and utilised a wider range of communication tools and activity types compared to their

less experienced counterparts. However, in Chinese context, due to a lack of PD seminars, teachers had to rely on unofficial learning environments where they collaborated with peers in small groups to improve their use of technology. Thus, PD programmes in China have yet to address the role of technology-based instruction in learning (Zhang, 2022).

In rural Mississippi, a mixed methods study by Moser and Wei (2023) investigated the experiences of K-12 language teachers (English as a Second [ESL] or other Language [ESOL] and World Language [WL]) who collaborated with one another during a VPD workshop designed to improve their knowledge and skills in online language teaching. A total of fifty teachers in this study indicated significant increases in their knowledge base, aspirations to adapt their practice, and positive attitudes of dealing with distant or remote learners. Additionally, the qualitative findings by Nazari et al. (2019) demonstrated that all interviewees from EFL Iranian teachers (both novice and experienced) had good attitudes regarding the VPD course. Furthermore, Adnan (2018) used a mixed-methods design to investigate an VPD programme in Turkey, commenting on participants' expectations, readiness and satisfaction. The data revealed a strong link between individual readiness and satisfaction, with readiness positively predicting contentment.

### **3. METHODS**

#### **3.1 Research Design**

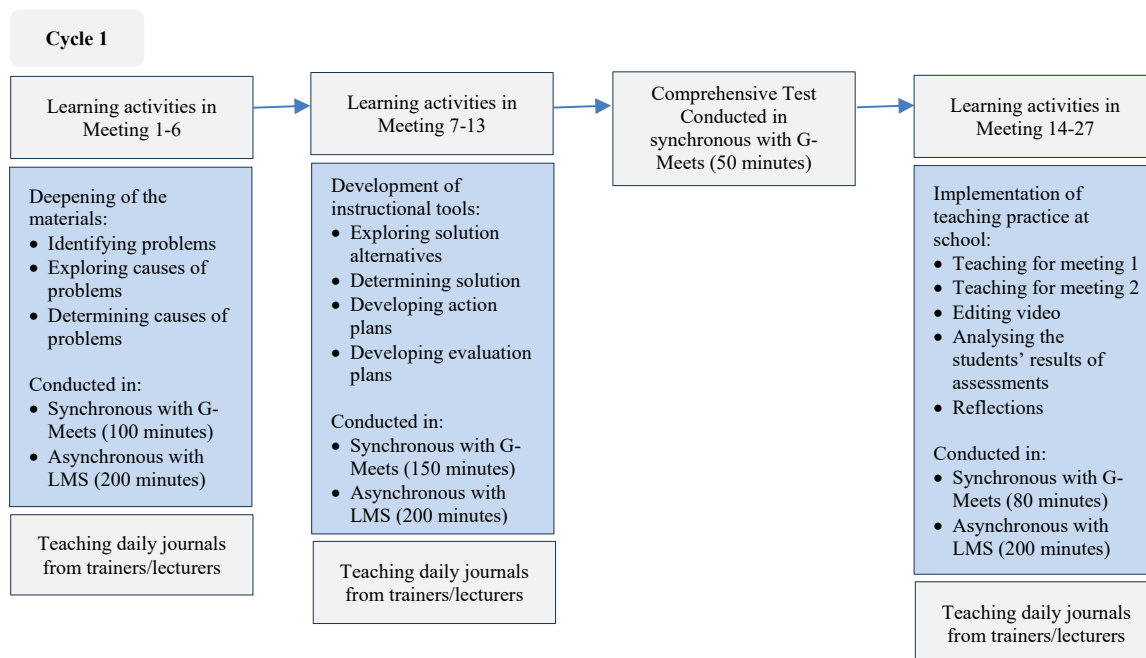
The research design adopted for this study was a sequential explanatory mixed method design, which integrates both quantitative and qualitative phases to investigate two main aspects: in-service EFL teachers' perceived efficacy of the nationally implemented virtual Teacher Profession Education Programme (TPEP) in Indonesia after four months of engagement, and the correlation between these perceptions and their test scores. In the quantitative phase, a survey study was conducted using a structured questionnaire to collect data on in-service EFL teachers' perceptions, along with their test scores. This was followed by the qualitative phase, which involved analysing written interview responses to gain deeper insights into in-service EFL teachers' experiences and perspectives related to the TPEP. The sequential explanatory design, as recommended by Creswell and Creswell (2017), was selected for its ability to provide a comprehensive understanding of complex educational phenomena by explaining quantitative findings with qualitative evidence. This approach, supported by Hauserman et al. (2013), effectively captures the multifaceted nature of virtual professional development (VPD) programmes.

#### **3.2 Research Context**

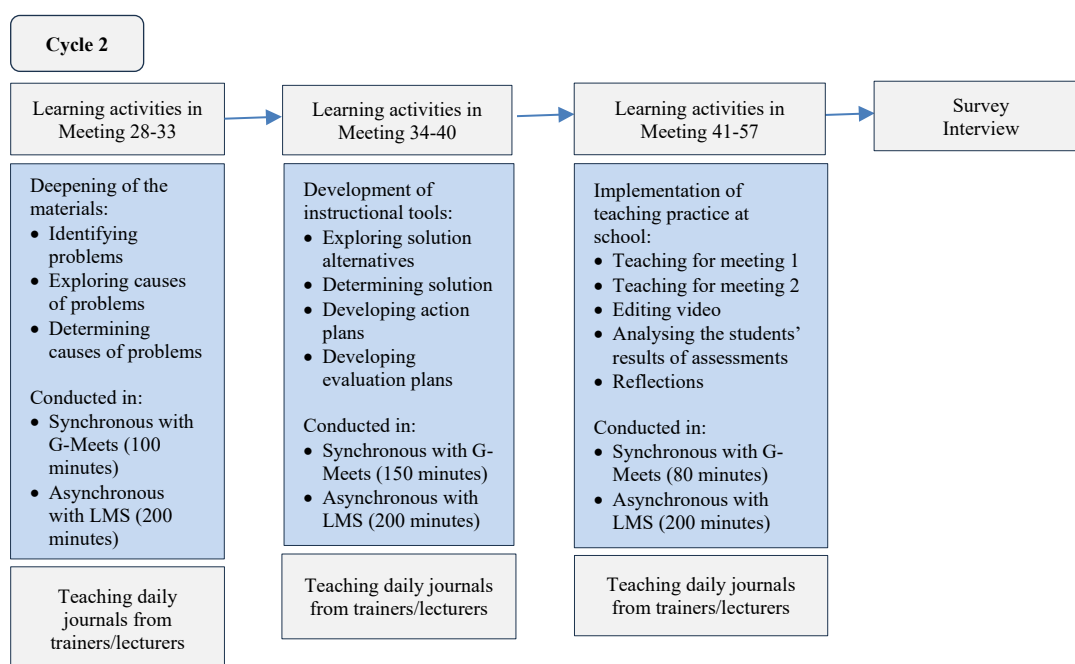
Since its inception in 2018, the virtual Teacher Profession Education Programme (TPEP) for the subject of English has undergone annual evaluations to enhance the quality of its learning activities and the calibre of its graduates. The programme, tailored for in-service EFL teachers, spans one semester, approximately four months, and operates entirely online, utilising a blend of G-Meets for virtual interactions and a Moodle-based Learning Management System (LMS) for course management. The TPEP is structured into two cycles, each designed to progressively develop in-service EFL teachers' skills and knowledge. The initial cycle comprises sessions focusing on the deepening of material (meetings 1-6), the development of instructional tools (meetings 7-13), the administration of a comprehensive test, and the implementation of teaching practice at schools (meetings 14-17). In-service EFL teachers must pass the comprehensive test before proceeding to the teaching practice. Successful completion of the first cycle leads to the second, which follows a similar structure but focuses on material deepening (meetings 28-33) and instructional tool development (meetings 34-40). The second cycle concludes with a comprehensive test and extended teaching practice (meetings 41-57).

Within the TPEP, each course is thoroughly planned with specific activities to achieve its learning objectives. The material deepening course involves identifying and exploring problem

cases as well as determining their causes. This course is facilitated by a lecturer and a trainer in a large class setting. The course on developing instructional tools focuses on exploring solutions or alternatives, determining solutions, developing action plans, and crafting evaluation plans. This course is conducted in small groups of three, each comprising ten members. For the teaching practice component, in-service EFL teachers are required to teach in their respective schools under the observation of the lecturer and the trainer. They engage in activities, such as teaching English in the initial meetings, video editing, analysing students' learning assessment results, and reflecting on their teaching practices. This approach, outlined in Figures 1 and 2, provides a robust, practical learning experience to enhance in-service EFL teachers' professional skills.



**Figure 1.** Cycle 1 for TPEP activities.



**Figure 2.** Cycle 2 for TPEP activities.

In the teaching practice framework, particularly for administering pre-tests and post-tests, in-service EFL teachers frequently utilised an array of digital instruments. Google Forms, Quizizz, and Kahoot! were among the most commonly adopted tools, with Google Forms preferred due to its user-friendliness and multifunctionality. This trend highlights the pivotal role of accessible and efficient use of technology in evaluating the students' learning outcomes and understanding. Furthermore, for delivering educational presentations, in-service EFL teachers employed various digital platforms: PowerPoint for structured presentations, Canva for engaging designs, Padlet for collaborative interactions, and YouTube for dynamic video contents. The inclusion of social media platforms such as TikTok in pedagogical practices reflected an adaptive response to the evolving digital landscape and a commitment to meet the students within their digital comfort zones. The deliberate use of these digital assets, underpinned by the Technological Pedagogical and Content Knowledge (TPACK) framework, aimed to enhance the pedagogical experience. The integration of technological skills, pedagogical expertise, and content knowledge in this study sought to foster an educational environment that was engaging, effective in conveying complex ideas, and capable of improving the overall quality and appeal of teaching practices for in-service EFL teachers.

### **3.3 Research Participants**

The training, the virtual Teacher Profession Education Programme (TPEP), was hosted entirely online by a private university in eastern Jakarta. A convenience sampling technique was employed to select participants based primarily on their availability and willingness to take part in the study. To ensure the study's generalisability, the sample consisted of a diverse cohort of in-service EFL teachers from various geographical regions—Banten, Jakarta, West Java, Central Java, East Java, and Papua—and across different educational levels, including elementary, junior high school, and senior high school. This strategic selection aimed to capture a broad spectrum of experiences and backgrounds, thereby providing insights into the technological engagement and instructional challenges faced by in-service EFL teachers at various stages of education in Indonesia. Therefore, the findings may be applicable to a wider population of in-service EFL teachers, reflecting the varied educational contexts throughout the country.

Table 1 below outlines the demographic profile of 76 in-service EFL teachers who participated in the study, showcasing a diverse yet predominantly female group in which women represented 67% of the in-service EFL teachers, with men constituting the remaining 33%. A notable majority, 71%, were experienced teachers over 40 years old, indicating a cohort of seasoned professionals within the educational sector. Younger teachers were less represented, with figures revealing no participants under 25, 4% aged between 25 and 30, 16% aged between 31 and 35, and 9% aged between 36 and 40 years old. Geographically, the in-service EFL teachers came from various regions, with the largest groups originating from Banten (43%), Jakarta (28%), and West Java (24%), while minimal representation was noted from Central Java, East Java, and Papua, making up 1% and 3% respectively.

Most in-service EFL teachers taught at junior high school level (55%). Meanwhile, elementary and senior high school level accounted for only 22% each. This diversity indicated a wide range of educational settings was employed in this study. In terms of teaching experience, 34% had between 11 and 15 years of experience, underscoring significant expertise. Technological access essential for contemporary teaching was also high, with 74% of the participants had Internet access at home and 97% had access at school. Daily computer or laptop usage was varied, with the most common duration of 4-5 hours (34%). Microsoft PowerPoint emerged as the preferred teaching tool (63%), highlighting a preference for presentation-based instruction. Primary uses of laptops or smartphones included completing school assignments (63%) and creating digital-based learning materials (24%), reflecting substantial engagement with digital resources in their educational activities.

**Table 1.** Demographics of the participants.

Categories	Descriptions	Total	Percentage
Gender	Female	51	67%
	Male	25	33%
Age	<25 years old	0	0%
	25-30 years old	3	4%
	31-35 years old	12	16%
	36-40 years old	7	9%
	>40 years old	54	71%
Home location	Banten	33	43%
	Centra Java	1	1%
	East Java	1	1%
	Jakarta	21	28%
	Papua	2	3%
	West Java	18	24%
Educational level of teaching English	Elementary School	17	22%
	Junior High School	42	55%
	Senior High School	17	22%
Length of teaching experience	<3 years	3	4%
	3-5 years	19	25%
	6-10 years	24	32%
	11-15 years	26	34%
	16-20 years	8	11%
Having an Internet connection at home	Yes	56	74%
	No	20	26%
Having an Internet access at school	Yes	74	97%
	No	2	3%
Using a laptop/computer a day	<2 hours	8	11%
	2-3 hours	23	30%
	4-5 hours	26	34%
	6-7 hours	11	14%
	>7 hours	8	11%
Programme mostly used for teaching needs	MS Word	28	37%
	MS Excel	0	0%
	MS PPT	48	63%
Activities mostly used through laptops/smartphones	Games & entertaining activities	8	11%
	Doing school assignment	48	63%
	Making digital-based learning contents	18	24%
	Making infographic projects	4	5%

### 3.4 Instruments

#### 3.4.1 *The efficacy survey: Item, reliability, and validity*

To collect quantitative data on the efficacy of the virtual Teacher Profession Education Programme (TPEP) among in-service EFL teachers, an online survey was conducted. This survey was structured into two sections: the first section gathered demographic information, while the second section comprised of 12 statements rated on a Likert scale ranging from strongly disagree (1) to strongly agree (5), explicitly designed without any negatively phrased items. Drawing on the works of [Adnan and Anwar \(2020\)](#) and [Pham et al. \(2021\)](#), the questionnaire assessed in-service EFL teachers' perceptions of TPEP online classes across three distinct dimensions, each represented by four statements: (1) perceived usefulness dimension in statements one to four; (2) course content and design dimension in statements five to eight; and (3) outcomes of online learning dimension in statements nine to twelve. The reliability of the survey was confirmed through Cronbach's alpha of .863, reflecting a high internal consistency among the items. This survey was translated into Bahasa Indonesia to avoid in-service EFL teachers' misunderstandings, then converted into a Google Form and distributed to them via online links shared in the WhatsApp groups of the TPEP classes.

The survey's validity was established using the Kaiser–Meyer–Olkin (KMO) measure and Bartlett's test of sphericity. The results from these tests were significant, with a chi-square value of  $\chi^2(66) = 843.886$ ,  $p < .001$ , and a KMO measure of sampling adequacy at .928, indicating that the questionnaire was structurally valid for analysing the constructs it intended to measure. Furthermore, the analysis also verified that the data were normally distributed as evidenced by the absence of skewness or kurtosis values exceeding the thresholds of +2 or -2, thereby affirming the survey's appropriateness for subsequent statistical evaluations.

### *3.4.2 Test scores*

Test scores were utilised to complement the quantitative data. Each in-service EFL teacher participating in a comprehensive test answered questions provided by two raters during the virtual meetings. The allotted time for each participant was 50 minutes. The mean test score obtained was 78.89, with a standard deviation of 4.85.

### *3.4.3 Written interviews*

All participants took part in written interviews designed to explore their perceptions of the usefulness, course content and design, and learning outcomes of the virtual Teacher Profession Education Programme (TPEP). The interview consisted of four open-ended questions covering key areas: (1) the obstacles faced in joining the TPEP via online learning, (2) the perceived usefulness and associated benefits or drawbacks of online learning, (3) the suitability of the programme to their professional needs, and (4) their ability to develop lesson plans or teaching modules with guidance from lecturers and tutors. Each question required a minimum response of 50 words, and participants were allowed to respond in either Indonesian or English to encourage more authentic and elaborated reflections. The interviews were conducted online during the final week of the programme, and participants were given one week to complete and submit their responses. While no formal validity or reliability testing was conducted for these open-ended questions, the items were reviewed by two experts in teacher education to ensure their clarity and appropriateness. The written interviews were chosen in this study because they offered flexibility and anonymity, allowing participants to respond at their convenience and provide honest feedback (Whetzel et al., 2003). This method also enabled in-depth data analysis and interpretation, making it a valuable tool for the qualitative phase of the study.

The interpretivist paradigm suggests that individuals construct knowledge and truth rather than discover or encounter them as pre-existing entities. It prioritises on comprehending the subjective realities of individuals (Creswell, 2021). Researchers embracing this paradigm aim to investigate and clarify the underlying reasons for the observed phenomena, with a particular emphasis on their context-specific manifestations (Cohen et al., 2002). This current study's decision to employ the interpretivist paradigm stemmed from the goal to thoroughly capture and analyse the nuanced and profound learning experience encountered by in-service EFL teachers within the virtual TPEP.

## **3.5 Data Analysis**

The analysis of the first research question involved both quantitative and qualitative methods. Descriptive statistics, including means, standard deviations, and percentages, were used to analyse the survey data. In addition, a deductive thematic analysis was applied to the written interview responses (Terry et al., 2017). This process involved systematically identifying, analysing, and reporting patterns or themes within the qualitative data. It began with familiarisation through repeated readings of the interview responses, followed by the generation of initial codes to capture key features. These codes were then organised into potential themes, which were reviewed and refined to ensure they accurately represented the data. The resulting themes were subsequently compared with the findings from the descriptive statistics to provide a comprehensive understanding. Meanwhile, the second research question was addressed through

bivariate correlation analysis, which quantitatively examined the relationships between the variables (Swank & Mullen, 2017).

#### 4. RESULTS AND DISCUSSION

Overall, the in-service EFL teachers perceived the Teacher Profession Education Programme (TPEP) to be quite positively effective. The mean rating obtained was 3.96 ( $SD = .55$ ), indicating a high level of efficacy. Below are the details of the results.

##### 4.1 Perceived Usefulness

The analysis of the virtual TPEP perceived usefulness among in-service EFL teachers yielded significant insights reflected by a mean score of 4.00 ( $SD = .69$ ), indicating a high level of appreciation for the programme's efficacy. These quantitative results, detailed in Table 2, underlines the multifaceted benefits of TPEP, particularly highlighting the effectiveness of online platforms like G-Meets in which a substantial 73.68% of in-service EFL teachers found to be highly effective for engagement and learning. Similarly, the integration of a Learning Management System (LMS) was deemed to be quite beneficial by 68.42% of the in-service EFL teachers, facilitating a collaborative educational environment. In addition, the programme's capacity to enhance active participation was particularly noted, with 78.95% of the in-service EFL teachers acknowledging that it encouraged a dynamic exchange of queries and insights. Furthermore, over half of the in-service EFL teachers (56.58%) felt that TPEP promoted autonomy in their learning processes.

**Table 2.** In-service EFL teachers' responses on perceived usefulness.

No.	Items	SD	D	N	A	SA
1.	Online learning via G-Meets is really effective for me.	2.63	2.63	6.58	73.68	14.47
2.	Sharing information within the LMS collaboration room is quite helpful to me.	2.63	0.00	10.53	68.42	18.42
3.	Online classes encourage me to ask questions and provide answers.	3.95	1.32	1.32	78.95	14.47
4.	This TPEP's online learning makes me an autonomous learner.	2.63	1.32	11.84	56.58	27.63

The qualitative analysis further elaborated on the in-service EFL teachers' experiences, revealing a broad consensus on the advantages of online learning within the TPEP framework. In-service EFL teachers highlighted the programme's pivotal role in providing increased flexibility and access to professional development resources while accommodating their existing teaching obligations. This mode of learning was credited with enriching their pedagogical repertoire through the acquisition of new knowledge, innovative teaching strategies, and methodologies, thereby advancing their teaching competencies and fostering their pedagogical innovation. The in-service EFL teachers also valued the opportunities for collaboration and professional networking that the programme facilitated, enhancing their educational practices through peer and mentor interactions. Nonetheless, some in-service EFL teachers articulated concerns regarding the limitations imposed by the absence of direct interpersonal interactions and the level of technological adeptness variation among in-service EFL teachers. Below are the excerpts from the written interviews.

- (1) 'In my opinion, online learning at TPEP was very useful. Apart from being able to learn easily anywhere and at any time, we could also develop our abilities in using technology, play an active role in participating in learning, and know learning materials easily'. (R36)
- (2) 'TPEP was very useful because it could evaluate teacher deficiencies so that they could be overcome when TPEP was finished by applying what they had learned during TPEP. Teachers were more confident when in the classroom and were not afraid when asked to collect teaching materials by the Deputy Head of Curriculum'. (R38)

## 4.2 Course Content and Design

The analysis of the in-service EFL teachers' perceptions concerning the course content and design within the virtual TPEP generated a mean satisfaction score of 3.98 ( $SD = .72$ ), signifying a high level of approval among the in-service EFL teachers. This data, as illustrated in Table 3, provides a detailed breakdown of their perspectives on the course content and design. A significant majority of in-service EFL teachers (75%) affirmed that the learning materials made available through the Learning Management System (LMS) were comprehensive and met their professional development needs. An equal percentage attested to the interactive nature of asynchronous online learning within the LMS, enhancing the in-service EFL teachers' learning experience. Furthermore, the appeal of synchronous online sessions via G-Meets was acknowledged by 67.11% of in-service EFL teachers, who expressed enthusiasm for these real-time interactions. The overall design of the TPEP, as facilitated through online learning modalities, was met with the approval by 69.74% of the in-service EFL teachers.

**Table 3.** In-service EFL teachers' responses on course content and design.

No.	Items	SD	D	N	A	SA
5.	Learning materials in the Learning Management System (LMS) fulfil my needs as a teacher.	2.63	1.32	3.95	75.00	17.11
6.	Online learning through asynchronous mode (LMS) is conducted in an interactive manner.	3.95	2.63	6.58	75.00	11.84
7.	Online learning through synchronous mode (G-Meets) which is facilitated by the instructors is exciting.	3.95	0.00	6.58	67.11	22.37
8.	I am satisfied with TPEP design through online learning.	3.95	1.32	6.58	69.74	18.42

Qualitative data analysis further highlighted a general consensus among in-service EFL teachers regarding the virtual TPEP's role in enhancing their competency in lesson planning and the development of teaching modules. Most in-service EFL teachers shared positive feedback, attributing their improved skills in creating comprehensive lesson plans to the programme's enriched content, the insightful guidance provided by lecturers and trainers, and the acquisition of broader pedagogical knowledge and skills. The provision of clear explanations and robust support from lecturers and trainers was particularly valued, particularly for enabling effective understanding and application of lesson planning principles. A transformative shift was also reported by some in-service EFL teachers, who transitioned from relying on online-sourced content to adopting a more structured and guided approach to lesson planning, supported by the resources provided through the TPEP. The importance of interactive exchanges and constructive feedback from lecturers and trainers in the iterative refinement of lesson plans to align with educational objectives and learner requirements was also emphasised. However, challenges were noted by a minority, including discrepancies in lecturer and trainer advices and obstacles in adapting to the evolving curriculum demands. Some excerpts from the written interviews are provided below.

- (3) 'Thank God, I can understand that at first, I just copied and pasted from the Internet, but with TPEP, my ability to create learning objectives using Bloom's taxonomy formula really helped me to create correct learning objectives, not just copy and paste anymore'. (R7)
- (4) 'Being guided well by lecturers and tutors patiently from the beginning until the end becomes a good lesson plan. I can explore and develop both my knowledge and skills. It is necessary to be a skilled teacher'. (R34)

## 4.3 Perceived Learning Outcomes

The calculation of the in-service EFL teachers' perceptions of their learning outcomes from the virtual TPEP produced a mean score of 3.91 ( $SD = 0.55$ ), signifying a substantial level of perceived learning among the participants. Detailed in Table 4, the data delineates the various dimensions of learning outcomes as perceived by the in-service EFL teachers. Over half of the in-service EFL teachers (51.32%) reported a significant improvement in their ability to develop

lesson plans through online classes when compared to their skills before participating in the TPEP, highlighting the programme's positive impact on their professional development. A significant majority (59.21%) of the in-service EFL teachers reported an augmentation in their ability to implement Problem-based Learning (PBL) and Project-based Learning (PjBL) methodologies, attributed to their experiences with online learning. Furthermore, 72.37% of in-service EFL teachers recognized an enhanced understanding of evaluation planning as facilitated in the online sessions. Additionally, a considerable percentage of the in-service EFL teachers (63.16%) observed an uplift in their overall teaching capacity after the completion of the TPEP online.

**Table 4.** In-service EFL teachers' responses on learning outcomes.

No.	Items	SD	D	N	A	SA
9.	My understanding in developing my lesson plans improves through online classes before participating in TPEP.	7.89	13.16	6.58	51.32	21.05
10.	Through online learning, my ability to apply the problem-based learning (PBL) and Project-based learning (PjBL) learning models increases better.	5.26	1.32	0.00	59.21	34.21
11.	Through online learning, my understanding in evaluation plan increases better.	3.95	1.32	2.63	72.37	19.74
12.	After completing TPEP online, my teaching capacity increases.	10.53	2.63	2.63	63.16	21.05

The qualitative feedback from in-service EFL teachers regarding their learning outcomes from TPEP revealed a range of experiences and needs, reflecting the programme's wide-reaching impact. Several in-service EFL teachers shared their contentment with the programme, noting an increase in motivation, a broadening of their knowledge base regarding effective teaching strategies, and an improvement in practical skills, including lesson plan formulation and technological integration in the classroom. Furthermore, the enrichment in understanding innovative teaching models, such as Problem-based Learning (PBL) and Project-based Learning (PjBL), alongside enhanced access to academic resources, was highlighted as a significant benefit. Most in-service EFL teachers stressed the critical role of real-world applications, comprehensive educational materials, and direct mentorship from lecturers and trainers as essential components in fulfilling their professional development objectives. However, challenges were also articulated, ranging from the difficulties encountered in adjusting to new teaching methodologies and technologies to disparities in lecturer and trainer viewpoints and hurdles in accessing requisite resources. Below are the excerpts from the written interviews.

- (5) 'I found what I need and want because, with the Teacher Professional Education Programme (TPEP), I am more understanding and open. There are many benefits, from not knowing to knowing. With this TPEP, I am more confident and more understanding, so I understand better what education means for teachers'. (R26)
- (6) 'The TPEP made me understand how to create teaching modules according to students' needs, how to make the learning process enjoyable, and how to be a good teacher'. (R57)

#### 4.4 The Correlation between In-service EFL Teachers' Perceptions and Their Test Scores

The bivariate correlation analysis revealed several significant relationships among in-service EFL teachers' perceptions of the virtual Teacher Profession Education Programme (TPEP), highlighting the strong interconnections between different aspects of their experiences. Perceived usefulness showed significant positive correlations with perceived learning outcomes ( $r = .29, p = .01$ ), with perceptions of the implemented course content and design ( $r = .88, p < .001$ ), and with the efficacy of the virtual TPEP ( $r = .90, p < .001$ ). Similarly, perceived learning outcomes exhibited significant positive correlations with perceptions of the implemented course content and design ( $r = .38, p < .001$ ) and with the efficacy of the virtual TPEP ( $r = .63, p < .001$ ). Perceptions of the implemented course content and design strongly correlated with the efficacy of the virtual TPEP ( $r = .94, p < .001$ ). However, significant correlations were notably absent between any of the in-service EFL teachers' perceptions and their actual test scores. This suggests that, although the various aspects of the programme were perceived as positively interconnected,

these perceptions did not directly correspond to the in-service EFL teachers' academic performance as measured by the test scores (see Table 5).

**Table 5.** Results of bivariate correlations.

		2	3	4	Test Scores
Perceived usefulness (1)	r	.29*	.88**	.90**	.01
	p	.01	.000	.000	.92
Perceived learning outcomes (2)	r		.38**	.63**	.19
	p		.000	.000	.10
Perceptions of the implemented course content and design (3)	r			.94**	-.02
	p			.000	.86
The efficacy of the virtual TPEP (4)	r				.06
	p				.60
*. Correlation is significant at the 0.05 level (2-tailed).					
**. Correlation is significant at the 0.01 level (2-tailed).					

## 5. DISCUSSION

The evaluation of Indonesia's National EFL Teacher Profession Education Programme (TPEP) has received overwhelmingly positive feedback, demonstrating its effectiveness in virtual professional development (VPD). In-service EFL teachers who participated in the programme reported high levels of satisfaction with its content and design, as well as substantial gains in terms of learning outcomes. These indicators suggest that TPEP has effectively met its objectives, which include increasing in-service EFL teachers' engagement, promoting learner autonomy, and enhancing both pedagogical skills and instructional strategies. This success aligns with research by O'Dowd and Dooly (2022) and Singh et al. (2022), which also highlight the myriad benefits of VPD, such as fostering innovative teaching practices, broadening knowledge bases, initiating collaborative academic projects, and potentially enhancing teacher learning outcomes. Moreover, although much existing research has focused on the technological implementations of such programmes in diverse international settings—including in the United States (Zimmer & Matthews, 2022), Vietnam (Truong & Murray, 2019), and China (Zhang, 2022)—this study enriches the literature by examining the experiences of participants in Indonesia, offering insights that mirror those observed in South Korea (Bailey & Lee, 2020). This contribution is significant as it accentuates the comprehensive ways in which VPD can be tailored to effectively meet the specific needs and circumstances of educators, thereby enhancing the overall impact on educational practices and outcomes.

The findings related to perceived usefulness demonstrated that the TPEP's structure and online delivery mode were effective in promoting in-service EFL teachers' engagement and autonomy. The in-service EFL teachers recognised the benefits of flexible scheduling, ease of access, and technology-enhanced learning experiences. These results support the broader literature, which highlights accessibility and interactivity as critical components of effective VPD (O'Dowd & Dooly, 2022; Taghizadeh & Basirat, 2022). Nonetheless, qualitative responses also indicated that some in-service EFL teachers experienced limitations due to inconsistent digital access and varying levels of technological proficiency. The implication is that while VPD programmes may increase accessibility, they also necessitate additional digital support mechanisms to ensure equitable participation. Regarding the course content and design, the in-service EFL teachers highlighted the structured and coherent progression from material deepening to lesson plan development and teaching practice. The integration of synchronous and asynchronous modes, as well as the opportunity to collaborate in smaller peer groups, was perceived as a strength of the programme. In-service EFL teachers reported that this structure allowed them to reflect on and refine their pedagogical knowledge while receiving targeted feedback from facilitators. These perceptions are consistent with existing research on the importance of scaffolding and collaborative learning in VPD contexts (Kusuma & Waluyo, 2023; Nguyen, 2021). Nevertheless, discrepancies in the consistency of lecturer and trainer feedback

and clarity of instructional guidance were raised, pointing to the need for standardised facilitator training and quality assurance to maintain alignment across instructional teams.

In terms of perceived learning outcomes, in-service EFL teachers noted significant improvements in their ability to develop lesson plans, implement student-centred learning models (e.g., PBL and PjBL), and plan evaluations effectively. Most in-service EFL teachers reported a shift from surface-level teaching practices to more thoughtful, structured instructional design approaches supported by frameworks like Bloom's taxonomy. This supports earlier findings that VPD can increase teachers' confidence, technical knowledge, and pedagogical flexibility (Apridayani & Waluyo, 2022; Singh et al., 2022). Still, some in-service EFL teachers described barriers to applying new strategies in their teaching contexts due to rigid curricular demands, lack of school-level support, and limited classroom resources. These responses suggest that to ensure successful application, VPD should be paired with school-based initiatives and leadership support that encourage and enable implementation.

The analysis of the correlation between in-service EFL teachers' perceptions and their test scores revealed an unexpected disconnection. Even though the in-service EFL teachers reported high levels of satisfaction across all three dimensions—usefulness, content and design, and learning outcomes—these perceptions did not significantly correlate with their actual test performance. This finding echoes earlier studies which caution against assuming a direct relationship between teacher perceptions and objective outcomes (Marie, 2021; Wang et al., 2023). Several factors may help explain this discrepancy. First, standardised test scores may not fully capture the applied competencies and growth in professional identity that the TPEP aimed to develop. The in-service EFL teachers may have internalised and implemented new strategies without those skills being reflected in exam formats focused on theoretical knowledge. Second, individual in-service EFL teacher characteristics—such as prior experience, age, and comfort with online platforms—may have influenced test outcomes independently of their perception of the programme. For example, older or more experienced in-service EFL teachers might have valued the training more but struggled with online assessments due to unfamiliarity with digital testing environments (Abedi & Ackah-Jnr, 2023; Apoko & Cahyono, 2024). Finally, contextual factors—such as disparities in infrastructure, school leadership, and teacher demographics—likely played a role in mediating the effectiveness of the programme in practice (Abonyi et al., 2020; Adeniyi et al., 2024).

These findings reinforce the argument that a comprehensive approach is essential when evaluating the success of professional development programmes. Effective VPD cannot be assessed solely through test scores or in-service EFL teacher satisfaction. Rather, evaluations must consider the interplay between in-service EFL teachers' perceptions, practical application, contextual challenges, and long-term instructional transformation. Previous research underlines that high-quality PD typically includes a structured framework, consistent mentorship, collaborative learning opportunities, and alignment with real classroom needs and curricular goals (Atmojo, 2021; Lay et al., 2020; Nguyen, 2021). The contrast observed in this study between positive in-service EFL teachers' perceptions and a lack of measurable improvement in test scores indicates the multifaceted nature of teacher learning and suggests the need for more authentic, performance-based assessments in VPD contexts.

## 5. CONCLUSION

The insights garnered from this study shed light on the substantial potentials and challenges of virtual professional development (VPD) programmes, with reference to the national EFL Teacher Profession Education Programme (TPEP) in Indonesia. The affirmative feedback from Indonesian teachers regarding the TPEP indicated the effectiveness of such platforms, particularly in overcoming geographical barriers and enhancing teacher education, thereby suggesting a viable approach for Indonesia to promote educational equity across its vast and diverse territories. This positive outcome invites further exploration into strategies in enhancing the efficacy and accessibility of VPD initiatives, particularly through improvements in interactivity and

technological support. On a global scale, this study advocates for leveraging VPD to overcome geographical barriers and foster international collaborations in education due to its' observed benefits of increased accessibility and innovation in instructional practices, which demonstrate broad relevance across diverse educational contexts. Yet, the noted disparity between in-service EFL teachers' perceptions of the programme efficacy and the actual academic performance of the in-service EFL teachers stresses the complexity of relying solely on virtual platforms for professional development. This observation calls for an integrated approach that combines VPD with tangible strategies aimed at elevating teacher achievement, thereby optimizing the global impact of such programmes.

One notable finding of this study was the absence of a significant correlation between in-service EFL teachers' perceived effectiveness of the TPEP and their test scores. This disconnect indicates that although in-service EFL teachers expressed positive perceptions of the programme, these perceptions did not necessarily correspond with measurable gains in academic performance. This outcome underscores the complex and multifaceted nature of educational effectiveness, shaped by a wide range of variables beyond programme content and delivery. These variables may include individual lecturer and trainer characteristics, teacher attributes, and broader institutional or contextual factors—all of which fall outside the immediate scope of this study. Therefore, future research should adopt a more comprehensive perspective that considers these interrelated dimensions to better understand and maximise the impact of VPD on both teaching practices and in-service EFL teachers' learning outcomes. Furthermore, as this study relied primarily on self-reported data, subsequent investigations would benefit from incorporating more diverse methodological approaches—such as classroom observations or longitudinal tracking of learning outcomes—to validate and extend these findings, ultimately contributing to a more robust understanding of VPD's role in educational advancement.

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## REFERENCES

- Abedi, E. A., & Ackah-Jnr, F. R. (2023). First-order barriers still matter in teachers' use of technology: An exploratory study of multi-stakeholder perspectives of technology integration barriers. *International Journal of Education and Development Using Information and Communication Technology*, 19(2), 148-165. <http://ijedict.dec.uwi.edu/viewarticle.php?id=3164>
- Abonyi, U. K., Yeboah, R., & Luguterah, A. W. (2020). Exploring work environment factors influencing the application of teacher professional development in Ghanaian basic schools. *Cogent Social Sciences*, 6(1), 1778915. <https://doi.org/10.1080/23311886.2020.1778915>
- Adeniyi, I. S., Al Hamad, N. M., Adewusi, O. E., Unachukwu, C. C., Osawaru, B., Onyebuchi, C. N., Omolawal, S. A., Aliu, A. O., & David, I. O. (2024). Educational reforms and their impact on student performance: A review in African Countries. *World Journal of Advanced Research and Reviews*, 21(2), 750-762. <https://doi.org/10.30574/wjarr.2024.21.2.0490>
- Adnan, M. (2018). Professional development in the transition to online teaching: The voice of entrant online instructors. *ReCALL*, 30(1), 88-111. <https://doi.org/10.1017/S0958344017000106>
- Adnan, M., & Anwar, K. (2020). Online learning amid the COVID-19 pandemic: Students' perspectives. *Online Submission*, 2(1), 45-51. <https://doi.org/10.33902/jpsp.2020261309>

- Al-Nofaie, H. (2020). Saudi university students' perceptions towards virtual education during Covid-19 pandemic: A case study of language learning via blackboard. *Arab World English Journal*, 11(3), 4-20. <https://doi.org/10.24093/awej/vol11no3.1>
- Al-Qahtani, M. H. (2019). Teachers' and students' perceptions of virtual classes and the effectiveness of virtual classes in enhancing communication skills. *Arab World English Journal (AWEJ) Special Issue: The Dynamics of EFL in Saudi Arabia*, 1, 223-240. <https://doi.org/10.24093/awej/efl1.16>
- Alzahrani, F. Y., & Althaqafi, A. S. (2020). EFL teachers' perceptions of the effectiveness of online professional development in higher education in Saudi Arabia. *Higher Education Studies*, 10(1), 121-131. <https://doi.org/10.5539/hes.v10n1p121>
- Apoko, T. W., & Cahyono, B. Y. (2024). In-service English teachers' motivations in the Indonesian teacher profession education program. *International Journal of Evaluation and Research in Education*, 13(4), 2639-2649. <https://doi.org/10.11591/ijere.v13i4.28442>
- Apridayani, A., & Waluyo, B. (2022). Antecedents and effects of students' enjoyment and boredom in synchronous online English courses. *Journal of Multilingual and Multicultural Development*, 45(10), 4254-4269. <https://doi.org/10.1080/01434632.2022.2152457>
- Atmojo, A. E. P. (2021). EFL teachers' online teacher professional development experiences amidst the COVID-19 pandemic: Practices and perceptions. *Englisia: Journal of Language, Education, and Humanities*, 9(1), 1-18. <https://doi.org/10.22373/ej.v9i1.9127>
- Bailey, D. R., & Lee, A. R. (2020). Learning from experience in the midst of COVID-19: Benefits, challenges, and strategies in online teaching. *Computer-Assisted Language Learning Electronic Journal*, 21(2), 178-198. <https://callej.org/index.php/journal/article/view/303>
- Bragg, L. A., Walsh, C., & Heyeres, M. (2021). Successful design and delivery of online professional development for teachers: A systematic review of the literature. *Computers & Education*, 166, 104158. <https://doi.org/10.1016/j.compedu.2021.104158>
- Cohen, L., Manion, L., & Morrison, K. (2002). *Research methods in education*. Routledge.
- Coman, C., Țîru, L. G., Meseșan-Schmitz, L., Stanciu, C., & Bularca, M. C. (2020). Online teaching and learning in higher education during the Coronavirus pandemic: Students' perspective. *Sustainability*, 12(24), 10367. <https://doi.org/10.3390/su122410367>
- Creswell, J. W. (2021). *A concise introduction to mixed methods research*. SAGE publications.
- Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). Sage publications.
- Dille, K. B., & Røkenes, F. M. (2021). Teachers' professional development in formal online communities: A scoping review. *Teaching and Teacher Education*, 105, 103431. <https://doi.org/10.1016/j.tate.2021.103431>
- Ernest, P., Guitert Catasús, M., Hampel, R., Heiser, S., Hopkins, J., Murphy, L., & Stickler, U. (2013). Online teacher development: Collaborating in a virtual learning environment. *Computer Assisted Language Learning*, 26(4), 311-333. <https://doi.org/10.1080/09588221.2012.667814>
- Hauserman, C. P., Ivankova, N. V., & Stick, S. L. (2013). Teacher perceptions of principals' leadership qualities: A mixed methods study. *Journal of School Leadership*, 23(1), 34-63. <https://doi.org/10.1177/105268461302300102>
- Hennessy, S., D'Angelo, S., McIntyre, N., Koomar, S., Kreimeia, A., Cao, L., Brugha, M., & Zubairi, A. (2022). Technology use for teacher professional development in low-and middle-income countries: A systematic review. *Computers and Education Open*, 3, 100080. <https://doi.org/10.1016/j.caeo.2022.100080>
- King, K. P. (2002). Identifying success in online teacher education and professional development. *The Internet and Higher Education*, 5(3), 231-246. [https://doi.org/10.1016/S1096-7516\(02\)00104-5](https://doi.org/10.1016/S1096-7516(02)00104-5)
- Kohnke, L. (2021). Professional development and ICT: English language teachers' voices. *Online Learning*, 25(2), 36-53. <https://doi.org/10.24059/olj.v25i2.2228>
- Kusuma, I., & Waluyo, B. (2023). Enacting e-portfolios in online English-Speaking courses: Speaking performance and self-efficacy. *Iranian Journal of Language Teaching Research*, 11(1), 75-95. <https://doi.org/10.30466/ijltr.2023.121273>

- Lay, C. D., Allman, B., Cutri, R. M., & Kimmons, R. (2020). Examining a decade of research in online teacher professional development. *Frontiers in Education*, 5, 573129. <https://doi.org/10.3389/feduc.2020.573129>
- Manegre, M., & Sabiri, K. A. (2022). Online language learning using virtual classrooms: An analysis of teacher perceptions. *Computer Assisted Language Learning*, 35(5-6), 973-988. <https://doi.org/10.1080/09588221.2020.1770290>
- Marie, S. M. J. A. (2021). Improved pedagogical practices strengthens the performance of student teachers by a blended learning approach. *Social Sciences & Humanities Open*, 4(1), 100199. <https://doi.org/10.1016/j.ssaho.2021.100199>
- McAleavy, T., Hall-Chen, A., Horrocks, S., & Riggall, A. (2018). *Technology-supported professional development for teachers: Lessons from developing countries*. Education Development Trust.
- Moser, K. M., & Wei, T. (2023). Professional development in collaborative online spaces: Supporting rural language teachers in a post-pandemic era. *The New Educator*, 19(1), 1-32. <https://doi.org/10.1080/1547688X.2023.2174279>
- Nazari, N., Nafissi, Z., Estaji, M., & Marandi, S. S. (2019). Evaluating novice and experienced EFL teachers' perceived TPACK for their professional development. *Cogent Education*, 6(1), 1632010. <https://doi.org/10.1080/2331186X.2019.1632010>
- Nguyen, V. M. (2021). English language-learning environments in COVID-19 era: EFL contexts, English-language environments, technology-based approach, English language learning. *AsiaCALL Online Journal*, 12(3), 39-46. <https://asiacall.info/acoj/index.php/journal/article/view/21>
- O'Dowd, R., & Dooly, M. (2022). Exploring teachers' professional development through participation in virtual exchange. *ReCALL*, 34(1), 21-36. <https://doi.org/10.1017/S0958344021000215>
- Paudel, P. (2020). Online education: Benefits, challenges and strategies during and after COVID-19 in higher education. *International Journal on Studies in Education*, 3(2), 70-85. <https://doi.org/10.46328/ijonse.32>
- Pham, T. T. T., Le, H. A., & Do, D. T. (2021). The factors affecting students' online learning outcomes during the COVID-19 pandemic: A bayesian exploratory factor analysis. *Education Research International*, 2021(1), 1-13. <https://doi.org/10.1155/2021/2669098>
- Philipsen, B., Tondeur, J., Pareja Roblin, N., Vanslambrouck, S., & Zhu, C. (2019). Improving teacher professional development for online and blended learning: A systematic meta-aggregative review. *Educational Technology Research and Development*, 67, 1145-1174. <https://doi.org/10.1007/s11423-019-09645-8>
- Powell, C. G., & Bodur, Y. (2019). Teachers' perceptions of an online professional development experience: Implications for a design and implementation framework. *Teaching and Teacher Education*, 77, 19-30. <https://doi.org/10.1016/j.tate.2018.09.004>
- Singh, B., Zamaletdinov, R., Kaur, B., & Singh, J. (2022). Virtual professional learning for school teachers to support them in online environment. *Frontiers in Education*, 7, 802882. <https://doi.org/10.3389/feduc.2022.802882>
- Swank, J. M., & Mullen, P. R. (2017). Evaluating evidence for conceptually related constructs using bivariate correlations. *Measurement and Evaluation in Counseling and Development*, 50(4), 270-274. <https://doi.org/10.1080/07481756.2017.1339562>
- Taghizadeh, M., & Basirat, M. (2022). Investigating pre-service EFL teachers' attitudes and challenges of online teaching. *Computer Assisted Language Learning*, 37(7), 1937-1974. <https://doi.org/10.1080/09588221.2022.2136201>
- Terry, G., Hayfield, N., Clarke, V., & Braun, V. (2017). Thematic analysis. In C. Willig & W. S. Rogers (Eds.), *The SAGE handbook of qualitative research in psychology* (pp. 17-37). SAGE Publications Ltd. <https://doi.org/10.4135/9781526405555.n2>
- Truong, M. T., & Murray, J. (2019). Understanding language teacher motivation in online professional development: A study of Vietnamese EFL teachers. *TESL-EJ*, 23(3), 1-22. <http://www.tesl-ej.org/wordpress/volume23/ej91/ej91a1/>

- Truong, M. T., & Murray, J. (2020). Understanding obstacles to online professional development through the lens of EFL teachers' attitudes: A qualitative study in Vietnam context. *Computer-Assisted Language Learning Electronic Journal (CALL-EJ)*, 21(3), 23-40. <https://callej.org/index.php/journal/article/view/309>
- Waluyo, B., & Apridayani, A. (2024). Better learning and practice with teacher corrective feedback in higher education: A lesson from Thailand. *Learning: Research and Practice*, 10(2), 258-275. <https://doi.org/10.1080/23735082.2024.2357552>
- Waluyo, B., & Rofiah, N. L. (2021). Developing students' English oral presentation skills: Do self-confidence, teacher feedback, and English proficiency matter? *MEXTESOL Journal*, 45(3), 1-17. <https://doi.org/10.61871/mj.v45n3-14>
- Wang, Y., Pan, Z., & Wang, M. (2023). The moderating effect of participation in online learning activities and perceived importance of online learning on EFL teachers' teaching ability. *Heliyon*, 9(3), e13890. <https://doi.org/10.1016/j.heliyon.2023.e13890>
- Whetzel, D. L., Baranowski, L. E., Petro, J. M., Curtin, P. J., & Fisher, J. L. (2003). A written structured interview by any other name is still a selection instrument. *Applied HRM Research*, 8(1), 1-16.
- Yurtseven Avci, Z., O'Dwyer, L. M., & Lawson, J. (2020). Designing effective professional development for technology integration in schools. *Journal of Computer Assisted Learning*, 36(2), 160-177. <https://doi.org/10.1111/jcal.12394>
- Zhang, W. (2022). The role of technology-based education and teacher professional development in English as a Foreign Language classes. *Frontiers in Psychology*, 13, 910315. <https://doi.org/10.3389/fpsyg.2022.910315>
- Zimmer, W. K., & Matthews, S. D. (2022). A virtual coaching model of professional development to increase teachers' digital learning competencies. *Teaching and Teacher Education*, 109, 103544. <https://doi.org/10.1016/j.tate.2021.103544>