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Impact of Online Teacher Professional Development Programs on Classroom Teaching Practice in Indonesia

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Abstract

This study explores Indonesian teachers' experiences in the online Teacher Professional Development Program (Pendidikan Profesi Guru or PPG) and its impact on teaching practice. A review of existing literature on teacher Professional Development (PD), the connection between teacher learning and practice, and the complexities of literacy as a practice has been conducted to support this research. Using a case study approach, this research was conducted online through WhatsApp video calls, Zoom meeting recordings, and the PPG program's Learning Management System (LMS). The participants in this study were five elementary school teachers from five different schools in Indonesia. This study utilizes various data collection methods, including interviews, observations, and documents or artifacts. Using Stake's (2013) multiple-case analysis framework, individual case reports were created to align with the research questions, followed by a cross-case analysis. The results show that the PPG program offered a mix of lectures, interactive workshops, and hands-on field experiences with a strong emphasis on technology, pedagogy, and learning innovation. Teachers participated in activities that allowed them to apply their learning in classroom settings. After the program, teachers demonstrated improvements in integrating technology, adopted various instructional methods, showed increased adaptability in imple-

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menting the curriculum, and shifted towards student-centered teaching approaches. Using the framework of multicase analysis, six assertions emerged from participants' diverse educational experiences. These six assertions identified from the cross-case analysis illustrate the transformative impact of professional development on educational practices while also acknowledging the complexity and diversity of teaching contexts.

Keywords: in-service, online, teacher education, professional development, elementary education, Indonesia

Teacher Professional Development (PD) aims to enhance teachers' professional knowledge, skills, competence, and effectiveness in teaching. Teachers are expected to apply their knowledge in the classroom to support student learning after taking PD training. Mitchell, Riley and Loughran (2010) emphasize that PD is crucial for maintaining competence and effectiveness to improve teaching performance and student learning outcomes. Numerous studies have demonstrated an association between teacher quality and student achievement (Abbate-Vaughn & Paugh, 2009; Basma & Savage, 2018; Borman & Kimball, 2005; Boyle et al., 2004; Palardy & Rumberger, 2008; Vogt & Rogalla, 2009). Research and policies have recognized the effectiveness of PD through collaboration, subject-specificity, practice-based instruction, and external expertise (Sims and Fletcher-Wood, 2021). Prior scholarship reports that the effectiveness of PD can be measured through teacher learning (motivation, change in knowledge, beliefs), teacher satisfaction with professional development, actual teaching practice, and student learning and outcomes (Svendsen, 2020).

In Indonesia, the government has initiated and implemented the Program Pendidikan Guru (PPG) Professional Development Program Teacher Certification to provide paid professional leave from teaching and full-time PD. Periodically, core program features are affected by several curriculum changes in 2006, 2013, 2014, 2015, 2016, 2017, and 2022. While the PPG program has been training more than a million teachers nationwide, the history of the PPG program conducted in Indonesia raises questions about whether it effectively improves teachers' competency in teaching and student outcomes. Unfortunately, some published studies showed that the PPG program revealed disappointing results due to its complexity (Revina et al., 2020; Zein, 2016; 2017). Research has demonstrated that teacher quality and student outcomes remain problematic (Tanang & Abu, 2014; Thair & Treagust, 2003; Silvhiany, 2022). There is no strong evidence of the effectiveness of certified teachers (those who have taken the PPG program) on student learning outcomes and teacher performance (Kusumawardhani, 2017). Many teachers were uncertain whether the certification process enhanced teaching proficiency, as the link between the PPG program and improved teaching quality remained vague. Particularly for Indonesian elementary school teachers, research on teacher professional development is extremely limited. There has yet to be a research report on how elementary teachers apply the knowledge and skills acquired from PPG training in

their classrooms. This is crucial as one of the primary goals of the national agenda is to enhance literacy and the quality of education, including the quality of teachers, which fundamentally starts from elementary education.

This study aims to address this gap by analyzing the impact of the PPG Program on the teaching practices of elementary teachers in Indonesia. There are two questions: 1) What occurs during the PPG Program for elementary teachers? 2) How do teachers conceptualize pedagogical approaches and materials in the program and match them to the school or classroom where they teach? By examining the content organization and delivery of the PPG program as the knowledge and skills acquired by teachers during their training, this study provides valuable insights into how teachers apply these learnings in practical teaching situations. Through analysis of five primary school teachers who incorporate practices inspired by the PPG Program into their instruction, this study adds insights to the discussion surrounding teacher professional development's role in enhancing teaching standards in Indonesia.

Literature Review

High-quality PD programs share core features, including content focus, active learning, coherence with school goals, collective participation, and a minimum duration of 20 hours (Desimone, 2009). These elements foster relevance and sustainability, allowing teachers to deepen their understanding and integrate new strategies effectively. PD also supports teachers' reflection, leadership, and critical thinking skills, encouraging them to continuously refine their practice (Borko, 2004; Darling-Hammond, 2017; 2020). Programs emphasizing Higher-Order Thinking Skills (HOTS) enable teachers to guide students through cognitive processes like analysis and evaluation (Anderson & Krathwohl, 2001; Zohar & Dori, 2003).

Shulman's (1987) framework further outlines that teacher knowledge includes both subject knowledge and pedagogical content knowledge (PCK), which are essential for creating accessible, student-centered learning experiences. PCK enables teachers to apply content expertise through effective methods, responding to varied student needs. Technology pedagogical content knowledge (TPACK) merges pedagogy, content, and technology to support engagement and interaction which is essential in today's classrooms (Mishra & Koehler, 2006).

In Indonesia, teacher PD encompasses mandatory and non-mandatory programs, such as the certification-based Pendidikan

Profesi Guru (PPG). Despite these initiatives, research indicates mixed results on PD's impact on teaching quality and student outcomes, largely due to limited infrastructure and regional needs (Revina et al., 2020; Supriatna, 2011). Further research highlights that PD outcomes depend on learning activities, teacher qualities, and school environments, all influenced by Indonesia's complex sociopolitical context (Opfer & Pedder, 2011). Addressing these challenges is essential to advancing teacher quality and educational outcomes in Indonesia.

Regarding teachers PCK and TPACK within development programs, McKenna et al. (2003) and Miller & McKenna (2016) argue that integrating technology into literacy instruction complements approaches by providing students with access to a range of information and learning materials. They emphasize that technology enables interactive ways of engaging with texts and information, thereby expanding the scope of literacy education.

Integrating technology into teaching literacy can enhance student engagement, offer personalized learning experiences, and support the development of literacy skills alongside reading abilities. The inclusion of technology in development programs like libraries and online conferences is gaining recognition. The flexibility and accessibility of development initiatives serve as strong motivators for teachers to participate. They allow engagement at any time and from anywhere, overcoming constraints of time and location. This proves beneficial for teachers with busy schedules as they can take part in professional development activities without physically being present and often at a lower cost. Research highlights the importance of high-quality facilitators in translating learned concepts into classroom practices. The content of courses and the quality of facilitation significantly influence the success of development programs, thereby impacting teacher motivation.

Andriansyah (2023) executed an informative study in teacher training when, at the inception of the study, in-person meetings were cancelled due to the COVID-19 epidemic and participants were sent home to rural Indonesian villages with 2G-like internet connections. He found that even in this context, using pictures and voice files transmitted through WhatsApp was sufficient to achieve the development of literacy practices through improved teaching of Kindergarteners. In this case, the teachers demonstrated the efficacy of their teaching by returning teaching and student artifacts through pictures, and Notepad files transmitted by WhatsApp. Some limited video was also obtained. In this case, the

Kindergarteners were taught not in schools which were closed for the epidemic, but in the homes of the teachers, with the students often being neighbor children. This opens the possibility that it is not the speed of the technology connection, but the strength of the teaching design and the creativity of the educator in problem solving, which can be a potent factor in professional development.

Method

This study used a qualitative case study approach, applying Stake's (2013) multicase analysis framework. This method allowed an in-depth examination of teachers' experiences in the PPG program while enabling cross-case analysis to identify shared themes. Five teachers from varied Indonesian regions were selected: one from a remote western island, three from central Indonesia, and one from an urban area. This selection represented diverse educational contexts and challenges. Focusing on lower-grade teachers allowed for detailed comparisons of foundational teaching practices.

Setting

The study took place in two main settings: the PPG Office at a central Indonesian university (pseudonym: NCSU), which partnered with the Ministry of Education for program delivery, and the public schools where the teachers worked. Due to the COVID-19 pandemic, the PPG program was conducted online, with recorded sessions accessible for analysis.

Participants

The study involved various participants, including the PPG Office at NCSU, five elementary school teachers, and an observer. The PPG Office, located at a rural university, is one of the government-appointed institutions responsible for organizing pre-service and in-service teacher development as per Indonesia's Ministry of Education, Culture, Research, and Technology (MoECRT). The institution aims to enhance teacher competencies, foster professional responsibility, and advance teacher training programs.

The five teacher participants, who were in-service teachers, each brought unique backgrounds and experiences to this study. They were selected based on their MoECRT affiliation, tenure, and alignment with primary education requirements. More specifically, they were selected because they had a range of backgrounds, experiences, and worked in different contexts. While case studies are not generalizable, it is helpful to select cases which represent the range found in the teacher workforce.

Maria (all names are pseudonyms) is

a 44-year-old mother and a first-grade teacher in one of central Indonesia's rural provinces. Maria loves and cares for her students, treating them as if they were her own. She possesses 21 years of experience teaching and holds a Bachelor's degree in Primary Education from a reputable online distance university in Indonesia. Maria has taught using curricula, including the 2004 curriculum, the KTSP curriculum, the 2013 curriculum and the Merdeka Curriculum (IKM). In 2022, she enrolled in the PPG program. During her interview, Maria expressed her teaching approach as prioritizing students' understanding of the material over rushing through the curriculum to ensure students acquire knowledge for their future. Maria is teaching in an award-winning school in the area that has been acknowledged for its academic and extracurricular excellence by the Ministry of Education and Culture (MoEC). The school has earned recognition as a Sekolah Standar Indonesia (SNI)/School with Indonesian Standards.

Rima is a 37-year-old female teacher working in a remote elementary school on a small and remote island in western Indonesia. Rima obtained a Bachelor's degree in Primary Teacher Education from an online distance institution in Indonesia. Rima teaches sixth grade in a public school where the students primarily come from local Christian villages, distinguishing it from other schools on the island. Rima has been a teacher since 2015 and has experience teaching students in grades three to five. She has been appointed to instruct students in the sixth grade for the past three years. She has sixteen (16) students, and her teaching adheres to the 2013 curriculum. Rima considers her students to be dependent on teachers and needs greater participation in the learning process. She notices a discrepancy between her students and those from other schools who display more enthusiasm, which she attributes to better school facilities and the active involvement of parents in their children's education. She believes that her students exhibit a different level of enthusiasm than their counterparts. Rima developed this perception due to her sharing experiences with her friends who teach in various schools and exposure to teaching-related videos on YouTube while participating in the Teacher Professional Development Program (PPG).

Compared to other schools situated on remote islands, Rima's school has fewer resources. While other institutions in the area may have more extensive materials, Rima's school is limited to a small collection of complete textbooks and teaching modules that adhere to the 2013 curriculum. Additionally, the school library is

stocked with storybooks that are not up to date. To teach at a school situated in a very rural area on a small island, Rima has to commute 30 minutes by motorcycle every morning. Moreover, to access the internet for her PPG training and daily teaching requirements that demand creativity and technological integration, Rima relies on her school's resources. The internet connection, sourced from the school's hotspot, occasionally provides low-quality.

Yanti is a 38-year-old female teacher with an extensive fourteen years of teaching experience. Two Bachelor's degrees comprise her academic background: one in English Education from a nationally accredited teaching institution in a rural region of central Indonesia and the other in primary education from an online distance learning institution based in Indonesia. Currently, she is employed at a pioneering educational center, a school managed by a reputable educational institution in Indonesia's central region. This center has a highly competent teaching staff, ensuring their expertise in subject areas and positioning the institution among its top educational institutions. Moreover, the school has a range of facilities such as well-appointed classrooms, libraries, sports fields, canteens, and more. Yanti coordinates with counseling and special education teachers daily, ensuring optimal support for special needs students outside regular class hours.

Tasya is a first-grade teacher in a rural district in central Indonesia. Tasya used the 2013 curriculum in her teaching instruction. Tasya has twelve (12) students, including individuals with special needs. Tasya's school is located in a remote rural area, far from urban centers and with minimal infrastructure. Even though the school has few facilities, such as an LCD projector, there is an urgent need for crucial resources such as more projectors, books for the library, and a health clinic. As a first-grade teacher, Tasya highly prioritizes developing her students' literacy and numeracy skills. The emphasis on early education in reading and counting is not solely driven by school standards or the curriculum but rather by her belief in its critical importance. As a result, Tasya constantly allocates time for counting exercises after her usual study hours and initiates reading practice after school.

Suzanne, a 32-year-old female teacher with eight years of teaching experience, is the youngest participant in this study. She has a Bachelor of Science in Primary Teacher Education from a recognized national teaching institution in a regional rural area and has taught 5th grade for the past two years. Suzanne teaches 24 students in her classroom. Her school stands out in the "Pencak Silat" (Indonesian Mar-

tial Arts), a sport where its students have excelled nationally. Suzanne mentioned that the school has three LCDs for use as teaching facilities, although their use is regulated based on a predefined schedule. Although the school has a library with a selection of books, Suzanne says that the items are outdated and should be updated. This calls for more funding and a project to improve the reading materials available to the students. Suzanne says teaching fifth-grade children is a dynamic journey with ups and downs.

In addition to the teachers, the PPG instructors consisted of university professors and senior teachers with significant teaching experience. These instructors guided the participants in achieving the skills and attitudes required to meet Indonesia's national teaching standards, sharing their expertise and supporting the teachers' professional growth.

Data Collection

Data sources included 79 recorded Zoom sessions, classroom observations, interviews, and teaching artifacts. These diverse sources provided a comprehensive dataset.

Data Analysis

In a multiple case/multicase study, there are two phases of analysis. The first phase involves a within-case analysis of each case in order to learn about the contextual variables. The second phase consists of a cross-case analysis to find similarities and differences across the categories and themes. A multicase study design allows for a deep exploration of the local administration and operation of cases. In the context of this study, individual cases were examined to provide a better understanding of each teacher's experience.

Data from observation field notes, reflective journaling notes, interview transcripts, and artifacts for data analysis were systematically compiled. Categories and themes were established. The initial focus was on the PPG training, its objectives, content, delivery method, and intended outcomes. Seventy-nine multi-hour training videos were viewed, and then exemplars were selected for multiple viewings. Observation notes were transcribed verbatim when necessary. For classroom teaching observations, notes, photos and transcripts were reviewed multiple times.

Codes were assigned to specific sections of data based on themes, ideas, and patterns. Although Stake (2013) does not heavily emphasize coding like other qualitative researchers do, coding (Saldana, 2015) is a useful tool for organizing data. The descriptive manual coding technique suggested by Saldana (2015) was used to

analyze the data instead of employing a computer or any software program. This supported deeper engagement with the data.

Consistent patterns across different cases were noted. For example, it was noted that there was consistent performance in the ability to use LCD projectors and integrate technology in teaching after the teacher participants attended PPG training. Direct interpretations in the process of analysis were also developed, for instance, if a teacher used a particular teaching strategy in their classroom after attending PPG training, and as they mentioned in their interview about it, that was interpreted as an impact of PPG training. This allowed the development of assertions and broader generalizations about the cases. Below is the initial coding sample (open coding) of data analysis.

Table 1

Code	Quote
Learning video creation	So, we are making the video and learning to edit video.
Teacher creativity and meaningful learning	I think it depends on teachers' creativity to make learning more meaningful.
Role of feedback in PPG	After I present my lesson plan, my friends and lecturers will provide some feedback...
Use of technology in teaching	During PPG, I learned a lot about the use of technology in teaching, even for...
Personalized learning and ability screening	Every year at the beginning of the semester, we must do ability screening of each kid...

Cross-Case Analysis

The analysis highlights key similarities among the teachers, particularly their adoption of innovative tools and technology, such as LCD projectors and YouTube, which enhanced their teaching methods and student engagement. This shared technology adoption highlights the value of professional development in transforming teachers' technological skills and encouraging continued growth (McKenna et al., 2003; Miller & McKenna, 2016; Reinking, 2021). Despite shared technology use, the teachers' backgrounds in education, curriculum familiarity, and experience with technology influenced their implementation of PPG content. Teachers like Maria, Rima, and Tasya came from traditional

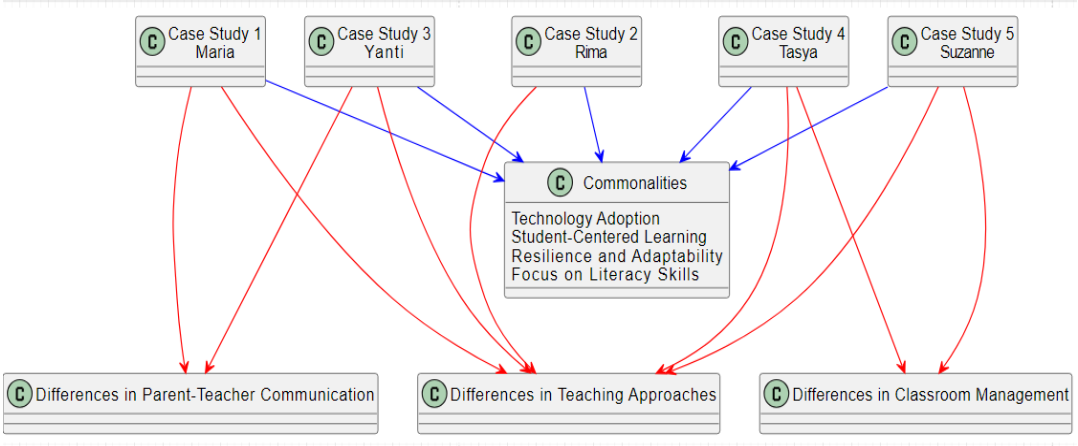
backgrounds, whereas Yanti and Suzanne had prior exposure to modern educational practices and technology. These varied experiences impacted how effectively they adapted to the PPG program's methods.

In multiple case analyses, it is common to compare the research data to understand the similarities and differences of each case deeply and comprehensively. Stake (2013) argues that the case comparison is crucial for thoroughly understanding each case and the overall phenomenon.

The figure below illustrates the similarities and differences between the case studies.

Figure 1

Cross-Case Analysis



Furthermore, Stake (2013) continued to say that the most important aspect is identifying the similarities and differences and emphasizing what is unique to each case. Therefore, using his framework, six assertions emerged from participants' diverse educational experiences. These six assertions were derived through analysis using the Stake Multiple Case Analysis method, employing worksheets as outlined in Stake's guidelines for multiple case analysis. This final result emerged from a seven-step analysis process using the worksheets, with the six thematic assertions illustrating the transformative impact of professional development on educational practices, while also acknowledging the complexity and diversity of teaching contexts.

The process of developing this study's six thematic assertions following the Stake Multiple Case Analysis method, included

modifications to worksheets provided by Stake to guide the analysis. Each worksheet served a distinct purpose, systematically organizing the themes and insights from individual cases while facilitating a comprehensive cross-case analysis. The analysis started by reviewing interview transcripts, coding responses to identify both common and unique insights across cases and organizing these into broad themes relevant to teacher practices post-PPG.

Initially, each case was examined individually, followed by a worksheet to capture "Researcher's Notes" on each case report. This helped in identifying the prominence and relevance of each theme within each case, where high-utility ratings highlighted themes that were most impactful or recurring across cases. The "Ratings of Expected Utility" matrix allowed a comparison of cases, assigning high, middling, or low utility to themes per case, guiding attention to critical themes and unique case contributions.

Next, the cases were systematically compared to uncover similarities and differences across themes. For example, similarities in technology use, classroom management, and student-centered learning were noted, while differences in personalized learning approaches and resource challenges were marked. This step enabled a detailed understanding of each case's contributions to the study's themes, facilitating an organized data matrix for generating theme-based assertions. This matrix consolidated individual case findings, allowing the researcher to pinpoint core elements across cases that contributed to each thematic assertion.

The findings were then merged, ensuring cases with high ratings for specific themes (e.g., technology integration) were prioritized, and findings were grouped or refined when multiple cases demonstrated similar insights. Cases that demonstrated unique aspects or contributed distinct perspectives to a theme were weighted more heavily in the final assertions. By focusing on themes with the most substantial relevance across cases, the analysis process gradually distilled the data into six final assertions that encapsulated both common patterns and unique variations in teacher practices after PPG.

Finally, tentative assertions were created based on the most prominent merged findings, providing a cohesive summary of how professional development influenced teaching practices. Each assertion was examined through triangulation across cases, verifying consistency with existing knowledge while reflecting the distinct impacts of the PPG program on teacher learning and adaptation. This comprehensive anal-

ysis process resulted in six thematic assertions, summarizing the transformative effects of professional development while acknowledging diverse teaching contexts. These six assertions were then used to create the multicase report, presenting key findings, comparisons, and a summary that emphasized the PPG program's impact across varied educational settings.

Findings and Discussion

The Implementation of PPG in NCSU

The In-Service Teacher Professional Development Program (PPG) in Indonesia, as mandated by the Ministry of Education, Culture, Research, and Technology, is designed to certify teachers appointed before December 2015. PPG offers three differentiated tracks based on the teacher's appointment year, varying in duration from three to twelve months. The program's structure includes comprehensive courses in content deepening, learning tool development, and practical field experiences, culminating in a competency evaluation to certify the participating teachers. This initiative has evolved to address the qualifications gap among teachers and improve their pedagogical competencies. The PPG delivered by NCSU involved extensive use of Zoom and the Learning Management System, with 79 out of 138 video recordings analyzed for this study. These recordings spanned various educational settings and class sizes, focusing on five study participants, including large class sessions and group presentations from grades 1 to 6. Each session lasted 3 to 4 hours, covering the full range of activities in the PPG program.

The observation was conducted in one class of 29 students (teacher participants), of which five are participants in this study. For more details, the activities during the PPG program will be explained as follows.

Orientation

The orientation introduced the program and its components, including an overview of the modules and a learning contract. It was designed to prepare participants for the self-directed learning phase, which both preceded and followed the orientation. This phase required participants to engage independently with educational materials and worksheets, emphasizing problem-solving related to their teaching experiences.

Deepening of Material

This segment of the PPG program involved five credit hours focused on pedagogical and professional development. Activities included problem identification, where instructors highlighted the impor-

tance of creating a conducive learning environment and addressing any classroom issues that might affect learning outcomes. Teachers were encouraged to identify and analyze problems through worksheets that categorized issues.

Development of Learning Tools

Spanning three credit hours, this course aimed to equip teachers with skills to design innovative learning tools by integrating TPACK (Technological Pedagogical Content Knowledge) and HOTS (Higher Order Thinking Skills). The sessions emphasized learning tool creation analysis, design, development, and evaluation stages. Teachers were tasked with preparing lesson plans incorporating 21st-century learning principles and were given opportunities to discuss and refine these plans through peer feedback and instructor guidance.

Field Experience Practice

This phase involved four credit hours and was designed to foster reflective teaching practice. Teachers implemented their action plans in real classroom settings, reflecting on the process and outcomes to improve their teaching strategies. The cycle included planning, executing, assessing, and disseminating the learning processes. Assessment and feedback were integral, with participants analyzing their teaching practices and receiving input from instructors and peers.

The PPG program in Indonesia, administered by NCSU, aims to certify teachers appointed before 2015 and equip them with modern teaching skills. The structured curriculum includes orientation, material deepening, learning tool development, and field practice, each phase reinforcing essential teaching skills. Due to COVID-19, the program was conducted online, with Zoom sessions capturing various teaching practices. Key components, such as critical thinking, problem-solving, and innovative methods, were integrated to enhance pedagogical skills.

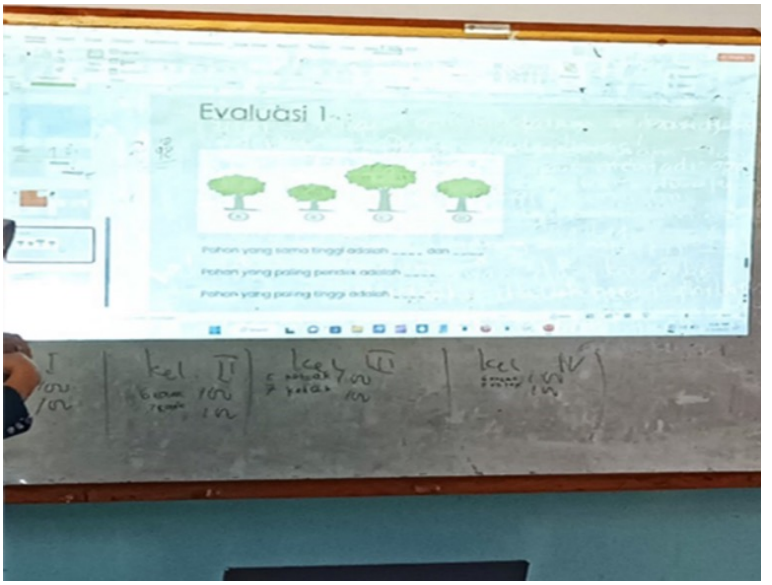
Case Studies

Maria adapted new teaching strategies such as demonstration, think-pair-share, and visualization to engage students actively. She introduced flashcards to improve reading, and her use of technology (e.g., LCD projector and YouTube) helped make lessons interactive. However, limited equipment availability required her to use simpler media, like printed photos and handmade flashcards.

Yanti demonstrated strong inclusive practices, particularly through differentiated instruction to support her diverse classroom, including students with special needs. She created customized media, like

Figure 2

Maria used an LCD projector in her class, integrating technology to support her lessons.



counting tools for math and used games to boost engagement. Yanti also integrated storytelling and realistic media, such as dolls representing professions, to connect lessons with real-life applications.

Figure 3

Yanti's handmade counting media fosters tactile and active learning for her students.

Tasya applied discovery learning methods in her rural classroom, using simple materials to teach scientific concepts like light reflection. By engaging students in hands-on activities with mirrors and flashlights, she encouraged teamwork and critical thinking. Tasya also included interactive pre-activities, such as showing pictures related to ecosystems, to bridge new content with students' prior experiences.

Figure 4

Tasya's science project on light reflection, where students experimented with different materials to understand the concept.

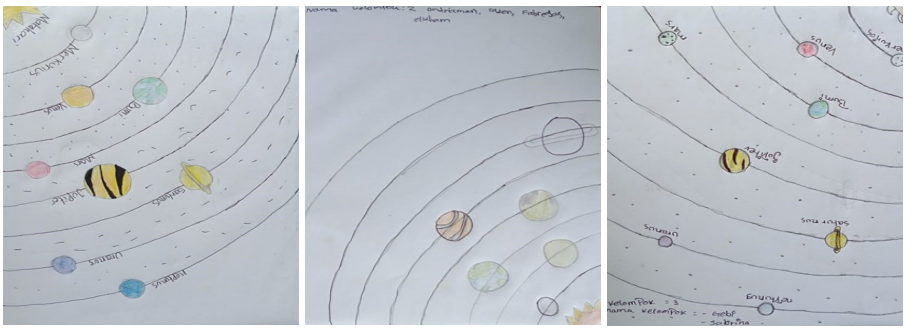
Furthermore, Rima has been an educator since 2015 and currently teaches a sixth-grade class of sixteen students under the 2013 curriculum. Observing a lack of engagement among her students, she attributes this to limited school resources and parental involvement compared to other schools. Her school has basic resources, like textbooks and one shared LCD projector, but faces challenges such as outdated library books and inconsistent internet access. Through the PPG program, Rima enhanced her skills in technology integration, learning to use an LCD projector independently and utilizing YouTube videos to make lessons more engaging. For example, during a lesson on astronomy, she showed her students a YouTube video about the solar system, sparking their interest and enhancing their understanding of the topic.

The PPG program also emphasized lesson planning (RPP), which helped Rima shift from solely textbook-based lectures to structured and interactive lesson plans. Her preparation now includes defining objectives, methods, and media, such as

videos and images, to create a more engaging classroom environment. Despite limitations in resources and challenges with higher-order thinking skills, Rima remains committed to professional growth, incorporating student-centered approaches and collaborative projects like solar system drawings.

Figure 5

Sample of students' work in organizing the planet.



This figure shows three samples of student work depicting the solar system. During observations, it was evident that Rima treated her students as partners in learning, actively involving them in sense-making activities related to the teaching material. Her efforts underline the value of adapting teaching methods and embracing continuous improvement in her educational practice.

Suzanne, a fifth-grade teacher with eight years of experience, teaches 24 students in a school with limited resources, including an outdated library and only three shared projectors. Despite these constraints, Suzanne is committed to her students' progress and continually improves her teaching. The PPG (Teacher Professional Development) program greatly influenced her approach, especially in classroom management and innovative teaching methods. Initially, Suzanne struggled with classroom management, but through PPG, she gained strategies to keep students focused and foster active participation. For instance, she encourages group discussions, allowing students to use the local language to express ideas comfortably, creating a supportive environment. During one lesson on advertisements, when her projector malfunctioned, Suzanne adapted by using her cellphone to display visuals, ensuring engagement despite the setback.

Figure 6

Suzanne uses her cellphone to show the advertisement on the internet.

The PPG program also introduced her to peer-based learning, like pair tutoring, where stronger students support those needing extra help. This approach encouraged responsibility and confidence in students, though she noticed some hesitancy among students to ask classmates for help, which she addressed by creating a more supportive atmosphere.

PPG also highlighted using small rewards, which Suzanne embraced with enthusiasm. She began awarding stickers for positive behaviors, which significantly boosted student engagement and motivation, fostering a positive classroom culture. Additionally, she adopted group work for project-based learning, facilitating collaboration and encouraging creativity. For example, during an advertisement project, students designed ads to demonstrate their understanding, strengthening their communication and teamwork skills.

Suzanne also practiced differentiated instruction to meet varied learning styles, tailoring lessons to help students engage at their own pace. Her detailed lesson planning, another takeaway from PPG, allowed her to organize activities smoothly and handle unexpected challenges, maximizing learning time.

Overall, PPG inspired Suzanne to create a student-centered, inclusive classroom, blending peer tutoring, rewards, group projects, and adaptive instruction. Her dedication to overcoming resource limitations and addressing her students' unique needs highlights the positive impact of professional development on her teaching practices.

Teacher Learning from the PPG Program

The PPG experiences of five elementary teachers provide valuable insights into teacher learning. Research consistently shows that high-quality professional development enhances teacher professionalism, classroom practices, and student outcomes (Gore & Rosser, 2022; Desimone, 2009; Merchie et al., 2018). Through PPG, teachers gained skills in technology use, varied teaching strategies, curriculum adaptation, and parent collaboration. Integrating technology, initially challenging, became an essential part of their teaching, with support from TPACK (Mishra & Koehler, 2006) and 21st-century education goals (McKenna et al., 2003; Shafie & Ismail, 2019). Teachers embraced student-centered approaches that encouraged student engagement and collaboration, aligning with Vygotsky's (1978) theories and transformative learning (Mezirow, 1991). These experiences underline the importance of ongoing professional development in adapting teaching approaches, curriculum flexibility, and parent communication to meet student needs.

Following the PPG program, teachers effectively applied their new knowledge by integrating technology and diversified teaching methods into their classrooms. They utilized tools like LCD screens and YouTube to enhance engagement, drawing on peer experiences and resources shared during the PPG. Teachers adapted their methods to student needs through differentiated instruction, reflecting adult learning principles and supporting research (Chamberlin & Chamberlin, 2010). This student-centered approach emphasized active learning and collaboration (Vygotsky, 1978), making classrooms hubs of engagement. Despite challenges in implementing Higher-Order Thinking Skills (HOTS) and literacy-focused strategies, teachers showed commitment to overcoming these obstacles, particularly in aligning their practices with the Merdeka curriculum. This approach aligns literacy with social practices, contrasting with traditional methods seen in the 2013 curriculum. Teachers following the Merdeka curriculum demonstrated an ability to embed literacy across its fundamental aspects, confirming the impact of PPG on fostering adaptive, socially-engaged teaching methods.

Six Assertions

Adoption and Integration of Technology

Teachers showed significant growth in tech integration, transitioning from relying on IT support to independently using tools. This growth aligns with the TPACK framework, which emphasizes the importance of combining technology, pedagogy, and content knowledge to create engag-

ing lessons (Mishra & Koehler, 2006). Teachers displayed enthusiasm for technology integration, which aligns with the 21st-century education goals and supports active engagement, as shown in studies advocating for technology-enhanced instruction (McKenna et al., 2003; Miller & McKenna, 2016).

Due to the nature of PPG training, participants naturally learn how to use technology as they engage in the program. This exposure gradually familiarizes them with incorporating technology into education. Some teachers admitted that they had never used Zoom before joining this PPG. This aligns with Mishra and Koehlers (2006) recommendation that professional development should introduce teachers to the TPACK framework emphasizing the importance of developing skills at the intersection of technology, pedagogy and content knowledge (McKenna et al., 2003; Miller & McKenna, 2016; Garet et al., 2001; Desimone & Garet, 2015; Bower et al., 2021).

Initially, at the beginning of the PPG sessions, participants relied on IT administrators from PPG as tech-savvy peers for support. It is interesting to note that this study highlighted how these teachers initially felt anxious about using technology but eventually embraced it. This underscores their capacity for growth and adaptability. As a result, this type of PD can help teachers embrace approaches empowered by ICT and encourage learners to participate in activities rather than relying on traditional teaching methods. This resonates with the notion that continuous learning and adaptations are essential for tackling challenges faced by teachers to support enhanced educational outcomes. Through the exploration of teaching methods, it was observed that participants in this study embraced approaches such as demonstrations, collaborative activities, small group discussions and project-based learning. These strategies showcased their adaptability in expanding their teaching repertoire.

Resilience and Adaptability in Diverse Educational Contexts

The participants demonstrated remarkable resilience and adaptability when faced with various challenges, including teaching students with special needs, working with limited resources, and operating in remote locations. They demonstrated problem-solving abilities, highlighting that effective teaching involves adapting strategies to meet each student's requirements. This adaptability is vital in diverse educational settings and underlines the importance of flexibility and resilience as key qualities of successful educators. This adaptability highlights that effective teach-

ing is about customizing approaches for each student rather than sticking to rigid structures.

Participants' resilience and adaptability can be seen in their teaching practice in the classroom after the PPG program. For example, while all of them successfully incorporated technology, not all participants in this study successfully embraced student-centered learning in their use of instructional strategies. Some teachers prioritized discussions to engage students, encouraging dialogue and critical thinking actively. On the other hand, some leaned more towards hands-on activities and multimedia resources to achieve goals, and others still need help with lecturing methods. These variations highlight the teachers' flexibility and adaptability in tailoring their teaching methods to suit their classroom environments and their struggle with interactive teaching methods.

Diverse Approaches to Teaching and Classroom Management

While teachers emphasize technology adoption, examining the data reveals various teaching techniques and classroom management styles. Some teachers focused on engaging in conversations and group discussions, while others preferred incorporating hands-on activities.

Additionally, the importance of managing the classroom varied, with some prioritizing structure and time management, while others faced challenges with teaching methods. These distinctions highlight the need to tailor teaching approaches to suit classroom dynamics and student needs.

Furthermore, these cases shed light on varying levels of emphasis on classroom management skills. Suzanne and Tasya specifically prioritized classroom management as an element of their teaching practices, focusing on maintaining order, efficient time management, and effectively addressing disruptive behavior. However, based on observation, they need help managing the classroom regarding the discussion and in-class assignment time for working and moving from one activity to another. Unfortunately, other teachers did not prominently mention this aspect, prompting discussions about the significance of classroom management in overall teaching effectiveness.

A Shift towards Student-Centered Learning Approaches

A noticeable trend observed across the cases is a shift towards student-centered learning methods. This shift involves implementing strategies that encourage collaborative group work and meaningful discussions. It reflects a change towards

cultivating students' critical thinking skills and active participation. The cases demonstrate a commitment to embracing principles that emphasize student empowerment/agency and engagement in the learning process.

Regarding the student-centered learning approach, participants in this study argued that it is essential for parents and teachers to communicate effectively to support students' success. Collaborating allows them to establish an environment that promotes personal development. In this study, Maria and Yanti demonstrated a commitment to building connections with parents by sending home notebooks, engaging parents in discussions, and ensuring they are well informed about their child's progress. This emphasis on collaboration between home and school showcases an approach towards involving parents, which could spark a discussion within educational circles. This focus on fostering relationships for school success and student achievement aligns with the concept of leadership programs discussed by Leithwood et al. (2004) and Muijs et al. (2014).

Various Degrees of Literacy Teaching

The literacy instruction approaches of the five primary teachers participating in the PPG program display a varied degree of effectiveness in covering the six literacy dimensions: reading, writing, speaking, listening, viewing, and representing. Each teacher brings a unique approach to literacy education, shaped by their personal teaching styles and classroom environments. Some teachers exhibit a comprehensive approach, integrating multiple modalities to create an engaging and well-rounded literacy experience for their students. These teachers effectively utilize reading activities, diverse writing tasks, and interactive speaking exercises, ensuring students listen, view, and represent through multimedia tools and hands-on activities. This holistic approach aligns with the principles of effective literacy education, fostering comprehensive language skills and critical thinking.

However, the degree of literacy instruction varies significantly among the teachers, with some facing challenges in fully integrating all six modalities. For instance, while some teachers incorporate innovative methods and technology to enhance engagement, others rely on more traditional and less dynamic practices. This can result in limited student engagement and a narrow focus on certain literacy aspects. Challenges such as resource availability, varying levels of student interest, and the ability to implement higher-order thinking skills affect the effectiveness of literacy instruction. Some teachers may need help

maintaining student interest in reading or providing diverse and meaningful writing activities, leading to less comprehensive literacy development.

Overall, the varied degrees of literacy teaching among the five teachers highlight the strengths and challenges of implementing a well-rounded literacy education. The uniqueness of each teacher's approach, whether through interactive and student-centered methods or more traditional practices, underscores the importance of flexibility and creativity in literacy instruction. Addressing these challenges requires ongoing professional development, access to diverse resources, and a commitment to fostering an inclusive and engaging learning environment. By embracing a holistic approach and continuously adapting to the needs of their students, teachers can enhance literacy education and support the development of essential communication and comprehension skills.

Challenges in Teaching Practice

Challenges in implementing student-centered and interactive teaching methods highlighted resource limitations, curriculum complexities, and variations in teacher-parent communication. Some teachers formed bonds with parents, while others found it challenging, indicating the importance of collaboration for effective teaching (Leithwood et al., 2009). Limited access to technology, reading materials, and higher-order thinking strategies presented additional barriers, underscoring the need for continued support in teacher training and development (Darling-Hammond, 2017).

PPG training fostered growth in student-centered learning, technology integration, and adaptable teaching methods. Each teacher's approach was shaped by unique backgrounds and challenges, illustrating the program's impact in supporting diverse teaching contexts. This cross-case analysis highlights the importance of ongoing professional development to support effective, adaptive, and inclusive teaching, emphasizing the benefits of balancing traditional and innovative methods to enhance literacy and student engagement in modern classrooms. The six thematic assertions developed from the analysis reflect the transformative impact of professional development, while also acknowledging the complexity and diversity of teaching contexts (Stake, 2013).

Conclusion and Implications

In conclusion, this research significantly contributes to understanding how professional development programs can improve teaching practices. The study acknowledg-

es limitations in generalizing its findings beyond the specific group of Indonesian teachers studied. The research adopts a phenomenological design focused on exploring the experiences of a specific group of teachers, providing rich qualitative insights into their perspectives and practices. However, this approach cannot inherently establish causal relationships or generalize findings. The study's limited generalizability to other contexts or countries due to its exclusive focus on a specific group of teachers in Indonesia is also acknowledged as a limitation. Findings may not readily apply to diverse cultural or educational settings.

Practical recommendations are proposed to improve teacher professional development initiatives, targeting key stakeholders like government bodies, universities, teachers, schools, and educational researchers. These suggestions address the distinct roles and contributions of each group in advancing teacher development in Indonesia.

For the Government: How Findings Support the Integration of Technology into Professional Development

The Indonesian government should consider adopting a hybrid training approach that combines online and in-person sessions for teacher professional development. This approach would accommodate teachers living in remote areas and improve accessibility. Research by Desimone et al. (2009) emphasizes the importance of flexible training formats to address diverse needs.

In alignment with the research findings, the government should incorporate specialized modules on effective reading and writing instruction within the PPG program. Ensuring that teachers receive comprehensive training on these critical skills would better equip them to address literacy challenges in the classroom. With around three million teachers from all types and levels of education, the task of improving and developing teachers' quality faces challenges not only to provide enough professional development opportunities but more importantly to ensure available opportunities that will bring improvement to teacher quality and instructional practices.

For the University: How Findings Support the Integration of Technology into Professional Development

The university organizing the PPG program could enhance the training's impact by developing interactive video modules. These modules demonstrate effective teaching strategies, encourage engagement, and showcase real classroom scenarios. The university should integrate reflective

practice components into the training, encouraging teachers to assess their teaching methods and experiment with improvements critically.

For Teachers

Teachers often face time constraints when attempting to evaluate assignments comprehensively within the class setting. Similarly, during classroom observations, some teachers engage in activities demanding active involvement from each student, leading to situations where all students are grouped closely, awaiting their turn to present their work or respond to questions. On other occasions, teachers assign group tasks that require students to work independently for extended durations. Regrettably, adequate time allocation for these activities often results in students needing more time to complete their assignments satisfactorily. These instances emphasize the critical need for teachers to implement effective time management strategies to optimize instructional time and enhance the learning experience for students. Effective time management strategies training could benefit teachers, particularly in managing student interactions during evaluation sessions. Implementing varied student interactions or setting time limits for individual interactions could help optimize classroom time and minimize disruptions. Effective time management strategies are vital for teachers, particularly when classroom dynamics involve active student participation and assessment tasks demand individual attention.

For Schools

Schools should prioritize allocating resources for teacher Professional Development, focusing on targeted areas such as literacy instruction, technology integration, and classroom management. Schools should encourage the establishment of collaborative learning spaces where teachers can share successful strategies and challenges with their colleagues.

For Other Researchers

Future researchers could consider a mixed-methods approach that combines quantitative data on student learning outcomes with qualitative insights into teaching practices. This approach would provide a more comprehensive understanding of teacher Professional Development's impact on teachers and students. Researchers could conduct cross-cultural studies that compare the impact of teacher Professional Development training across different countries or educational systems. This approach would enrich the understanding of how contextual factors influence the effectiveness of training programs.

References

Abbate-Vaughn, J., & Paugh, P. C. (2009). The paraprofessional-to-teacher pipeline: Barriers and accomplishments. *Journal of Developmental Education, 33*(1), 16-29.

Anderson, L. W. & Krathwohl, D. R., et al (Eds.). (2001). *A taxonomy for learning, teaching, and assessing: A revision of Bloom's taxonomy of educational objectives.* Allyn & Bacon.

Andriansyah, A. (2023). *Kindergarten semester 4 pre-service teachers' response to literacy based teaching in an online teacher preparation methods' course.* [Doctoral dissertation, The Ohio State University].

Basma, B., & Savage, R. (2018). Teacher professional development and student literacy growth: A systematic review and meta-analysis. *Educational Psychology Review, 30,* 457-481.

Borko, H. (2004). Professional development and teacher learning: Mapping the terrain. *Educational Researcher, 33*(8), 3-15.

Borman, G. D., & Kimball, S. M. (2005). Teacher quality and educational equality: Do teachers with higher standards-based evaluation ratings close student achievement gaps? *The Elementary School Journal, 106*(1), 3-20.

Boyle, B., While, D., & Boyle, T. (2004). A longitudinal study of teacher change: What makes professional development effective? *Curriculum Journal, 15*(1), 45-68.

Chamberlin, M. T., & Chamberlin, S. A. (2010). Enhancing preservice teacher development: Field experiences with gifted students. *Journal for the Education of the Gifted, 33*(3), 381-416.

Darling-Hammond, L. (2017). Teacher education around the world: What can we learn from international practice? *European Journal of Teacher Education, 40*(3), 291-309.

Darling-Hammond, L. (2020). Accountability in teacher education. *Action in Teacher Education, 42*(1), 60-71.

Desimone, L. M. (2009). Improving the impact of studies of teachers' professional development: Toward better conceptualizations and measures. *Educational Researcher, 38*(3), 181-199.

Duke, N. K., & Cartwright, K. B. (2021). The science of reading progresses: Communicating advances beyond the simple view of reading. *Reading Research Quarterly, 56,* 25-44.

Gore, J., & Rosser, B. (2022). Beyond content-focused professional development: Powerful professional learning through genuine learning communities across grades and subjects. *Professional Development in Education, 48*(2), 218-232.

Kusumawardhani, P. N. (2017). Does teacher certification program lead to better quality teachers? Evidence from Indonesia. *Education Economics, 25*(6), 590-618.

Leithwood, K., Louis, K. S., Wahlstrom, K., Anderson, S., Mascall, B., & Gordon, M. (2009). How successful leadership influences student learning: The second installment of a longer story. In A. Hargreaves et al. (Eds.), *Second International Handbook of Educational Change* (pp. 611-629). Springer.

Liu, Q., & Chao, C. C. (2018). CALL from an ecological perspective: How a teacher perceives affordance and fosters a learner agency in a technology-mediated language classroom. *ReCALL, 30*(1), 68-87.

McKenna, M. C., Labbo, L. D., Reinking, D., & Zucker, T. A. (2003). Effective uses of technology in literacy instruction. In L. M. Morrow, L. B. Gambrell, & M. Pressley (Eds.), *Best practices in literacy instruction* (2nd ed., pp. 307–331). Guilford Press.

Merchie, E., Tuytens, M., Devos, G., & Vanderlinde, R. (2018). Evaluating teachers' professional development initiatives: Towards an extended evaluative framework. *Research Papers in Education, 33*(2), 143-168.

Mezirow, J. (1991). *Transformative dimensions in adult learning.* Jossey-Bass.

Miller, J. W., & McKenna, M. C. (2016). *World literacy: How countries rank and why it matters.* Routledge.

Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers College Record, 108*(6), 1017-1054.

Mitchell, J., Riley, P., & Loughran, J. (2010). Leading professional learning in schools: Emotion in action. *Teacher Development, 14*(4), 533-547.

Muijs, D., Kyriakides, L., Van der Werf, G., Creemers, B., Timperley, H., & Earl, L. (2014).

State of the art–teacher effectiveness and professional learning. *School Effectiveness and School Improvement, 25*(2), 231-256.

Nieminen, J. H., Tai, J., Boud, D., & Henderson, M. (2022). Student agency in feedback: Beyond the individual. *Assessment & Evaluation in Higher Education, 47*(1), 95-108.

Opfer, V. D., & Pedder, D. (2011). Conceptualizing teacher professional learning. *Review of Educational Research, 81*(3), 376-407.

Palardy, G. J., & Rumberger, R. W. (2008). Teacher effectiveness in first grade: The importance of background qualifications, attitudes, and instructional practices for student learning. *Educational Evaluation and Policy Analysis, 30*(2), 111-140.

Revina, S., et al. (2020). *Systemic constraints facing teacher professional development in a middle-income country: Indonesia's experience over four decades* (RISE Working Paper Series No. 20/054). https://doi.org/10.35489/BSGRISEWP_2020/054.

Reinking, D. (2021). *Design-based research in education: Theory and applications.* Guilford Publications.

Saldana, J. (2015). *Thinking qualitatively: Methods of mind.* Sage.

Shafie, H., Majid, F. A., & Ismail, I. S. (2019). Technological pedagogical content knowledge (TPACK) in teaching 21st century skills in the 21st century classroom. *Asian Journal of University Education, 15*(3), 24-33.

Shulman, L. (1987). Knowledge and teaching: Foundations of the new reform. *Harvard Educational Review, 57*(1), 1-23.

Silvhiany, S. (2022). Indonesian teachers' professional development practices and needs in post pandemic education. *VELES (Voices of English Language Education Society), 6*(1), 215-232.

Sims, S., & Fletcher-Wood, H. (2021). Identifying the characteristics of effective teacher professional development: a critical review. *School Effectiveness and School Improvement, 32*(1), 47-63.

Stake, R. E. (2013). *Multiple Case Study Analysis.* Guilford.

Svendsen, B. (2020). Inquiries into teacher professional development—What matters? *Education, 140*(3), 111-130.

Supriatna, A. (2011). Indonesia's issues and challenges on teacher professional development. *CICE Series, 4*(2), 29-42.

Tanang, H., & Abu, B. (2014). Teacher professionalism and professional development practices in south Sulawesi, Indonesia. *Journal of Curriculum and Teaching, 3*(2), 25-42.

Taylor, E. W., & Cranton, P. (2012). A content analysis of transformative learning theory. *Journal of Transformative Education, 1*(1), 58-63.

Thair, M., & Treagust, D. F. (2003). A brief history of a science teacher professional development initiative in Indonesia and the implications for centralised teacher development. *International Journal of Educational Development, 23*(2), 201-213.

Vogt, F., & Rogalla, M. (2009). Developing adaptive teaching competency through coaching. *Teaching and Teacher Education, 25*(8), 1051-1060.

Vygotsky, L. S. (1978). *Mind in society: Development of higher psychological processes.* Harvard University Press.

Zein, S. (2016). Factors affecting the professional development of elementary English teachers. *Professional Development in Education, 42*(3), 423-440.

Zein, M. S. (2017). Elementary English education in Indonesia: Policy developments, current practices, and future prospects: How has Indonesia coped with the demand for teaching English in schools? *English Today, 33*(1), 53-59.

Zohar, A., & Dori, Y. J. (2003). Higher order thinking skills and low-achieving students: Are they mutually exclusive? *The Journal of the Learning Sciences, 12*(2), 145-181.

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