

Teacher Reform in Indonesia: Perspectives Towards Teacher Professional Education Programme to Improve Teachers' Competencies

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Declaration

I hereby certify that this material, which I now submitted for assessment on the programme of study leading to the award of Doctor of Philosophy, is entirely my own work, and that I have exercised reasonable care to ensure that the work is original and does not to the best of my knowledge breach any law of copyright, and has not been taken from the work of others save and to the extent that such work has been cited and acknowledged within the text of my work

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LIST OF ABBREVIATION

PPG	Pendidikan Profesi Guru	Teacher Professional Education
KKG	Kelompok Kerja Guru	Teacher working group
MGMP	Musyawarah Guru Mata Pelajaran	Subject teachers support group
MoEC		Ministry of Education and Culture
PISA		Programme for International Student Assessment
TIMSS		Trends in International Mathematics and Science Study
PIRLS		Progress in International Reading Literacy Study
PKB	Pengembangan Keprofesian Berkelanjutan	Continuing Professional Development
PLPG	Pendidikan dan Latihan Profesi Guru	Education and Training for the Teaching Profession
TPD		Teacher Professional Development
UKG	Uji Kompetensi Guru	Teacher Competence Test
LPTK	Lembaga Pendidikan Tenaga Kependidikan	Teacher Institute
MoRA		Ministry of Religious Affairs
NUPTK	Nomor Unik Pendidik dan Tenaga Kependidikan	Unique Identification Number of Teachers and Teaching Personnel
OECD		Organisation for Economic Co-operation and Development
SD	Sekolah Dasar	Primary School
SMP	Sekolah Menengah Pertama	Junior Secondary School
SMA	Sekolah Menengah Atas	Senior Secondary School
SMK	Sekolah Menengah Kejuruan	Vocational Secondary School
BAN-PT	Badan Akreditasi Nasional Perguruan Tinggi	National Accreditation Agency for Universities

DAPODIK	Data Pokok Pendidikan	Basic Education Data
S-1	Sarjana I	Bachelor Degree
D-IV	Diploma IV	Fourth Diploma
LMS		Learning Management System
SPADA	Sistem Pembelajaran daring Indonesia	LMS of Indonesia
HOTS		Higher Order Thinking Skills
CAR		Classroom Action Research
Unesa	Universitas Negeri Surabaya	Surabaya State University
Teacher education background		Graduates from the teacher education programme study
Non-teacher education background		Graduates from a pure science study programme
TPACK		Teacher Pedagogical and Content Knowledge
HEI		Higher Education Institution
LPMP	Lembaga Penjaminan Mutu Pendidikan	Education Quality Assurance Institute
P4TK	Pusat Pengembangan dan Pemberdayaan Pendidik dan Tenaga Kependidikan	Centre for Development and Empowerment of Educators and Education Personnel
NIRA	Nomor Induk Register Assessor	Assessor Register Identification Number
TI		Teaching Institute
NGO		Non-Government Organisation
FGD		Focus Group Discussion
SIMPKB	Sistem informasi manajemen pengembangan keprofesian yang berkelanjutan	Continuous professional development management information system
RPL		Recognition Prior Learning
CAT		Computer Assisted Technology

Abstract

Teacher Reform in Indonesia: Perspectives Towards Teacher Professional Education Programme to Improve Teacher's Competences

Silfia Asning Tias

This study investigates the effectiveness of the Teacher Professional Education (TPE) Programme from the perspectives of the main actors and the key stakeholders and how they are engaged and shaped by the programme to improve teachers' competencies. Extensive education research supports the importance of the voice of individuals working within each role. This research aims to close the knowledge gap by revealing the main stakeholders' perspectives on Teacher Professional Education to improve teacher professional practice. In line with the research questions and the research aims, the study's significance would bridge the gap in the literature and provide policy recommendations to improve the quality of TPE programme implementation and teacher quality. Using the Ecological system theory and complexity theory, this research utilises reflexive thematic analysis (RTA) as a research design and in-depth semi-structured interviews as a data collection method. Five categories of research participants were recruited: in-service teachers, HEI teacher educators, cooperating teachers, school principals and TPE management. Utilising the qualitative convenient sampling method, the total number of participants involved in the study is 25 people. The data analysis uses NVIVO as ensure reliability and a robust research process by producing an audit trail of each stage in RTA. The findings highlight the complex context of TPE, and the voice of stakeholders is paramount to understanding its effectiveness in improving in-service teacher competencies and programme implementation in the future. Considering that there is less research on professional teacher education for in-service teachers, this study will pave the way for Indonesian researchers to explore the research of teacher education programmes further and inform the international audience about a teacher education programme in the Indonesian context.

Keywords: Teacher Professional Education, Qualitative research, Reflexive Thematic Analysis, In-service teachers, Teacher education.

Abstract

Reformasi Guru di Indonesia: Perspektif Terhadap Program Pendidikan

Profesi Guru untuk Meningkatkan Kompetensi Guru

Silfia Asning Tias

Studi ini menyelidiki efektivitas Program Pendidikan Profesi Guru (PPG) dari sudut pandang para pelaku utama dan pemangku kepentingan utama serta bagaimana mereka dilibatkan dan dibentuk oleh program tersebut untuk meningkatkan kompetensi guru. Penelitian pendidikan yang luas mendukung pentingnya suara individu yang bekerja dalam setiap peran. Penelitian ini bertujuan untuk menutup kesenjangan pengetahuan dan literatur dengan mengungkap perspektif pemangku kepentingan terhadap program Pendidikan Profesi Guru untuk meningkatkan praktik profesional guru. Sejalan dengan pertanyaan penelitian dan tujuan penelitian, signifikansi penelitian ini akan menjembatani kesenjangan literatur dan memberikan rekomendasi kebijakan untuk meningkatkan kualitas pelaksanaan program PPG dan kualitas guru. Dengan menggunakan teori sistem ekologi dan teori kompleksitas, penelitian ini menggunakan analisis tematik refleksif atau *Reflexive Thematic Analysis* (RTA) sebagai desain penelitian dan wawancara semi terstruktur mendalam sebagai metode pengumpulan data. Penelitian ini melibatkan 5 kategori peserta, yaitu guru dalam jabatan, dosen pengajar program PPG, guru pamong, kepala sekolah dan dosen pengelola PPG di Tingkat universitas. Dengan menggunakan metode pengambilan sampel kualitatif, jumlah partisipan yang terlibat dalam penelitian ini berjumlah 25 orang. Analisis data menggunakan NVIVO sebagai instrumen penelitian untuk memastikan keandalan dan proses penelitian yang kuat dengan menghasilkan jejak audit dari setiap tahapan di RTA. Temuan ini menyoroti konteks PPG yang kompleks, dan suara para pemangku kepentingan sangat penting untuk memahami efektivitas PPG dalam meningkatkan kompetensi guru dalam jabatan dan implementasi program di masa depan. Mengingat masih sedikitnya penelitian mengenai pendidikan guru profesional untuk guru dalam jabatan, penelitian ini akan membuka jalan bagi para peneliti Indonesia untuk mengeksplorasi penelitian program pendidikan guru lebih jauh dan memberikan informasi kepada khalayak internasional tentang program pendidikan guru dalam konteks Indonesia.

Kata Kunci: Pendidikan Profesi Guru, Penelitian Kualitatif, Analisis Tematik Refleksif, Guru Dalam Jabatan, Pendidikan Guru.

Chapter 1 INTRODUCTION

The introduction chapter addresses the study's rationale and the background of the research topic, which is set in the Indonesian context. This chapter elaborates on the background study, which leads to the research questions that shape the focus of this study. This chapter then discusses the researcher's positionality in this qualitative research design and the theoretical underpinning of the study. It concludes with an explanation of the organisation of the dissertation in later chapters.

Background of the Study

The Human Development Index (HDI) summarises human development's critical dimensions: life expectancy, education, and living standards. According to the latest report of UNDP 2019, Indonesia's HDI ranks 111 out of 189 with 0.707, a significant increase from 0.525 in 1990. Like HDI, the Human Capital Index (HCI) quantifies the contribution of health and education to a nation's productivity. Indonesia's HCI by 2020, as reported by the World Bank, is 0.54 or ranks 87 out of 157 (The World Bank, 2020b; Yarrow et al., 2020). These data signify that Indonesia's quality of life, in general, is lower than the average in education and health in the East Asia Pacific. They highlight that 35% of Indonesian primary school students cannot read a simple text. Moreover, the PISA 2018 result shows that Indonesia ranks 73rd in Mathematics, 74th in Literacy, and 71st in Science out of 79 assessed countries (OECD, 2019b). Since the country participated in 2001, Indonesian students' performance has fluctuated but remained flat overall. The PISA 2018 result showed no improvement from 18 years ago despite huge investment and commitment by the government through education reform policy to improve the quality of education (Arbi, 2019; The World Bank, 2018a).

Reports on Indonesia's education show the urgency of improving Indonesia's quality of education by improving teachers' quality, which is expected to enhance students' performance (Revina, 2022; Rosser et al., 2022). Further, the problems of Indonesia's teacher quality, among others, are the low mastery of subject-specific content knowledge, lack of pedagogical skills, weak classroom management (Huang, 2020; Rosser & Fahmi, 2018), and high teacher absenteeism (Toyamah et al., 2010; Yarrow et al., 2020), which results in poor student learning outcomes. To respond to the problem with teacher quality, the government of Indonesia enacted Teacher's Law No. 14 in 2005, which reformed the nation's teacher management and development process and impacted education policies

(Chang, et al., 2014; Jalal et al., 2009). According to Jalal et al. (2009, p. 2), “the Teacher Law has been designed to harness a number of strategies to improve the quality and welfare of teachers.” The Teacher Law’s key point was that teachers should be professionally certified to teach in the classroom; in other words, they should have a license as a professional teacher. To obtain this certification or license, teachers should undergo a structured teacher professional education programme called Teacher Professional Education (TPE) set by the central government. The current TPE programme requires teachers to achieve credits equal to 36 credits, consisting of 12 credits out of the TPE, while 24 credits from recognition before learning as an in-service teacher (Kemdikbud, 2021; Kemdikbudristek, 2022) and passing the grade at the final assessment upon completion of the programme before being granted a certificate as a professional teacher (Permendikbud, 2017, 2020). After more than two decades of implementing the TPE programme, reports revealed that the teachers’ performance remains low on the national teacher assessment, and there are zero improvements in student achievement (Beatty et al., 2019; Chang, et al., 2014; The World Bank, 2019b; Yarrow et al., 2020).

Reports indicate a close correlation between teachers’ competencies and poor student performance (Beatty et al., 2019; Bima et al., 2018). The national student assessment result shows that students perform poorly. The average score across all subjects and school types for the national end-of-secondary exam was 49.5 points out of 100 in 2018, while the minimum passing score was 55 (Yarrow et al., 2020). Meanwhile, as for the international standard, OECD’s Programme for International Student Assessment (PISA) 2018 shows that Indonesia continued to lag behind the OECD countries and East Asia and Pacific countries averages, ranking 73 out of 78 on Literacy (score 371), 73 out of 79 on Mathematics (score 379), and 70 out of 79 on Science (score 396). In comparison with the average for Southeast Asian countries, Indonesia’s students’ performance was lower in Literacy (by 14 points), Math (by 25 points), and Science (by 13 points) (The World Bank, 2018b).

Analysis from The Indonesian’s Ministry of Education and Culture (MoEC) and international bodies stated that teachers’ competencies, especially in professional and pedagogy, remain low (Rosser et al., 2022; The World Bank, 2019b), regardless of the government’s efforts to improve the quality of education by allocating 20 percent of the national budget for education improvement since the enactment of Teacher’s Law 2005. Therefore, it is paramount to examine the government’s mechanism to improve teachers’

quality through TPE, which is embedded with teacher certification, and whether the programme has effectively improved teachers' competencies.

Teacher Professional Education (TPE) Programme

Teacher Professional Education (TPE) is a teacher education for the professional certification programme, which was previously set up for in-service teachers and later included pre-service teachers. The programme is a top-down approach by the central government and works as a gatekeeper to ensure the quality of teaching (Permendikbud, 2020; Permendikbudristek, 2022b; UURI, 2005). TPE as a gatekeeper signifies no other mechanism to guarantee their quality after completing the TPE and obtaining the professional teaching certificate. The TPE will be the final formal government programme to lay the foundation of a quality benchmark for all teachers and offer assurance of the proficiency and training levels expected of teachers. In addition, the TPE has been implemented since 2006 with different models and approaches, but overall, it covers significant components of teacher professional practice and career pathways.

The programme attempted to address the teacher education system's shortcomings, such as unclear teaching career status and professional standards, as well as inefficiency and inequality in teacher recruitment and distribution. Over the years, the TPE design have evolved and innovated to meet the needs of the current education situation in Indonesia. Since the enactment of the law in 2006, the designs of the TPE have undergone tremendous changes from relying on teachers' portfolio-based assessment to a classroom-based education programme equal to 36 credits. These policy changes in TPE improved the programme's quality; however, studies show that it is less impactful in improving teachers' performance and competencies in general, especially for the in-service teachers' cohort (Kurniawati et al., 2018; The World Bank, 2019a).

The TPE Programme Implementation

The government established the programme in cooperation with Higher Education Institutions (HEI) throughout the country by allocating teachers to do their TPE at the appointed HEIs. With the model changes, the TPE applied a blended learning model, which requires TPE participants to do online independent learning for a few months before attending the face-to-face session in the appointed HEI where the teachers are assigned. Most accredited institutions to hold TPE are located in Java and other big cities on other islands; thus, the in-service teachers will leave their schools for two to three months to

attend the training. With the current arrangement, the tuition fee is funded by the local government, while the individual teacher covers personal expenses, such as the cost of living and accommodation. The fact that these in-service teachers must attend the training and leave the classroom for a few months raised other issues.

Reports from the MoEC in 2019 stated that only half of the 3.5 million in-service teachers held teaching certification, and the 1.5 million are still undergoing the TPE (Jayani, 2019). At this rate, according to the report by the MoEC to the parliament (Syahril, 2021), it will take more than ten years to complete the task. Therefore, moving the TPE to a school-based model has received much positive attention. The main argument of this proposed idea was that teachers do not necessarily leave their students for too long to partake in the TPE, and the training itself can correspond to their actual classroom practice. Currently, the MoEC has opted to involve more HEIs in holding TPE, including the HEIs in smaller regions, to accommodate the need for in-service teachers to partake in TPE in HEIs closer to their area (Kemendikbudristek, 2022c; The World Bank, 2020c).

Considering the paramount importance of this programme in Indonesia's teacher education, the government organises and directly oversees the TPE, highlighting the government's urgency for addressing teacher quality management. To support its implementation, law no. 28/2021, article 60, stated, "The Directorate of Teacher Professional Education has the task of carrying out the formulation and implementation of policies in the field of teacher professional education as well as implementing policies in the field of standards and quality assurance for lecturers and education staff in the TPE" (Permendikbudristek, 2021). This indicates the government's serious attention to establishing direct governance in the teacher reform agenda.

Previous Studies on the TPE Programme

Many independent bodies with extensive financial support and networks have conducted longitudinal studies on various aspects of national-level education reform in Indonesia (Rosser, 2018; The World Bank, 2018b, 2019a; Tobias et al., 2014). The research focuses mainly on the teacher certification programme enacted in 2006 and its impact on economic, political, social, and educational relations (Chang et al., 2014; Rosser & Fahmi, 2018; The World Bank, 2013). However, less substantial research has focussed on the TPE, particularly its process and impact on teacher quality, as a focal point of teacher certification policy. Cochran-Smith and Villegas claim that "research on teacher preparation and certification is an emerging, complex, multifaceted field, influenced by

competing ideas about the purposes of research and the goals of education” (2015a, p. 7); for that reason, this research will look into an institutional scale, focusing on the stakeholders’ perspectives and voices towards the TPE which plays a crucial part in the teacher certification policy and TPE. This study aims to fill the research gap on the TPE programme's quality and its impact on informing future policies and practices.

Research Questions

This study investigates *the effectiveness of the Teacher Professional Education (TPE) Programme from the perspectives of the main actors, namely the key stakeholders who are engaged with this programme*. Extensive research supports the importance of voice in education research (Cirocki & Farrell, 2019; Knight et al., 2013; Whitney et al., 2002). Russel et al. (2016, p. 157) affirm, "We find it important to acknowledge and authorise the voices of individuals working within each role." This research aims to close the gap by revealing the stakeholders' perspectives on the TPE. The subset research questions are:

- a. How do teachers perceive the Teacher Professional Education programme? Does it support their professional practice? If so, how?
- b. How do the cooperating teachers, school principals, and HEI teacher educators view the TPE programme's design and practice to support teachers' learning?
- c. From the TPE management perspective, what challenges and obstacles do they encounter when overseeing the programme?
- d. As a complex teacher-professional education system in Indonesia, how do educational values and beliefs influence the implementation of the TPE programme?

Significance of the Study

This study is significant in line with the research questions for the following reasons. First, the study provides insight into educational values and beliefs that shape the TPE and how it has evolved. It will explore in-depth in-service teachers' voices and other stakeholders on how TPE impacts their professional practice and whether it achieves its objectives to improve professional and pedagogical competencies. Second, this research will also look at the school principals, HEI teacher educators, cooperating teachers, and TPE management’s perspectives to provide insights into the TPE module, teaching and

learning activities, school placement, and most importantly, the in-service teachers' respective schools support during and upon completion of the programme.

Next, since the TPE is a top-down approach policy, this study will inform the issues and challenges as policies and practices are implemented as part of policy recommendations. Considering the global trend of research in teacher education focusing on equity, social justice, and cultural responsiveness (Cochran-Smith & Keefe, 2022; Cochran-Smith & Reagan, 2022; Darling-Hammond, 2024; O'Hara et al., 2023). This study will pave the way for Indonesian researchers to explore Indonesian teacher professional education programmes further as part of the discourse of the international research agenda.

Perspectives Informing the Inquiry

Researcher Positionality

Positionality signifies the researcher's position concerning the study's social and political standing (Coghlan & Brydon-Miller, 2014). The researcher's stance as an outsider or insider provides nuance as self-understanding of their own identity and experience breathes a relationship towards the research. It affects every phase of the research process, from formulating the research questions to the research design or how the knowledge is constructed. The idea of authority and intention is subtle yet apparent in this conceptualisation of positionality. Expectation, intention, and power equity are more likely evident concerning the researcher's stance in their research. Since positionality fluidly shifts along the research process (Denzin & Lincoln, 2005), for this reason, my shared experience and perspectives in teaching are necessary to sustain my stance in this study.

I graduated from a teacher education programme majoring in English as a Foreign Language (EFL); hence, I hold a licensed degree to teach at the secondary school level. During my teaching career of more than seven years in secondary school, I experienced first-hand many teachers' Professional Development (PD) courses, which I somehow found different from the theory and practice during my undergraduate study. The professional learning activity ranged from a collegial discussion on teaching practices within a smaller unit of my English teacher's subject team in the school to an extensive top-down approach training programme by the central government. The first rigorous and comprehensive teacher professional development I encountered was as a recruited teacher in a private school. In collaboration with an external training provider, the school trained all the recruits for 500 hours of training before starting their one-year probation period to

a fully permanent position. During the 500 hours of training, we were equipped with topics ranging from subject-specific enrichment to pedagogy and leadership training. The primary purpose is to ensure the recruited teacher is adept with the school culture and system, and the most important is to conform to the standard quality teaching set by the school. At the end of 500 hours of training, the recruits must pass the written and performance tests to enter a one-year probation period. Professional development activities were held intensively during the probation, from teacher study groups to workshops and seminars. The school principal closely monitored the performance before signing for a permanent position. From experience, I learned that graduating from a teacher education programme did not guarantee that I was classroom-ready to teach; thus, the school initiated extra hours before full employment to ensure newly employed teachers were skilful in teaching and meeting the quality standard.

During my teaching career, I was involved in even more rigorous in-service training programmes to improve teaching competencies and to remain updated with the current education innovations. Upon returning to the classroom, I either found the knowledge I got from the training unfit for my teaching context or the purpose of learning was different. Implementing the knowledge, I obtained from the training was often hard since there was a considerable gap between theory and practice, and the teaching policy at the training and school level contradicted each other. For example, teaching for the test is common in Indonesia; therefore, teaching 9th grade means that the module delivery focuses on the national examination preparation, and everyday learning activity is mainly grinding to pass the exam. Thus, there was insufficient time and a need to implement innovative learning, which has been encouraged in all PD activities. Most teaching sessions are dedicated to grinding sessions and mock tests. This reality of the school situation was never part of our training during the teacher education programme, notwithstanding a considerable part of the school system. As a teacher, I consider many professional development programmes misalign the objectives and the design with the teachers' needs in classroom practice.

When I embarked on my career as a lecturer in a higher education institution, I started to look at the crucial role in preparing or 'producing' a good quality teacher. The government's strong commitment to improving the quality of education by enacting Teacher's Law No. 14/2005, which entrusts the responsibility to the teaching institute as the teacher's 'factory'. At its initial implementation, the law required in-service teachers to have teaching credentials and a Bachelor of Education Degree to be eligible to teach in the classroom. This was a major reform for teachers. Before the Teacher's Law was enacted,

school teachers might be non-teaching professionals with diplomas and no teaching experience. Following the Law's adoption and implementation in 2006, all in-service teachers—including those who had been teaching for a long time but lacked the required teaching certification—were required to pursue further study and obtain teaching qualifications. In addition, the law also mandated all teachers to partake in the TPE to obtain a teaching certificate, which signifies that they are eligible to teach and be acknowledged as professionals by the law in their field.

Throughout the process, the government's involvement is substantially significant, from setting the quota system since the MoEC and the local government partially fund it to doing the initial admission assessment for recruitment. The teaching institute's role is to manage the teaching process to the final evaluation. The pass-and-fail decision, however, is in the government's authority under the newly formed Directorate of Teacher Education Programme (Permendikbudristek, 2021). In other words, the teaching institute manages and runs the TPE programme, provides the facilitator, engages with the cooperating teachers from the partner school, and is involved in the final examination; however, the recruitment decision and the result are under the central government's authority.

As someone who works at the HEI, which holds the TPE, I was aware of the complexity of the teacher education programme in general and the teacher professional education programme, which I believe influences the implementation of TPE. Although the main objective of teacher certification is to improve the quality of teachers, at the same time, the teacher certification also aims to improve teachers' financial prosperity and teacher as a professional status. This complex situation inevitably adds to the influence of external political, financial, and motivational pressures shaping the TPE programme.

To re-iterate my positionality in this research, although I hold a position as a teacher educator at the HEI where the research was conducted, I am not directly involved in the TPE management nor providing the training in the TPE classroom; therefore, I believe that there is an equal balance of personal bias and power relation during the data collection. As the principal researcher, my position will not influence how the research is carried out and the outcomes and results. The fact that I am not entirely an insider or outsider of this TPE programme, I acknowledge that there is a certain degree of involvement in being a part of the university system where the programme is held, in which the concept of 'in-betweeners' in researcher's positionality coined by Milligan (2014) might to some extent fit my position which shifts depending on the given context or situation. The researcher's

positionality will be later explored in the methodology chapter, as well as how the researcher maintains trustworthiness and is addressed as an inside researcher.

Research on teacher education or teacher preparation programmes is mainly driven and guided by the researcher's research interest and exposure to the experience, which leads to the theories and research perspectives (Cochran-Smith & Villegas, 2015b). Furthermore, "Research questions are also shaped by researchers' identities, purposes, audiences, and the larger policy/political agendas with which they align their work" (Cochran-Smith & Villegas, 2015b, p. 382). Considering the significant role of the TPE programme in shaping teacher and teaching quality in the future of Indonesian teacher education, there is an imminent need to view the programme's effectiveness in-depth from the multi-layer perspective of the TPE stakeholders. Hence, I embark on the study approach of the TPE programme from the 'voice' of the key stakeholders on how it impacts their professional practice and change.

Theoretical Framework of the Study

Reflecting on my personal experiences and subsequent literature reading, I discovered that the dynamic of human experiences and perspectives is complex rather than complicated, sequentially requiring an in-depth understanding of the phenomenon under study. Utilising Ecological System Theory and Complexity Theory as a theoretical framework, I seek to understand the dynamics of human development and interaction through their experiences and perspectives of the TPE. The five domains of Ecological System Theory (Bronfenbrenner, 1979); Microsystem, Mesosystem, Exosystem, Macrosystem, and Chronosystem encapsulate the TPE programme's core development.

The first dimension reflects the in-service teacher's perspectives toward the TPE programme, how their values and belief influence their learning, and how the training impacts their professional practice. The second domain is the Mesosystem, which regards HEI teacher educators and cooperating teachers' perspectives towards the design and preparation of TPE implementation, as well as school principals who can affirm whether teachers have improved their teaching practice. The third one is the exosystem, which informs the external influence of the TPE programme, such as how the government's policy heavily influences the running of the TPE programme, as reflected by TPE management's perspectives. Next, the macrosystem area embodies the beliefs and values that underlie the TPE, i.e., *Pancasila* and *Bhineka Tunggal Ika*, which is the foundation of the teacher's reform agenda. Lastly, the Chronosystem addresses TPE implementation

changes over time, which adds to the complexity of teacher professional education in Indonesia.

The dynamic, non-linear, and multi-dimensional interaction of the TPE embodies the complexity of teacher education (Cochran-Smith, 2023; Cochran-Smith, Ell, Ludlow, et al., 2014; Davis & Sumara, 2006). Teachers' beliefs, cognition and experiences, motivation, and support, among other factors, strongly influence their professionalism (Toh et al., 1996). Teacher learning and teacher change are ultimately expected as the programme's outcome; therefore, investigating the TPE through the lenses of complexity theory will provide a comprehensive understanding of what constitutes the programme's effectiveness from stakeholders' perspectives. The previous studies on the effectiveness of teacher education inspire the theoretical underpinning for this study, which meets the need to explore TPE effectiveness through the lens of complexity theory (Ell et al., 2018; Mayer et al., 2017; Rowan et al., 2015)

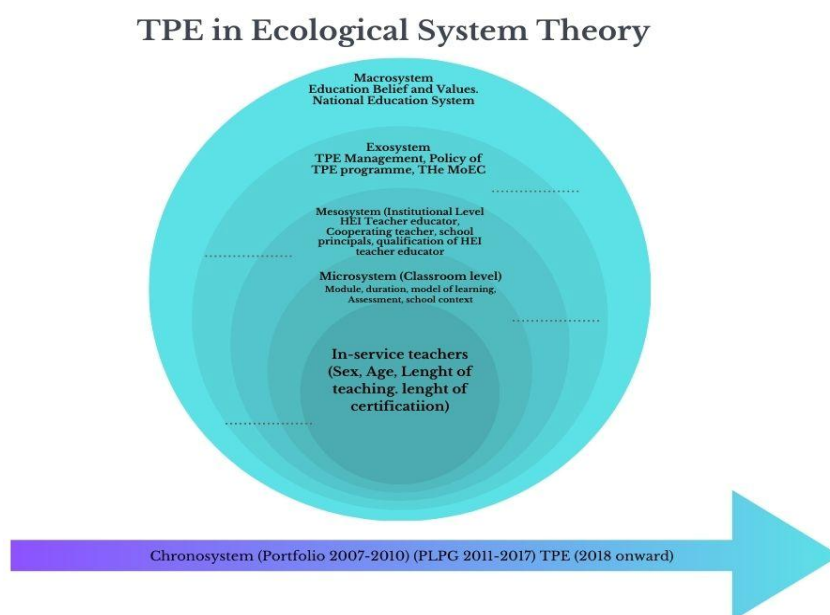


Figure 1. Ecological System Theory in the TPE Context

Definition of Terms

Defining key terms is crucial to ensure clarity and avoid semantic ambiguity. Clear-defined terms will enable the discussion to achieve a common understanding, improve the validity, and most importantly, evade multiple interpretations of the terminology used. Therefore, this study's definition follows the concept, context, and perspectives that serve the study's purposes. The following key terms are as follows:

1. Teacher Reform in Indonesia Context: This case study research is situated in the Indonesia context in which the teacher education programme under study is part of the Teacher Certification Programme based on Teacher Law no. 14/2005 (UURI, 2005)
2. Perspectives: The study will focus on evaluating the effectiveness of the TPE through the stakeholders' perceptions, which include in-service teachers, HEI teacher educators, school principals, cooperating teachers, and TPE management.
3. Effectiveness: In this study, effectiveness correlates with the in-service student teacher's perception, as the primary key actors, of the relational aspects of their professional practice.
4. Teachers: the in-service teacher category who participated in the training and obtained the teacher certification. Before the TPE, they have been teaching in schools without certification.
5. Teacher Professional Education Programme: A compulsory teacher professional education programme to obtain teacher certification or license mandated in the Teacher's Law no.14/2005 Chapter IV Article 10 "Teacher competence as referred to in Article 8 includes pedagogic competence, personality competence, social competence, and professional competence obtained through professional education."
6. Teacher's Competencies: This study aims to improve professional and pedagogical competence, which is mainly emphasised in the TPE.

Organisation of the Dissertation

This dissertation is structured into seven chapters. The first chapter provides an overview and rationale of the study and the research problem under study. It also discusses the potential contribution to education research on teacher education and how the research may inform teacher education policy and practice in Indonesia. The second chapter elaborates on the contextual and historical background of the research problem under investigation, which aims for a clear understanding of the complex situation of the teacher education field and the influence of sociocultural and political aspects that inevitably give the context study of this research. Chapter 3, the literature review, highlights the international literature body supporting this research. It supports the specific research on the TPE programme in Indonesia by drawing on international research in teacher education. The research methodology in Chapter 4 lays out the research design and

methods employed to justify the research. Chapter 5 presents the results and findings from the data collected, demonstrating the data to answer the research questions. Chapter 6 presents the discussion that relates the study's findings with the literature. Chapter 7 is the final chapter, which draws together the conclusion and recommendation as well as the limitations of the study.

Chapter 2 CONTEXT OF THE STUDY

In line with the rationale and objectives of the research mentioned in Chapter 1, this study focuses on teacher professional education (TPE) for in-service teachers in the Indonesian context. This chapter elaborates on the Indonesian teacher professional education programme in general within the Indonesian higher education system, followed by the discussion of teacher certification policy and, ultimately, the TPE for in-service teachers. This chapter elaborates on the pathway of the teacher profession in Indonesia, the up-to-date implementation of the TPE, and the influence of policy on practice. This chapter concludes with the implication of this contextual background to this research.

Overview of Teacher Education Programme in Indonesia

As previously mentioned in Chapter 1, significant challenges in education provision have been identified. Indonesia is the fourth largest population country in the world, with 273.8 million people, 17,500 islands, and 700 ethnic and linguistic groups spanning over 3000 miles, making equal service delivery strenuous (de Ree et al., 2015). The country serves 50 million students nationwide, with 34 provinces and around 500 districts throughout the archipelago (The World Bank, 2019a, 2019b), Indonesia has one of the largest education systems in the world. Additionally, Indonesia's education system reflects this diverse linguistics, ethnicity, and cultural heritage, along with the country's struggle for national identity, political turmoil, decentralisation, and the challenge of resource allocation in a geographically scattered developing nation.

From Figure 2, Indonesia's archipelago stretches around 5000 KM from west to east, with five major islands and the most densely populated ones. The major islands are Sumatra, Java, Kalimantan, Sulawesi and Papua. With 700 linguistics and ethnicities, Indonesia is multicultural and unique, which inspires the nation's foundations of *Bhineka Tunggal Ika* or Unity in Diversity. As this thesis demonstrates, the culturally diverse society of Indonesia plays a significant role in shaping the education landscape, including the training and re-training of teachers in Indonesia.



Figure 2. Map of Indonesia. Taken from Google
<https://www.mapland.com/maps/asia/indonesia/large-detailed-political-map-of-indonesia-with-relief-roads-and-major-cities-2002.jpg>

International research in teacher education shows a close correlation between low teacher quality and poor student performance (Fauth et al., 2019; Fischer et al., 2018; Meissel et al., 2016). As explained in Chapter 1, reports on Indonesian education development demonstrated that teachers' competencies specific to the three subjects of PISA, namely Literacy, Mathematics, and Science, were very low (The World Bank, 2019a, 2020c). The alarming fact is that the PISA score in 2018 was the same as the PISA in 2000, which indicates that Indonesia's education quality reflected in poor student performance not improved for the past 18 years, regardless of the efforts of the government about teacher reform agenda is to improve education management and curriculum. For the past two decades after the enactment of the Teachers Law, the quality of teachers remains an issue.

Extensive studies have examined improving teacher quality in Indonesia from different perspectives and approaches (Kusumawardhani, 2017; Revina, 2022; The World Bank, 2013). Ashadi (2014) proposed that the government reform teachers' recruitment processes by setting a clear teacher pathway and improving teacher professional development. Likewise, Rahman (2016) suggested a holistic approach to professional development by focusing on school-based professional learning activities. The current research by the RISE Foundation found that the teacher professional development implemented in Indonesia for the past two decades has been ineffective due to systemic

constraints (Revina, 2020, 2022; Revina et al., 2020) and suggested several recommendations, including improving the quality of teacher education programmes; the alignment or re-orientation of central government policy in education and most importantly, the identification of a measurable standard of teaching competencies.

Teacher Qualification and Teacher Pathways in Indonesia

With the urgency of improving the quality of education, the government of Indonesia enacted the Teacher's Law to emphasise the minimum qualification for becoming a teacher in Indonesia. The general requirements for becoming a teacher in Indonesia are completing a four-year university degree, obtaining a teaching certificate, and demonstrating good pedagogical competency (Permendiknas, 2007b, 2007a). In addition to obtaining teacher certification, teachers must complete a one-year professional training programme or 36-40 credits or TPE for pre-service teachers and around 12-24 credits for in-service teachers by considering the Recognition of Prior Learning (RPL) system. The stipulation of a minimum four-year university degree abolishes the previous regulation that allows a diploma in education graduate to teach in the classroom. The new law enforcement situated the in-service teachers, who have been teaching in schools for many years with only diploma degrees, to pursue further education and obtain their Bachelor in Education (BA) to be eligible to teach. Teachers whose educational background is not aligned with their subject teaching at school must obtain a degree aligned with their teaching. By 2016, the number of teachers with a Bachelor's in Education shot up to 90% compared to 2006, with only around 30% (Yarrow et al., 2020).

Before 2005, Indonesian teachers were mostly underqualified, with more than 60% not holding a 4-years degree, and approximately 25% having not completed their education past high school (Chang, Shaeffer, Al-Samarrai, et al., 2014). When Teacher Law was enacted, it required teachers to have (1) a university 4-year Bachelor degree and (2) a teaching certification to upskill teacher competencies. According to the World Bank report, "the share of teachers with the minimum bachelor's degree increased from 37 percent in 2003 to 90 percent in 2016" (2018, p. 42). The following table illustrates the teacher qualification structure in Indonesia

Table 1 Qualification Structure of becoming a teacher in Indonesia

Route 1	Teacher with a Bachelor of Education degree	Under Teachers Law 2005, this teacher must undertake TPE
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		before becoming a registered teacher
Route 2	Teacher with any other Bachelor's degree e.g., B.Sci, B.Litt, BA	Under Teachers Law 2005, this teacher must undertake TPE before becoming a registered teacher
Route 3	Registered teachers with a teaching diploma (teachers who qualified before Teachers Law 2005)	Under Teachers Law 2005, they must first update their diploma to a Bachelor of Education degree and then undertake TPE to receive certification for better pay.

Figure 3 is the Indonesian Qualification Framework (IQF) that elaborates on education qualifications in Indonesia, including where the TPE is situated. The TPE is a level 7 education for a profession in the IQF system. It recognises the RPL for its years of experience in the teaching profession. This RPL mechanism makes in-service TPE unique and different from the pre-service one, and it is also beneficial for in-service teachers so that they will spend less time away from the classroom. With the teacher shortage in many areas in Indonesia and the problem with teacher absenteeism in Indonesian classroom (Beatty et al., 2018; Toyamah et al., 2010), this RPL scheme is essential for the TPE programme.

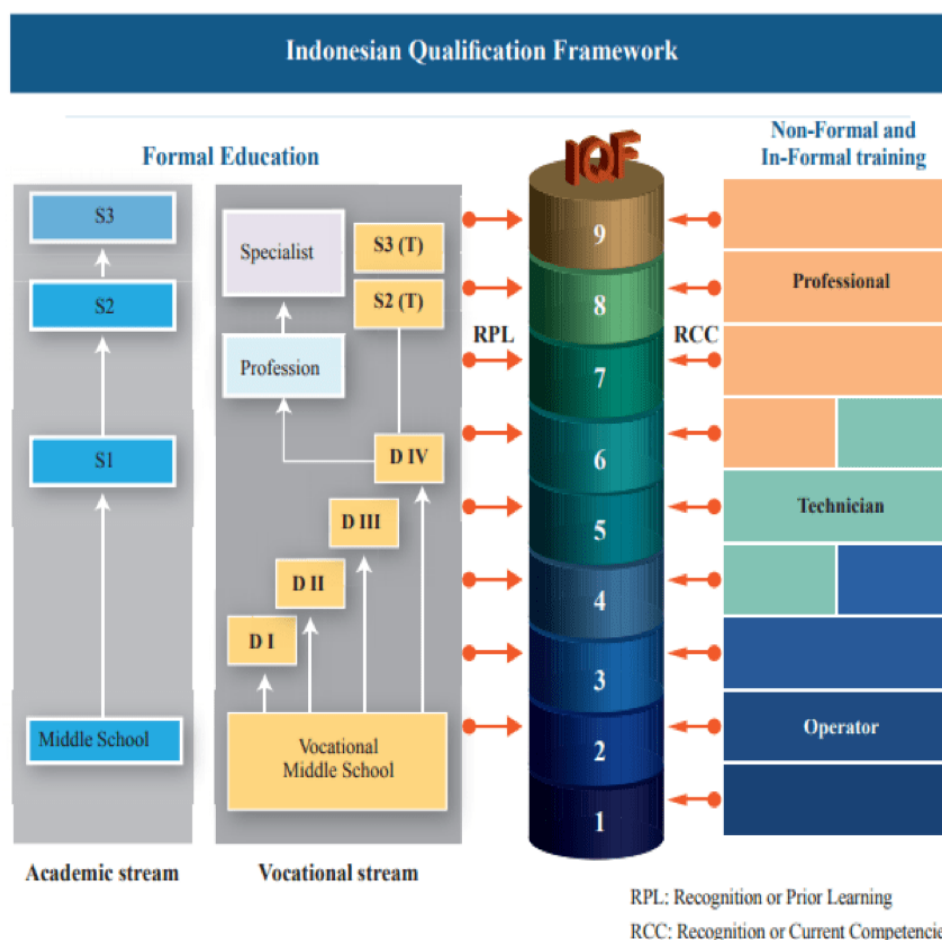


Figure 3. Indonesian Qualification Framework. Taken from <https://images.app.goo.gl/LW5LpH6jgEds1eGTA>

There are three acknowledged pathways to becoming a teacher in Indonesian schools. The pathways might differ slightly in public and private schools and the categories of schools under the Ministry of Education and Culture (MoEC) and Ministry of Religious Affairs (MoRA). The first scheme is for public school teachers or civil servants employed through public recruitment for teacher positions by the regional government. With government decentralisation, regional governments are responsible for recruiting teachers in the regions. During this process, the applicants will go through fierce and tight competition, from the administration shortlisting to the preliminary examination and, finally, the microteaching performance assessment. However, this teacher recruitment process is prone to corruption, collusion, and nepotism; for instance, a candidate could bribe the local bureaucrats to pass the exam or find information from their network on the open vacancy and people willing to negotiate for the position. Although the current teacher recruitment has been designed in such a way as to minimise this practice, recruitment of good-quality teachers in Indonesia is still a struggle (Huang, 2020; Huang et al., 2020).

During the professional development process, candidate teachers will spend one year of an induction programme preparing them for full employment as teachers and being assigned to schools permanently.

The second pathway to becoming a teacher is through a contract as an assistant teacher to fulfil the schools' need for certain subject teachers; the duration of the contract may be extended based on the school's needs. These teachers are mostly contracted under the schools' authority or, as in the case of private schools, teachers may be recruited by the school's foundation authority. The contract teachers are non-permanent teachers employed by the school, contracted by the school, and remunerated under the school's authority and management. Collusion and nepotism are common due to the high levels of 'local' management of contract teachers in private and public schools (Chang, et al., 2014; Huang et al., 2020). In many cases, after some years of employment under the contract teacher scheme, problems often arise when these teachers demand full and permanent employment, which makes it difficult for the schools in certain circumstances. This complexity of the teacher recruitment situation is reflected in the registration of in-service teachers to the local education office, which eventually impacts the in-service TPE and, consequently, the in-service teacher certification programme.

The third pathway to becoming teachers is called non-permanent teachers or honorary teachers' position in schools, which although small in number, exists like a ticking time bomb in the landscape of teacher management in Indonesian education (Winardi, 2022). In the past, due to teacher shortages in the vastness of Indonesia's geography, many schools attempted to fill the vacant posts of teachers who retired by employing teachers under the scheme of honorary teachers. This arrangement was intended as a temporary solution to meet an immediate teacher supply shortage and not to fill a permanent position. However, in many cases, some of these honorary teachers have been in this 'temporary' teaching position for 15 years or more under minimum wage conditions in the regions. Although the government of Indonesia issued a decree on teacher pathways policy, the issue of honorary teacher status for the past decades remains problematic (Gobel et al., 2023; UURI, 2014). This complex situation of honorary status has also significantly impacted the TPE and teacher certification programme since these teachers do not have a teacher registration number. However, they are, in reality, teaching in classrooms. Some of these teachers have been teaching subjects that are not aligned with their study background; for example, science teachers have taught arts subjects for many years.

Teacher Certification Programme Policy in Indonesia

The Indonesian teaching workforce is considered one of the world's largest, which comprises more than 3.5 million teachers, 365,600 professors and lecturers at the tertiary level, and 826,300 in Early Childhood Education (The World Bank, 2020c; Tobias et al., 2014; Yarrow et al., 2020). From this number, as targeted by the Teacher Law, all teachers must be certified by 2015. Despite this ambition, until 2022, the number of certified teachers was only 50% of the total number of teachers (Jayani, 2019; Kemendikbudristek, 2022a).

Teachers should undergo professional education to obtain a professional teaching certificate. This applies to both in-service teachers who have been in the profession for many years and pre-service teachers or candidate teachers interested in entering the teaching profession (Permendikbudristek, 2022a; RISE, 2019). Since its implementation in 2006, teacher certification has received mixed reviews on two counts, firstly concerning the implementation of the law concerning the national budget in education and secondly concerning the implementation of professional training for teachers to obtain professional teaching certification. As stated previously in Chapter 1, throughout the implementation of the TPE model up to the current iteration, reports point out that the professional education programme that has been running for two decades has had little to no impact on the quality of teachers in Indonesia regarding their professional and pedagogy competencies (Bima & Yusrina, 2018; de Ree et al., 2015). According to education development reports, teacher quality remains a problem in Indonesian education despite the two decades of effort invested in improving teachers' competencies through teacher professional education programmes and professional development training (The World Bank, 2020c; Yarrow et al., 2020).

The current regulation on procedures for obtaining a teacher professional certificate for in-service teachers states that the teacher certification programme aims “to increase the competence of teachers in their positions as professionals in educational unit to fulfil pedagogical, personal, social and professional competencies following statutory provisions” (Permendikbudristek, 2022b Chapter 1, Art.2). It must also be noted that the teacher certification programme is inseparable from the TPE as illustrated in the following statement, “Teacher certification for in-service teachers is carried out through the in-service TPE programme” (2022b Chapter 2, Art.3). In the decree, it is also stated that taking part in TPE is an essential requirement for in-service teachers. These requirements are adjusted when necessary and in line with the contextual needs of Indonesian teachers.

This is an essential feature of the concept of time and its changes in this research. The historical background of TPE will be explained extensively in the next section, which explains the chronosystem dimension of the topic under research. In conclusion, since the TPE will continue to be used as a gateway to teaching certification in Indonesia, ensuring the programme's quality is crucial.

Teacher Professional Education (TPE) Programme

In Chapter 1, an overview of the TPE programme was provided. This chapter outlines a more detailed account of the developments of the TPE programme from the initial model to the current one. As previously explained, Teacher Professional Education (TPE) is a programme designed by the central government as part of teaching certification. It was a mechanism to ensure the quality of teachers in Indonesia. Since the enactment of the Teacher Law, TPE has been the core programme for professional teacher certification. The TPE consists of an in-service teacher programme and a pre-service teacher programme. It was mandated by law, which was later clearly defined in the Ministry Decree (Permendikbud, 2020; Permendiknas, 2007a) concerning obtaining a teaching certificate for in-service teachers and Ministry Decree No. 87/2013 regarding a pre-service teacher programme (Permendikbud, 2013, 2020; Permendikbudristek, 2022b). From the two decrees, two categories of teachers were identified. The first category was in-service teachers, defined as teachers who hold official governmental status as teachers or teach in academic units and have work in agreements or contracts pathways. The second category was pre-service teachers. This group was described as undergraduate-level students with bachelor's degrees in teaching and non-teaching backgrounds who fulfilled the criteria and passed the necessary exam to participate in TPE.

The main difference between the two TPE implementations was that the central or regional government fully funded the in-service teachers' programme and acknowledged RPL as part of the mechanism (See Figure 3); meanwhile, the pre-service teachers TPE was supported by personal funding. Having completed the TPE, the pre-service TPE graduates were entitled to a teaching degree named Gr, which provided participants with a professional teaching certificate. The two programmes were held simultaneously to prepare the teaching workforce for the future. Since the implementation of TPE in 2006, the programme has changed to meet the needs of the education setting in that period, and until this thesis is written, changes in TPE are inevitable. The following section explains

the programme's evolution from the initial to the current implementation. This historical journey of TPE serves the concept of time and events in the Chronosystem dimension.

Portfolio Model (2006-2010)

After the enactment of the Teacher Law, the teacher certification programme was designed to establish a quality benchmark for all teachers, including government and non-government teachers. It sought “a public guarantee of the standards of training and competency required from teachers” (Jalal et al., 2009, p. 1). According to Jalal et al., using a portfolio assessment model, the first scheme was launched to assess teachers’ competencies (2009). The assessment of a teacher’s portfolio served as a self-evaluation tool to measure a teacher’s performance and achievement in both academic and non-academic activities. Further, it was intended to assist the university responsible for assessing the portfolio in determining the teacher’s level of qualification and to assist the assessors in deciding whether these teachers should undergo professional development training. In implementing the portfolio model, the in-service teachers submitted their teaching portfolios, and when they passed the assessment and appraisal, they obtained their professional teaching certificate. Meanwhile, those who failed the portfolio assessment must undertake 90 hours or approximately ten days of training in professionalism and pedagogy in an assigned university. The training was called *Pendidikan dan Latihan Profesi Guru* (PLPG).

The initial period of the teaching certification programme significantly impacted the national education budget, which also covered teacher salaries and professional incentives (The World Bank, 2013). With no significant impact on the student’s performance, as measured through international student assessments, the portfolio model came under heavy scrutiny regarding its effectiveness. Amongst the critical issues reported in this scheme was the fabrication of documents for portfolio appraisal. Despite the growth in the number of teachers who held a Bachelor’s since the law's enactment, there was little to no evidence of improvement in teacher’s competencies and professionalism (de Ree et al., 2014; The World Bank, 2013). Although it was generally accepted that short and medium impacts were somewhat unrealistic goals, there remained an urgency to revolutionise the teaching certification system that required teachers to show that they were meeting minimum requirements of competencies and professionalism. Significantly, the responsibility for improving the quality of teaching shifted to the teachers themselves (The

World Bank, 2015). This situation led to the launch of a new model of PLPG and abolished the portfolio scheme.

Pendidikan dan Latihan Profesi Guru (PLPG) Model or Teacher Education and Professional Training Model (2011-2017)

The abolition of the portfolio model was followed by a new training model that focused on teacher education and professional training (PLPG). This new model was initially intended for teachers who had failed the portfolio appraisal or whose score was insufficient. However, this model was later used for all in-service teachers to complement their portfolio appraisal. Implementing PLPG was meant to reduce the forgery or fabrication of documents to pass the certification programme through the portfolio scheme. In addition, as the number of senior teachers with more than 30 years in the teaching profession has reduced significantly, the regulation of teacher certification has also changed (Permendikbud, 2017, 2020; Permendikbudristek, 2022b). The PLPG model ran from 2011 to 2015 and was extended until 2017. Considering the programme's needs analysis and evaluation results, by the end of 2017, PLPG was changed to PPG or Teacher Professional Education (TPE).

The crucial issue in PLPG that led to the change to a credit-based system was the short duration of the training, which according to some stakeholders, served as a formality rather than a well-structured training. As a result, there were no significant changes in teachers' competencies or motivation to improve their professional practice. Kusumawardhani (2017) asserted that even after the PLPG implementation replaced the portfolio scheme, there was little correlation between the certification of teachers and an improvement in student learning outcomes. In addition, since a possible 'ulterior motive' of the teacher certification programme was to improve the prosperity of teachers and upgrade the status of the teacher profession (Rosser & Fahmi, 2018), the government's action focused more on certifying the in-service teachers in quantity rather than on the quality of the graduates. The high passing rate of PLPG made it noticeable that even if the participants failed the exam, they could repeat it several times until they eventually passed.

To a certain extent, the whole process of PLPG appeared to fulfil the 'minimum requirement' to obtain professional teacher certification and to justify the government's plans to reward teachers with financial incentives (Haryanto et al., 2016). The short training in PLPG, which was only 10-12 days, was also criticised as a critical issue in teachers' quality in obtaining their certification. Utami (2015) argued that the short

duration and intensity of training prevent teachers from breaking old teaching habits. Previous teaching attitudes and habits remained once participants returned to their respective schools. Since there was no periodic monitoring and site evaluation of teaching performance post-training and certification, teacher improvement was questionable after the PLPG.

Teacher Professional Education (TPE) Model (2018- present)

The last PLPG model was implemented in 2017, with the last batch of 2017 PLPG transitioned to TPE with the addition of online independent learning. It was introduced before the official launch of TPE in early 2018 with a modified programme structure. The in-service TPE was officially implemented in 2018 with a revamped curriculum, learning stages, credit-based learning, and longer-duration (Kemenristekdikti, 2018). The TPE in-service started with three months of online independent learning, four weeks of face-to-face workshops, and five weeks of school placement. Upon completing the school placement, the final stage was a content subject-based and teaching performance assessment. The total score of the examination determined whether the participants passed and could be rewarded with a professional certificate. In the earlier implementation of this model, the national passing rate was around 60-70%, and participants mostly failed the content subject-based exam (Kemendikbudristek, 2021). The passing grade of the TPE cognitive exam was 70 out of 100, which was higher than the previous PLPG exam, which was around 50.

Although the teacher certification has been running for almost two decades, and professional education has also undergone evolution to meet the needs of the complex context of the Indonesian education system, up until now, the TPE was still considered as adopting a ‘trial and error’ approach, implementing changes whenever necessary (Hayati & Widiati, 2015; Situmorang et al., 2022). Given the relative fluidity of the programme, since its implementation in 2018, TPE cohorts in different batches experienced different policies, such as the use of the LMS platform, the school placement model, etc. This highlighted the lack of a well-structured approach to TPE that inclined to changes. For instance, during COVID-19 hit in 2020, the TPE programme experienced significant changes to adjust to COVID-19 restrictions and regulations.

During the COVID-19 pandemic, Indonesia closed schools for almost 21 months, one of the most prolonged periods of closure in the world; this extended closure is anticipated to cause learning loss for students and teachers (Aditomo, 2023; Afkar &

Yarrow, 2021; Beatty et al., 2021; INOVASI, 2022). Regarding the TPE, the previously hybrid model was changed to be conducted entirely online, and it continues to do so to this day for the in-service TPE. Even though some key stakeholders questioned the programme's quality and the outcome of TPE in a fully online learning mode, adjustment is inevitable.

The experience of running the different models and schemes of professional education for teachers demonstrated the need for the government to implement quality assurance for accountability. The programme's quality assurance was designed under the Ministry decree for internal and external monitoring and evaluation (Permendikbudristek, 2024; Permenristekdikti, 2017). Internal quality assurance was under the HEI's responsibility, in which TPE was held; meanwhile, external quality assurance was done by the directorate general of MoEC. Internal quality assurance was implemented through regular programme reviews, ongoing HEI teacher educators' quality upgrading programmes, provision of sufficient learning environments, impartial and transparent participant evaluations, and an information system that is user-friendly, accurate, and accessible to all parties involved.

In addition to the quality assurance activity, the MoEC periodically designed a monitoring and evaluation programme (DirjenGTK, 2022; Permenristekdikti, 2017), its objectives were two-fold:

1. To determine whether the TPE study programme complies with the established rules and regulations to meet the programme's goals.
2. To control the quality of the TPE study programme as a form of education provider's accountability to interested parties.

The following are figures 4 to 7 of the TPE scheme from the intake, the process, and the outcome to help understand the whole process of the TPE programme for the in-service teacher's hybrid model.

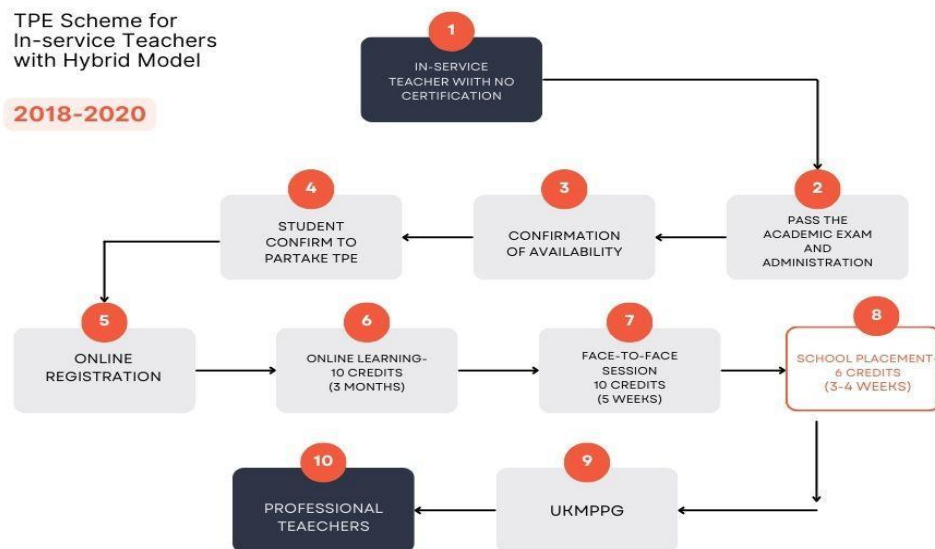


Figure 4. TPE hybrid model (2018-2020). Adapted from *Pedoman penyelenggaraan program pendidikan profesi guru* (Kemenristekdikti, 2018)

The most apparent difference between the TPE Programme 2018 and the TPE New Model 2020 was the duration, modules, and learning experience. Due to the unprecedented circumstances of COVID-19, teachers in TPE's new model 2020 missed out on the learning experience in the face-to-face teaching context.

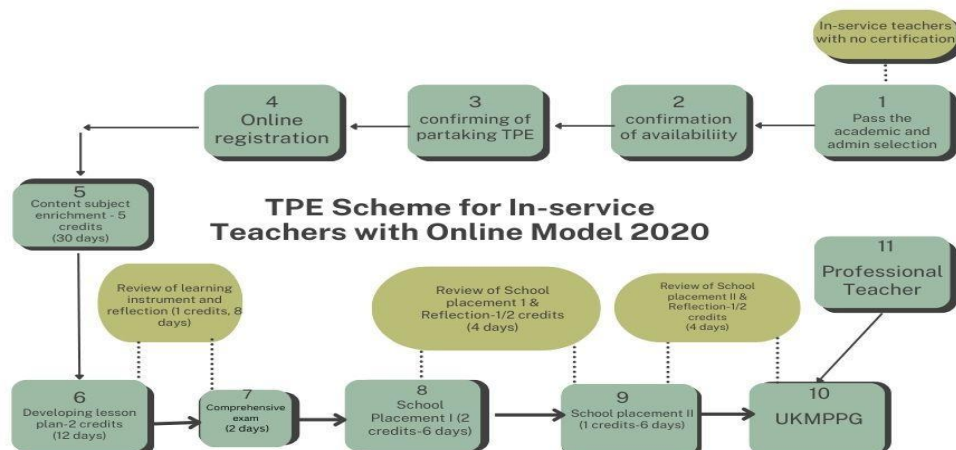


Figure 5. TPE New Model 2020. Adapted from *the Pendidikan Profesi Guru: New Model PPG Dalam Jabatan 2020* (Kemendikbud, 2020b)

Following up on the changes in policy for the in-service TPE programme in 2021, the Ministry also changed the TPE implementation. It made innovative improvements by designing a model to adjust to the current context of ongoing COVID-19 restrictions. The 2020 TPE model was set up in response to sudden changes in teaching and learning due to restrictions, and the 2021 model of TPE was an innovation to adjust to the new situation. The model followed the three stages: independent online learning, workshop, and school placement, although all stages were conducted online. The curriculum, modules, technology, and teaching approach were improved to conform to online learning.

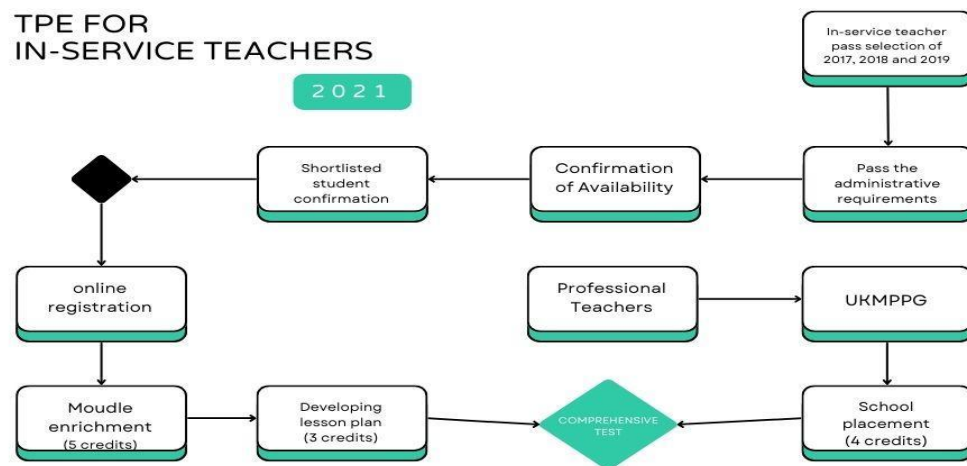


Figure 6. Stages of Implementation of the in-service TPE programme 2021. Adapted from *Panduan Umum UKMPPG 2021* (Kemendikbudristek, 2021)

The regulation and model of the in-service TPE were later changed in 2022 to include more comprehensive stages of learning by improving the learning experience and emphasising innovative learning.

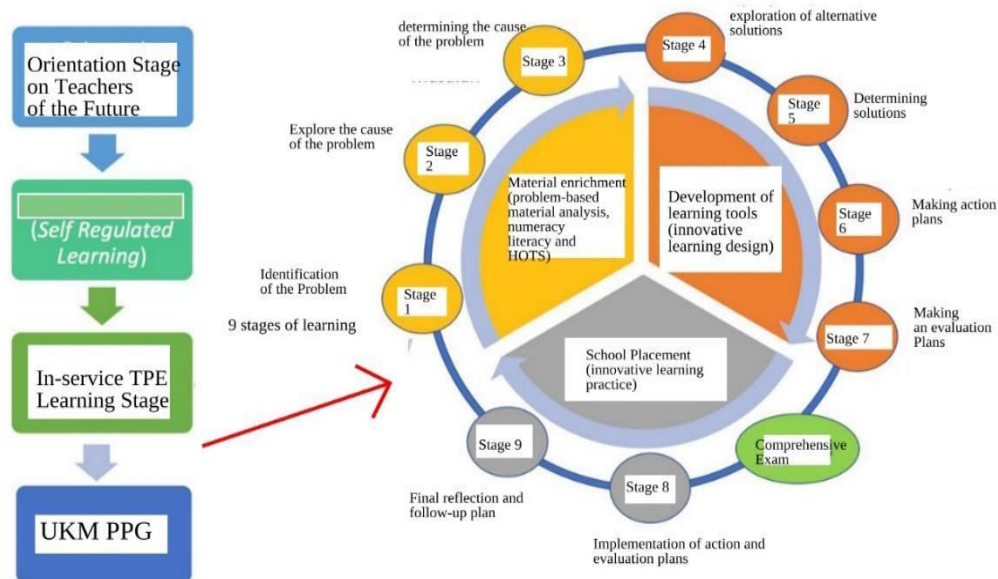


Figure 7. Stages of Implementing the In-service TPE Programme 2021-2022. Adapted from *PPG Dalam Jabatan: Pembahasan Desain PPG Dalam Jabatan* (Kemendikbudristek, 2022d)

Overall, the ongoing changes strengthen the concept of the chronosystem domain of ecological system theory in the TPE. This domain emphasises the significance of timing in terms of when events take place, which inevitably influences the TPE and impacts the quality of training and the graduates of the programme. To give an overall picture of how the TPE has been implemented for almost two decades and how it has evolved, the following figure 8 is a chronological list of in-service TPE implementation.

Timeline of Teacher Certification Program

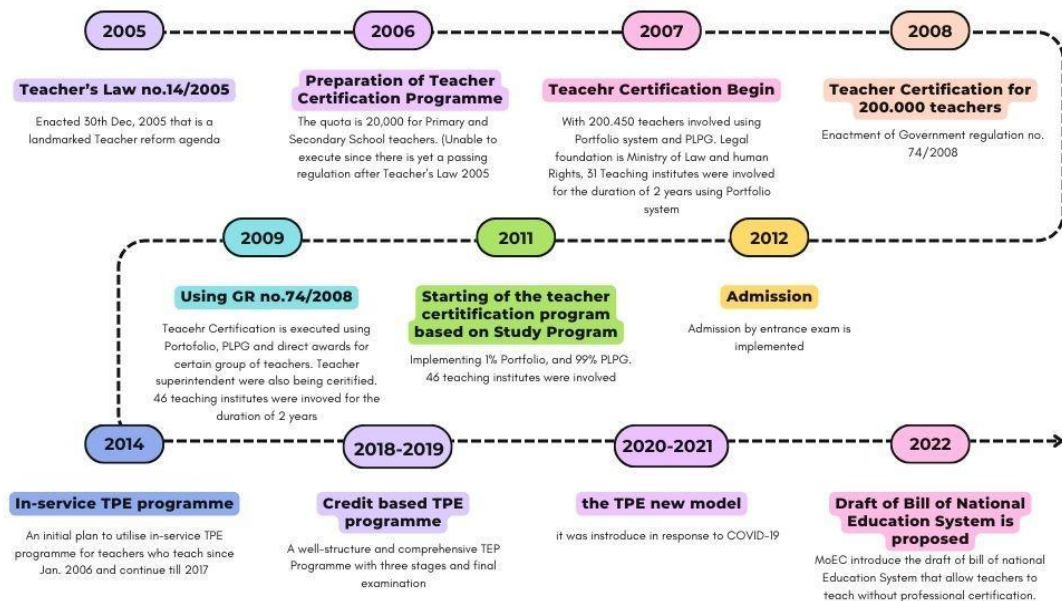


Figure 8. Timeline of Teacher Certification Programme and TPE implementation

In 2022, the MoEC proposed a bill for the new National Education System policy to replace the previous National Education System decree no.20/2003 (UURI, 2003) and the Teacher's Law (UURI, 2005). The bill highlighted the importance of the TPE programme as a gatekeeper of teacher quality and a prerequisite for becoming a teacher. Since the current TPE runs simultaneously for in-service and pre-service teachers, the bill stated, "For in-service teachers, their obligation to take the TPE programme can be 'white out' and continue teaching" (Kemendikbudristek, 2022a, p. 236). From the lexical meaning, the term 'white out' can be interpreted as the government's intention to focus on the pre-service teachers' TPE, and the in-service TPE will no longer be running. If the House of Representatives passes the bill, the current in-service teachers will receive the incentive without undergoing the TPE.

Further, the proposed bill stated that certification is a condition for becoming teachers, not for receiving financial incentives (Kemendikbudristek, 2022a). Moreover, it proposed a clear distinction between the objective of teacher certification and the financial incentive given to in-service teachers. Considering the logistical limitation of the

government limitation of the government to certify teachers each year, the waiting list takes years. To add to this frustration, the bill recommends that financial incentives be paid to government employees, regardless of their teaching certification status. Meanwhile, for non-government employees or teachers working in private schools, the bill recommends that their respective foundation or their schools should pay the incentive as per contract with the employer. The bill emphasises that the TPE and teaching certification should only be applied to the pre-service teachers applying for teaching positions, essentially shutting down recruitment pathways for honorary or contract teachers in public schools.

Summary of the Chapter

The context of the study chapter provides an in-depth understanding of the Indonesian education system and the rationale behind the TPE, which is embedded with the teacher certification policy. The sections elaborate on the evolution of the TPE of both the models and implementation and the programme's objectives from its first launch in 2006 to the current one. This chapter elaborates on the teacher education programme in Indonesia in general and the historical background of TPE, which further highlights the chronosystem domain of TPE implementation in Indonesia.

The TPE programme has significantly developed across several historical periods. To a certain degree, the evolution of professional education programmes for teachers influenced Indonesian teachers' quality today. The model, curriculum, administration, and programme management have all evolved in line with Indonesia's education context dynamics for the past two decades. The context of the study suggests that innovation and changes are inevitable, and attention must be paid to aligning the teacher education-related policies and the national education goal so that the changes can ensure improvement for the better.

Chapter 3 LITERATURE REVIEW

Introduction

Organisation of the Chapter

This literature review informs the study about what has been researched in teacher education and teacher reform in general. The first section focuses on the study's theoretical and conceptual framework. The second section of the review discusses the international body of research on teacher education. The third section discusses professional development and its relevance to the under-researched TPE programme. The following section focuses on the discourse on the quality and complexity of teacher education, followed by the notion of equity and teacher education policies. The final one discusses the global phenomenon of policy borrowing in education. A summary of key findings derived from the literature review is then presented.

Overview

Extensive research on improving the quality of education shows that enhancing teachers' quality or effectiveness is central to educational change. To have a high-quality teacher, the education system should manage many aspects, including initial teacher education programmes, teacher recruitment, teacher induction, Continuing Professional Development (CPD) for in-service teachers, career path, continuous assessment, and professional and administrative supervision (Darling-Hammond, 2021; Darling-Hamond, 2017b). Studies on teacher education in "an emerging, complex, and multifaceted field" (Cochran-Smith & Villegas, 2015b, p. 7) have attracted many education experts' interest.

The approach to the literature review employed in this study is a narrative literature review, and ideas are organised thematically based on key terms and theoretical approaches. The literature review attempts to build a solid theoretical foundation to support the research design, method, and data analysis. This research follows Templier and Paré (2015) six steps of organising literature: 1) formulating research questions and objectives; 2) searching the extant literature; 3) screening for inclusion; 4) assessing the quality of primary studies; 5) gathering applicable information; and 6) analysing the information gathered and making sense of the information.

Following Templier and Paré (2015) and Paré et al. (2015) six steps in conducting a literature review, the researcher initiated the library search in DCU library search and library database, using search engines such as EBSCO and Science Direct. Using the

research questions and research objectives keywords as guidelines, for example, ‘quality’, ‘accountability’, ‘effectiveness’, ‘teacher professional education’, etc. The next stage was to make decisions on including relevant literature, and literature from top-tier Scopus-ranked journals and publications was prioritised for inclusion. Although presented as a sequence order, the process was an iterative and non-linear activity.

Extracting key ideas from the research questions, identified themes are organised in response to the research questions presented in Chapter 1 to unravel what key learning can be garnered from the literature review before the data-gathering process begins. All in all, the process of writing a literature review is non-sequential. Instead, it is a more iterative process (Bryman, 2012; Greetham, 2021).

Theoretical Framework

My study proposes Complexity Theory and Ecological System Theory as theoretical frameworks underpinning the analysis of Teacher Professional Education (TPE) in Indonesia as part of the teacher reform agenda, which aims to improve teacher and teaching quality through the voice of key stakeholders in TPE. In addition, this study also highlights the involvement of the in-service teachers as the main actors and the crucial role of teacher educators, cooperating teachers, school principals, and the TPE management of the programme to contribute to TPE quality.

Complexity Theory

Initially used in natural science and physics, complexity theory has been increasingly utilised in the social sciences and humanities to explain the phenomenon of a complex system in a social construct (Davis & Sumara, 2006, 2008; Mason, 2008b). Fundamentally, complexity theory is a way of thinking and action that considers the living system to be made up of interconnected parts that cannot be explained in a simple mechanical or linear term. Considering one component while disregarding others will not function properly since each element interacts with and influences each other (Morrison, 2008; Szekely & Mason, 2018). In other words, complexity theory dismisses predictability and one-dimensional variables. Instead, it suggests an unconventional, non-linear, and holistic way of thinking.

Using complexity theory to understand how teacher education programmes function as a complex system appeals to researchers who believe there is no linear, one-dimensional pattern to teacher learning and how good quality teachers impact students’ learning. Using

complexity theory as a theoretical framework is evident in a vast body of research in teacher education (Ludlow et al., 2017; Martin & Dismuke, 2017; Russell & Martin, 2016). Ell et al. (2018, p. 1) state that the complexity theory framework in teacher education unveils an “impact that acknowledges the integrated nature of the education system and how all stakeholders work together to improve student learning”. Previous studies in teacher education also support this claim and put a value on researching teacher education through the lens of complexity theory (Ludlow et al., 2017; Snyder, 2013). The dynamic relationship of teacher education key stakeholders (which include teacher candidates, teachers, teacher educators, students, and principals), organisation (such as school, school district, and school-university collaboration) and processes (teacher education pathways, professional learning context, supervision, mentoring) should be conceptualised as a complex system (Cochran-Smith et al., 2014; Davis & Sumara, 2008).

Cochran-Smith et al. (2014) highlight three methods by which researchers should use complexity theory or complexity thinking to shape their investigations. First, it is important to question the conceptual or methodological assumptions often underpinning teacher education research and practice and suggest how complexity theory may reconceptualise the field. Second, research should explain and understand specific examples or features of teacher education practice in novel ways. Third, research should document the transformational endeavours of applying the complexity theory framework. Apart from the extensive literature on complexity theory utilised to understand the complex system of teacher education, Morrison (2008) poses challenges for adapting complexity theory in teacher education. Specifically, complexity theory is a descriptive theory rather than prescriptive, which is further asserted by David and Sumara (2008) that it will not prescribe what to do, but rather give guidance on what to focus on. Given that complexity theory rejects the linear notion of cause and effect, “it cannot provide causal explanations about teacher education and, thus, cannot drive the improvement of practice and policy in teacher education” (Cochran-Smith et al., 2014, p. 17).

Ecological System Theory

The Ecological system theory (Bronfenbrenner, 1979) is about human development and the influences of many aspects, such as interaction process, social context, and time. Although originally, Urie Bronfenbrenner’s theory intended to focus on a child’s development (Rosa & Tudge, 2013), the theory further develops and is used to understand the dynamic processes of situations that are inter-related, such as in educational context

and curriculum implementation (Drakenberg & Malmgren, 2013; Taguma & Barrera, 2019).

This study will employ the Ecological System Theory as the theoretical framework that looks into the dynamic human engagement within the TPE with graduate in-service teachers as the main actors. This study will focus mainly on the five dimensions: the microsystem level will focus on classroom practices. The microsystem will also focus on teachers' perspectives as one of the main actors of the TPE. The exploration will adopt an in-depth exploration of their personal belief, values, and attitudes toward professional teacher education and to what extent the programme influences their teaching and impacts their professional practice. The mesosystem level will highlight the perspectives of the HEI teacher educators, school principals, and cooperating teachers on their roles in TPE, contributing to teachers' learning experiences. The exosystem level will focus on TPE Management and the external influences and challenges which impact the programme's implementation. The macrosystem domain of this study will investigate the influence of Indonesian educational beliefs and values in TPE design and practice. Finally, the chronosystems relate to the TPE's implementation timeline and the changes in events over the years.

Previous studies that have applied the frameworks

Previous international studies of teacher education have utilised Ecological System Theory and Complexity Theory to understand teacher education programmes' dynamic, non-linear, and multidimensional concepts. As mentioned in the work by Johnson (2008) which uses the ecological system and complexity theory approach as an alternative model of accountability in education. While, Snyder (2013, p. 28) explores educational reform through Complexity Theory and Ecological System Theory. He argues that both theories can utilise the intrinsic properties of a complex system to propagate system-wide change as a beneficial way forward for policymakers.

A study of effectiveness in teacher education programmes in Australia employed the concept of spatial approach, which is regarded as effective in bringing a new direction of design and practice of research in teacher education (Mayer et al., 2015; Rowan et al., 2015). The spatial approach in the study refers to conceived, perceived, and lived spaces of teacher education. The actual study, Studying the Effectiveness of Teacher Education (SETE), was implemented in the longitudinal, multiyear, and national study on the effectiveness of teacher education programmes in Australia (Mayer et al., 2017). The

research took place over four years and involved 5000 newly graduated students and approximately 1000 principals. The research focussed on their perceptions of the effectiveness of teacher education in preparing newly graduated teachers for diverse settings. The study also acknowledged the complex nature of teacher education and thus employed the complexity theory alongside the spatial approach. They concluded that “there are multiple ways of thinking about and enacting teacher education that involves different but related spatial practices. In this way, teacher education is not a singular construct but a set of representations, practices, and experiences that are socio-spatial and relational” (Mayer et al., 2017, p. 1222). The spatial approach utilised here is similar to ecological system theory, which involves the participation and involvement of key stakeholders to explore how the multi-layers interact and influence each other, which signifies that teacher education is not a single concept but rather a collection of socio-spatial and relational representations, behaviours, and experience.

The current study of quality and accountability in education by Ehren and Baxter (2021, p. 4) utilised the ecological system theory as they assert that “improvement of student learning is ultimately the outcome of how people behave and interact, where the improvement of teaching and learning of students requires a change in behavioural patterns of teachers, school leaders and other stakeholders in the system to more effective ways of working”. The ecological system theory, with its five dimensions, enables understanding the complex interaction of key education stakeholders to inform learning and development. They further claim that when accountability and trust reinforce each other, providing a work situation that satisfies teachers' basic psychological needs, schools and education systems can inspire teachers to become effective.

Research on Teacher Education Programme

Research on the relationship between teacher preparation and teacher education programme effectiveness is acknowledged widely (Darling-Hammond, 2020; König et al., 2023). It has resulted in research on how teacher preparation significantly influences teachers' quality and student performance (Blömeke et al., 2022; Ell et al., 2018; König et al., 2023; Nilsen & Gustafsson, 2016). The global trend of economic competitiveness and in performance in education, driven by international student assessment results, urges countries to reform the education system by focusing on teacher education, teacher preparation, and teacher professional development, which aim to improve the quality of teaching. Although education reform was mostly heavily politically embedded, there is

strong evidence that research on teaching and teacher education influences education policy and practice (Bastian et al., 2017; Chang et al., 2014; Darling-Hammond, 2016). This section elaborates on the international teacher education research paradigm and the impact of research in teacher education that influences policy and practice by presenting cases such as Indonesia, Australia, and New Zealand for the geolocation of where the study was conducted.

Teacher Education Research Agenda

Global economic competitiveness has triggered a worldwide ‘frenzy’ on educational reform (Barnes & Cross, 2021; Mok, 2006; Oon et al., 2019). Reports from the Organisation for Economic Cooperation and Development (OECD) and the supranational performance assessment, Programme for International Student Assessment (PISA) have been widely used as a bar to measure the quality of education of the participant's country, with additional measurement of the quality of the Human Development Index (HDI) in their reports. Reviews from international bodies such as the World Bank and OECD on international education performance have pressured governments and policymakers to address the issues in classroom teaching, teacher preparation, and professional learning. Strategies include introducing teacher certification programmes or teaching licensing, conducting teacher competencies assessments, improving teacher recruitment, and reforming teacher education programmes (Brantlinger et al., 2020; Darling-Hammond, 2017; Darling-Hammond, 2000).

Studies on teacher education effectiveness show that teacher preparation shifted rigorously to respond to the challenges and needs of the education problems (Al-harhi et al., 2022; Cochran-Smith & Villegas, 2015b; Mayer et al., 2017; Rowan et al., 2015). According to Cochran-Smith and Villegas (2015a, p. 7), “research on teacher preparation and certification is an emerging, complex and multifaceted field, influenced by competing ideas about the purpose of research and the goal of education”. They further elaborate that an extensive body of research in teacher education informs that future research in teacher education needs to “address questions that link teacher with student learning and teacher candidates’ belief and practices as well as questions that examine the relationship between research practice and social, economic and institutional power” (Cochran-Smith & Villegas, 2015b, p. 379). In addition to recommendation for future research in teacher education, Mayer and Oancea (2021, p. 2) highlight two crucial agenda: first, regarding “the evidence of the effectiveness of teacher education which is often contained in policy

documents and related accountability mechanism”, while the second agenda, is on the notion of linear and singular dimension of teacher education and the quality of the graduates. According to Mayer (2021b), although the two notions lead to the future direction of teacher education, key stakeholders must perceive accountability and effectiveness of the teacher education programme in the same research agenda.

Research on the quality of education and teacher education programmes in Indonesia has been widely studied by local Indonesian education, NGOs, as well as international foundations and donors (Harjanto et al., 2017; Revina, 2022; The World Bank, 2013; Tobias et al., 2014). Indonesia’s PISA result, which is constantly low compared to neighbouring countries, sparks debate on the quality of teachers and teaching quality, which questions the accountability of teacher education programmes. Studies on Indonesia’s education reform, which heavily emphasise the teacher reform agenda, bring to the fore the need to reform the teacher education programme to improve the quality of the teachers in Indonesia (Chang, et al., 2014; Jalal et al., 2009; The World Bank, 2010). As explained in the previous Chapter 2, a comprehensive study by the World Bank suggests that teacher education programme in Indonesia should ensure several aspects for the lasting changes in education quality, among other crucial recommendations on ensuring the quality of teacher training institutions or teacher education programmes, selecting and recruiting the best candidate to enter teacher education as well as accessibility to continuous professional learning for in-service teachers’ competency upgrading (The World Bank, 2020c). Similar studies were also carried out to accentuate the effectiveness of implemented professional learning programmes, teacher pathways, and teacher preparation management to reinforce the issues in teacher education programmes to inform policy (Beatty et al., 2018; Huang, 2020; Pritchett, 2020; Revina et al., 2020).

Impact of Research on Teacher Education Policy and Practice

Research on teacher education is often considered as a low impact considering that it is located within the researcher’s context, often small-scale, and regarded as weak on the theoretical frameworks used (Cochran-Smith & Villegas, 2015b, 2015a; Darling-Hammond, 2016; Kennedy, 2014). Such research has mainly been carried out to tackle the personalised problematic issues in the respective researcher’s classroom rather than significantly impacting change in education in a wider scope. Therefore, a strong recommendation for longitudinal, cross-analysis, and large-scale research is suggested in

the future research direction in teacher education, as this may significantly impact policy decisions.

For the past two decades, teacher education reform has been a central point of teacher education research as the ‘holding teacher education accountable’ notion works as a driving force (Cochran-Smith et al., 2017; Cochran-Smith & Zeichner, 2005). Researchers in the Teacher Education and Education Reform (TEER) project conducted longitudinal, national-scale research on accountability policies and mechanisms of teacher education within a wider education reform study in the United States. The study analysed the five aspects that triggered the ‘era of accountability’, which loosely shaped or caused the domain. The first aspect was the global attention on teacher quality in the neoliberal context that education is the central source of the economy. According to Hanushek et al. (2005), teacher quality equals student achievement; therefore, investing in improving teacher quality and teaching quality is more important than reforming the school system. Secondly, the public scrutiny of students’ performance leads to criticism of teaching quality and ultimately calls forth the quality of teacher education, which ‘produces’ the teacher. Another issue was that teacher education was viewed as a policy problem, and the outcome resulted in policymakers’ attempts to enhance teacher quality for the intended result. The next point was that the teacher education institution was involved in the accountability measurement, which raised an issue of bias. Lastly was the idea that education reform is the absolute solution for the nation’s problems, disregarding other contributing factors such as economic and political reform. The study recommends that US teacher education “ ‘reclaim accountability’ by reinventing it in ways that are consistent with the democratic project” (Cochran-Smith et al., 2017, p. 2).

A two-country research project named Rethinking Initial Teacher Education for Equity (RITE) is a longitudinal study of two universities in two countries, the University of Auckland in New Zealand and Boston College in the United States (Cochran-Smith, et al., 2014; Ludlow et al., 2017). This study aims “to develop a framework for research on initial teacher education that could account for the complexity of teaching, learning, schooling, and inequality and could, over time, allow us to examine how the “causal” or “generative” mechanisms of teacher learning occurred under varying conditions and contexts” (Ludlow et al., 2017, p. 38). Utilising the complexity theory, this quantitative study put forward the statistical representation of teacher education key stakeholders’ perspectives. Since complexity theory in teacher education “does not offer a package of methods for data gathering and analysis” (2017, p. 73), this study signified the

contextualisation of teacher education as a complex system. The University of Auckland, in particular, implements a complexity theory-based research design to inform the shaping of its teacher education for developing the future teachers of New Zealand.

The Measuring Quality in Initial Teacher Education (MQuITE) project in Scotland seeks to develop and implement a context-appropriate (Rauschenberger et al., 2017). As the country seeks to understand the types of teacher education programmes that produce good-quality teachers, this study focused on creating a framework to measure the quality of teacher preparation programmes effectively. The project was described as longitudinal, meso-level collaboration research of eight universities in Scotland to assess the impact and quality of their programmes individually, comparatively, and collectively. The study pulled rich quality data that provided valuable insight into policy for the direction and future of initial teacher education in Scotland.

The previous section of this Chapter explained that the study of the Effectiveness of the Teacher Education (SETE) project in Australia was to respond to the gap in the literature of large-scale, longitudinal research (Mayer et al., 2017) to ‘speak’ to the policymakers and impact the policy recommendation. Using a mixed-method approach, the project attempted to understand the key stakeholders’ perspectives on the effectiveness of the teacher education programmes and how the programmes linked to their preparedness to become a teacher. This project emphasises the complexity of assessing the effectiveness of teacher education programmes due to the numerous aspects involved. This study pictured the complexity of teachers, teacher education, and education in general, using the concept of spatial framing, the Conceived space, Perceived space, and the Lived space. The findings put the quality of teaching in the spotlight, and the recommendation is to have close cooperation between higher education institutions, schools, the community, and the education system. This study concludes that teacher education is an ongoing process with continuous changes, which requires all the key stakeholders to understand the complexity of the process in order to work together effectively (Gray & Colucci-Gray, 2010).

In the Indonesian context, longitudinal, national research that receives extensive funding is undertaken by international bodies or organisations, such as the OECD, the World Bank, and other international NGOs, to greatly impact policy decision-making. The country review from the OECD on the PISA result offers insights on the performance of Indonesian students compared to the international standard, providing details of what students learn and their growth of mindset along with how socioeconomic equity significantly affects Indonesia’s student performance in Math, Science, and Literacy

(OECD, 2019b). Besides the media attention, the country receives extensive scrutiny from education stakeholders, such as education experts and donors, which urge the government and policymakers to respond and improve the education management implemented (Chambers-ju et al., 2022; Gore & Rosser, 2020; Rosser et al., 2022). The impact of these studies has led to changes in curriculum and other educational policies, as well as economic and socio-political aspects, which according to Rosser (2018), were influenced profoundly in Indonesia. While studies by international bodies and donors have significantly impacted the policy and practice in the education system in Indonesia (Chang et al., 2014; TIMSS, 2015), change does not happen overnight (Reimers, 2020). The education reform policy over the past decade produced less substantial results; teachers remain poor in quality, unequally distributed, and costly (Bima & Yusrina, 2018; de Ree et al., 2018; The World Bank, 2020c).

The TPE is the final gatekeeping to ensure the quality of education of teachers in Indonesia (Kemendikbudristek, 2022a). Since the enactment of the teacher certification policy in 2005, TPE has undergone substantial changes throughout the years. In short, teacher certification pathways started with the Portfolio scheme, which was later abolished and changed into the PLPG model. The currently implemented model is the PPG or TPE, a credit-bearing teacher professional education programme. These aspects of time and changes in TPE are articulated in Chapter 2 in the Context of The Study for further reference.

The changes over the years in the TPE were the government's effort to improve the accountability of the training programme, which shows little to no impact on the teacher's performance in the classroom, and low students' performance in the international assessment, which indicates the teacher education approaches were not effective (Situmorang et al., 2022; Suryadarma & Jones, 2013; The World Bank, 2013). The programme started with a continuing professional learning layout and changed into the credit system. The changes were influenced by the results of the studies on the teacher certification programme and its impact on Indonesian education quality (The World Bank, 2008, 2013).

Changes in a programme are a high possibility. With the current MoEC policies appraising that more extensive school involvement in teacher preparation is considered more effective, there is a heightened policy discourse for the future redesign of the TPE to be situated in the school setting. Therefore, with the unique development and

characteristics of the TPE, it is crucial to elaborate on the key concepts of professional development and teacher education in this study to understand the TPE context.

Professional Development and Improving Teacher Competencies

Education reform has been the main agenda to improve nations' society and economic standing, and professional development for teachers is one of the key elements. The teacher is regarded as the 'variable' and a significant change agent in the education reform agenda, and teachers are considered both "a subject and object of change" (Villegas-Reimers, 2003, p. 7). The teacher reform agenda in Indonesia includes the teacher certification programme, in which teacher professional education for in-service teachers is an integral part of the policy. Reports affirm that the teacher certification programme in Indonesia is one of the world's most high-stakes and high-cost education reforms (Rosser & Fahmi, 2018; The World Bank, 2020c). With double the salary of teachers holding professional certification and the increased number of teachers receiving financial incentives, the teacher certification programme absorbs the most spending on the national education budget, making it a high-cost programme. In addition, the cost of teacher certification poses a significant trade-off: spending in other strategic areas to improve the quality of education needs to be reduced (The World Bank, 2013, 2015). Although the national budget for education in Indonesia is 20% of the total, more than half is allocated to paying the salary and the incentive of teacher certification, which consequently slows the investment in other areas for improving the quality of education, making the teacher certification programme a high-stakes programme.

Professional Development as a Complex System

Many terms are employed in the literature on teacher learning and change, such as teacher training, in-service/ in-house training programmes (INSET), continuing professional development, staff development, professional learning, professional growth, and many more. The notions are mainly used loosely and interchangeably to refer to the idea of activities to develop individual teacher's skills, knowledge and expertise, as well as other teacher characteristics (OECD, 2009b). Richards and Farrell (2005) argue that 'training' is a prescribed set of structures by experts for teachers to acquire knowledge and strategies in their initial teaching stage. 'Development' signifies reflective practices in multidimensional aspects of teachers, such as principles, beliefs, and values during their in-service time. The terms used also vary in different countries, for example, Indonesia,

which used the word ‘on-service training’ to refer to the ‘in-service’ on-job-preparation of the unqualified teacher. Recently, the term ‘continuing professional development’ has been employed to refer to any activities done, either formal or non-formal, to improve teachers’ knowledge and performance in the classroom. (Bachtiar, 2016; Rahman, 2016).

A recent study by Taylor (2020) on the complexity of teacher professional growth unravels the distinction between teacher ‘development’ and ‘learning’ since the two terms are mainly used interchangeably concerning continuing professional learning and development (CPLD). He elaborates on the frame of reference from experts towards the difference in ‘development’, which associates with ‘*delivery*’ through ‘someone else’s *desire to tell*’, meanwhile ‘*learning*’ identifies with ‘meaning-making’ motivated by one’s own *need to know*’ (Timperley, 2011). Delivery relates to policy-makers and professional development providers in a top-down approach; on the contrary, learning through meaning-making is how and what one wants to learn to refer to a bottom-up situation where teachers make their own decisions on seeking what works for teaching and learning.

Although the study focuses on TPE, for meaning and consistency purposes throughout this chapter, the term teacher professional development (TPD) is utilised to serve the purpose as TPE falls into the category. First, TPE in this context is for in-service teachers to enrich their knowledge and skills in teaching and strengthen their motivation and values as teachers. Second, the programme aims to award a certificate with a classification as a professional teacher. Although the current model of TPE requires in-service teachers to undergo training and obtain a certain number of credits as in teacher education programmes, the TPE sits in both professional development and teacher education.

Professional development, in a broad sense, refers to the growth of individuals, which is beneficial for both the person and the institution. Professional development attempts to improve the quality of teachers as individuals and professionals in their teaching careers (Day, 2019; Guskey, 2002). It is a planned activity that takes the process of acquiring the necessary knowledge, skills, and pedagogy to support students’ learning. Etymologically, teacher professional development comprises ‘Teachers’ as agents or actors or even factors of the system. It primarily relates to qualified in-service teachers who have completed initial teacher education and have several years of teaching experience in a related field. ‘Development’ generally refers to growth, not specific to the area of work (Richards & Farrell, 2005).

The concept of TPD was coined by Day (1999), who describes TPD activity as a learning experience that develops knowledge, skills, and other professional growth essentials to improve student outcomes throughout the teachers' careers. In addition, TPD, according to Guskey (2002), is a systematic effort to change teachers' practices, attitudes, and beliefs to improve student outcomes. That means the end of the pendulum is students' improved performance. Although personal and institutional benefits are also in the frame of TPD, Demirkasmoglu (2010) asserts that teacher professionalism is associated with meeting the value of standards in education and related proficiency, and the ultimate change expected from the programme is a better student learning outcome. In this regard, TPD as a complex system cannot be viewed strictly as a linear-causal process by independent factors but rather as a dynamic relationship and interaction among the contributing factors or actors (Zein, 2016).

TPD is recognised as a complex system with many dynamics and non-linear patterns (Cochran-Smith et al., 2014; Gore et al., 2017; Zeggelaar et al., 2020). Opfer and Pedder (2011, p. 379) note that “teacher learning is a *complex system* representing recursive interactions between systems and elements that coalesce in ways that are unpredictable but also highly patterned”. It is often unpredictable as it involves various stakeholders, such as pupils, teachers, teacher educators, school administrators, policy-makers, and even parents, who are linked to a dynamic education system. TPD is also heavily influenced by political, social, economic, and cultural influences, which further emphasise that teacher learning is a complex process that requires cognitive and emotional involvement, capacity and willingness, and supportive educational policy for a better outcome (Avalos, 2011; Rosser & Fahmi, 2018). Therefore, TPD “is shaped by complexity thinking, guiding principles including ubiquity, humility and complicity” (Taylor, 2020, p. 1).

The role of teachers is both as receiver and agent of change (Villegas-Reimers, 2003), and strategies should be made effective to highlight that the teacher is the main focus of TPD activity. Some key features of effective professional development are proposed from teacher learning experiences in professional upgrading activities, either formal or informal, embedded, and discrete. Desimone (2009) conceptualises TPD's critical features for improving teacher performance and increasing student achievement. The features are (a) content focus, (b) active learning, (c) coherence, (d) duration, and (e) collective participation. These features increase teachers' cognition as well as lead to an improvement in teachers' attitudes and beliefs, which ultimately enhances students' performance. Merchie et al. (2016) develop these key features by adding factors such as

ownership since it is more relevant to the individual teacher when the activities align with their beliefs and meet their needs.

A study on effective professional development (Richardson & Díaz, 2018; Walter & Briggs, 2012) underlines a core set of principles underlying effective TPD programmes called INSPIRE. The acronym stands for, first, *impactful* to emphasise the changes in teaching that should reflect on students' learning. The second is *needs-based* to highlight the importance of structuring the TPD programme and goals that suit the needs of teachers—considering the diversity of individual teachers' needs and the learners. Sustainability is a very important attribute in achieving an impactful programme, with duration and types of activity as factors. In the traditional view of TPD, the learning activities are mainly carried out in a workshop, short courses, or lectures/talks for 'maintenance' or 'refresher' purposes (Little, 1993). Meanwhile, inquiry-based or constructivist TPD is a recent approach as an alternative to TPD activities with longer retention (Pitsoe & Maila, 2012; Smolcic, 2011). Reports on effectiveness indicators show that *peer collaboration* is highly impactful, nurturing collegial support and promoting *in-practice* open-transfer knowledge that addresses the actual situation in the classroom. The value of teaching that is often overlooked is the *reflective practice* of gaining insight and new perspectives, which is strongly related to transformative growth. Lastly, to know precisely what does and does not work, the participants and the provider should regularly *evaluate the PD*. Guskey (2000) proposes a levels model to evaluate effective TPD: 1) participants' response; 2) participants' actual learning; 3) alignment between policy, procedure, and practices; 4) participants' practice on newly gained knowledge; 5) impact on students' learning outcome.

Perspectives in TPD do not only generate different terminologies used to describe teachers' learning but also create different practices. According to Barton (1994), traditional PD views teacher learning as acquiring new knowledge and skills through memorisation or imitation. It is heavily prescribed to be passed down from the expert to the teacher educator so that teachers implement it in their classrooms. Moreover, the objectives are frequently on maintaining standards from education bodies or extensions that qualify the introduction of new knowledge or skills (Avidov-Ungar, 2016; Day & Sachs, 2004). Authorities or educational bodies control this type of TPD programme to ensure teachers meet particular standards and replicate the newly introduced knowledge in the classroom. Non-traditional practices are more about the teacher's initiative, bottom-up, and constructivist approach. This postulates that teachers can construct knowledge and

use it best through inquiry and reflection on their instructional practices (Cochran-Smith & Lytle, 1999).

In summary, TPD is a complex system that involves multidimensional aspects of the teacher as an individual and a complex system of practice to promote change. Effective professional development based on extensive research to date includes collaborative, sustainable, and reflective practice.

Teacher Professional Development (TPD) Model and How it is Related to the Teacher Professional Education (TPE) Programme

The previous subsection briefly discussed the concept of TPD, the model, and what postulates effective TPD. This section further examines the vast array of TPD models from different perspectives proposed by a prominent researcher in the field. The models are drawn to analyse TPD practices and approaches. TPD is a systematic and dynamic process that supports teachers in constructing and re-constructing knowledge and bringing change in classroom practices, attitudes, and beliefs, resulting in improved student performance (Cochran-Smith & Lytle, 1999; Guskey, 2000). Reports from international bodies on education reform attempts show that various activities have been conducted to improve teachers' quality (Datnow, 2020; Villegas-Reimers, 2003). It is explained that teacher learning occurs during training, workshops, seminars, and collaborative activities, all of which are characteristics of effective TPD (Desimone, 2009; Walter & Briggs, 2012); nevertheless, the expected change does not occur. Teachers are still considered to be underperforming despite the efforts and commitments of government bodies and other stakeholders. Conversely, the questions linger on whether individual or personal improvement through rigorous training will generally impact student outcomes. Other elements can support or hinder teachers' change to lead and improve student outcomes. Professional development issues have been researched for over a decade, including teacher change from professional growth and what constitutes effective professional development. Nevertheless, there is still growing interest in unravelling the idea of professional development for teachers.

Recent studies have explored models of professional development and have assessed the learning process or learning experience from different perspectives (Boylan et al., 2017; Imants et al., 2020), teacher change (Guskey, 2002), professional development (Desimone, 2009), professional growth (Clarke & Hollingsworth, 2002), teacher learning (Kennedy, 2016) social learning (Opfer & Pedder, 2011), and leadership in PD (Evans,

2014; McChesney & Aldridge, 2019). In addition, models that relate the impacts of professional development on school improvement, leadership and school improvement (King, 2019), and effective instruction (Creemers & Kyriakides, 2008). The following description describes six related professional development models in detail.

The PD models mentioned, which many researchers have widely cited in the past 15 years, were used to inform PD design, analysis, and evaluation. Boylan et al. (2017) claim that the models presented are similar regarding change patterns and the interrelationship between PD process elements. However, they differ in how the relationship of some aspects is described and how the complexity of the environmental change is considered. Further in their investigation, the first model (Guskey, 2002) emphasises how the PD process influences the teachers' attitudes and beliefs for change to occur.

Guskey's model (2000, 2002) has served as the foundation for other researchers to develop PD models in later years, such as Desimone (2009) and McChesney and Aldridge (2019). It is a linear causal type of diagram showing that the change in teachers' beliefs and attitudes results from being confident of the change in students' outcomes. Guskey further emphasises that the experience of professional development rather than the type of activities that are successfully implemented and improve student performance shape the teacher's confidence, which results in a change. With a simple linear model, Guskey notes that professional development is a complex process instead of merely a series of events (Guskey, 2002, p. 388). The basic concept of the model of Guskey's teachers' change is presented below:

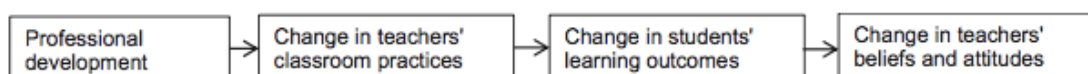


Figure 9. Model of teacher change. Taken from Guskey (2002, p. 383)

Desimone's (2009) professional development model consists of 'core features' and a 'core conceptual framework' of professional development, in which she emphasises the need for particular components to change student outcomes. Features such as content that calls to focus more on curriculum, pedagogy, pedagogical content knowledge (PCK), and active and collaborative participation are strongly stressed. Like Guskey's model above, the Desimone's PD model also adopts a linear causal path, although the order differs. She believes that a change in attitudes and beliefs occurs once the teacher gains the knowledge necessary for their teaching. This 'new' knowledge gained from professional development

is then translated into their classroom teaching, improving students' performance. In her argument, the model is "interactive and allows on changes in the order of the stage" (Desimone, 2009, p. 185).

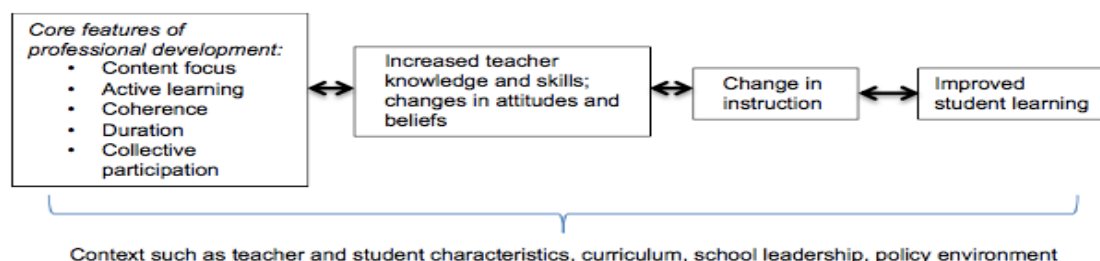


Figure 10. Model of Professional Development. Taken from Desimone (2009, p. 185)

Similar to the previous models, Clarke and Hollingsworth (2002) show the interrelation of different elements that construct professional learning. It is characterised into four domains: the external domain, the personal domain, the domain of practice, and the domain of consequences. The difference, among others, is that this model is inclined to have a broader influence from the external domain, including nonformal PD interaction. The link interaction in the domain is described as learning that occurs through multiple pathways that link enactment and reflection. They further explain that enactment refers to translating belief into practice. In contrast, reflection is "understood as active consideration leading to inferences that cause a change in beliefs and practice" (Boylan et al., 2017, p. 6).

Opfer and Pedder (2011) raise the issue of complex dynamic interaction in professional development. Their study proposes no specific diagram for the interrelation among elements to establish a professional development model. They argue that teachers' change only occurs in a dynamic system. Through the complexity theory framework, they identify three sub-systems: learning activity, teacher as an individual, and school system. Further, they claim that their proposed model enables researchers to see whether or not teacher learning takes place. One particular distinction among other models is that they concentrate on teacher learning or internal teacher change rather than students' outcomes.

Evans (2014) proposes a model that she believes will shed more light on the myriad of literature on professional development. Her research focuses on the micro-level cognitive process of professional development to see what is inside the individual teacher's experience. In other words, the proposed multi-dimensional componential structure model

will help leaders facilitate and promote professional development. She argued that the previous model, proposed by Guskey (2002) and Desimone (2009), failed to elucidate what ‘effective professional development’ really meant and how it occurred. Meanwhile, Evans (2014) also criticises the weakness in Clarke and Hollingsworth’s (2002) model, which does not quite tick all the boxes concerning understanding how professional development occurs in individuals. She further points out that the model’s two mediating processes, enactment and reflection, do not verify that professional growth occurs. Evans’ proposed model focuses on “a *cognitive* sequence or process that constitutes micro-level development mental internalisation process” (Evans, 2008, p. 185). She further adds that the micro-level refers to individual achievement on a specific topic in her day-to-day teaching rather than a whole picture of a better teacher.

The professional development model proposed by McChesney and Aldridge (2019) on the professional development-to-impact trajectory model derives from gaps and concerns from the previous models. This model attempts to address the disparity of the earlier models by bringing contextual issues and teachers’ agency into the teacher development process. Drawing from the large-scale qualitative research study of teachers in Abu Dhabi, they formulate a diagram to illustrate the phases of professional development as a whole process. The stages are (1) intended, (2) received, (3) accepted, (4) applied, and (5) student’s impact. The unique features in this model are in the first three stages, which do not appear in the other models proposed before. They claim that their model unravels the real situation in which the PD progresses. As illustrated in the diagram, the filter on each phase indicates that the intended/expectation of PD does not always conform with the result of the teacher’s learning or the teacher’s growth, let alone the students’ impact as the end goal.

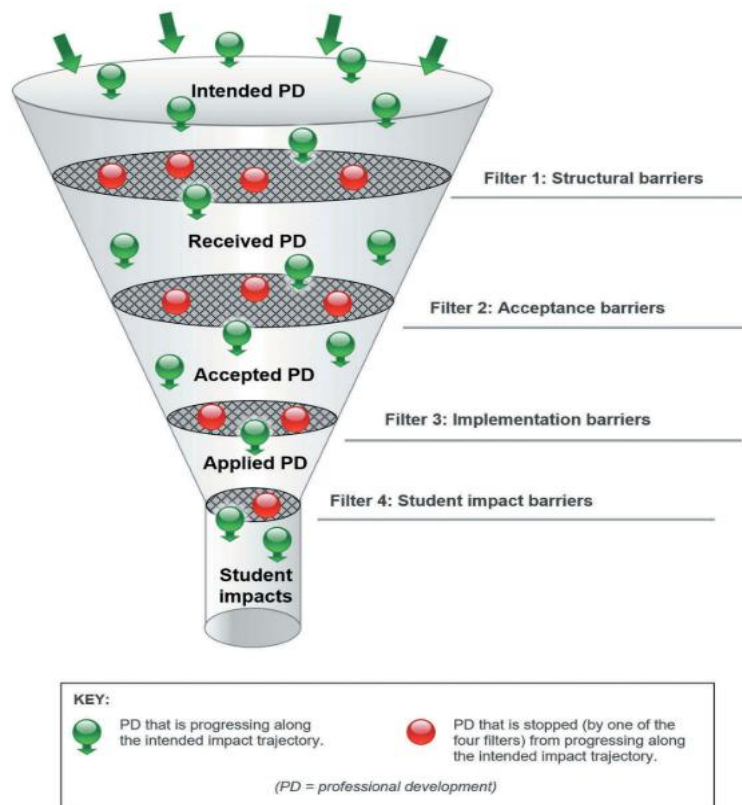


Figure 11. Conceptual model of the professional development-to-impact trajectory and the filters restricting progression through the intended trajectory. Taken from: (McChesney & Aldridge, 2019, p. 9)

McChesney and Aldridge (2019, p. 13) argue that “the model proposed is based on data that reflect teacher’s perception on their professional development which shows *what actually happens* in regards to impact, unlike the past model which draws from the ideal conception of *what we think should happen*”. The study also acknowledges what gets in the way or barriers that might hinder the progression of PD activities, which other models have failed to address. It further elaborates on the barriers, among others, structural, acceptance, implementation, and student impact barriers. These barriers significantly influence the intended, received, accepted, and applied professional development. Drawn from the model indicates that through all the phases, ultimately at the last stage, not all the *applied* professional development resulted in *student impact*.

This section explores the models of professional development to bring change to teachers’ knowledge, attitudes, and beliefs. Prominent researchers have proposed models on how professional development can lead to change for teachers over the past decades. Elements, components, or domains are analysed to explain how professional learning takes place and how change is expected as the outcome for both the teacher and the students.

The various models elaborated on above concern the status of the TPE, which started as a professional learning activity for two weeks to two months, with the programme evaluation changes taking place by shifting the model of the credit-bearing system (Chang, et al., 2014; The World Bank, 2015). Considering that this study is a cross-sectional study of a professional development programme and an initial teacher education programme, it is necessary to examine the other elements of external policy influence to assess the effectiveness of the TPE from the stakeholders' perspectives.

Teacher Professional Education (TPE) in Indonesia

Following the recommendation of the international bodies on improving the quality of teachers and education in general, TPE in Indonesia was conducted to have a longer duration of training, a better structure in curriculum and, most importantly, to provide a learning experience that connects theory to practice by designing school placement as part of the learning (Chang et al., 2014; Schleicher, 2011). Therefore, the TPE programme in Indonesia was designed for in-service teachers to improve their competencies in three phases: online independent learning, face-to-face workshops which focus on pedagogical content knowledge, and school placement. These stages of learning attempt to expose the in-service teachers to a more comprehensive professional education to improve their quality. As previously explained in Chapter 2, Context of The Study chapter, the 2018 TPE programme underwent significant changes of design, curriculum and implementation, in comparison the previous model of TPE. This 2018 model was continued up to date with some adjustment during the COVID-19 period. For that reason, this research focus on the 2018 TPE model.

Online Learning

The rapid growth of online learning in higher education shows that the concept of either fully online or blended learning is an accepted norm of education in the digital era; therefore, online pedagogy as a key role of online learning merits greater attention (Dziuban et al., 2018; Shea et al., 2022). Blended learning, which combines online learning elements and traditional face-to-face sessions, has been utilised in education programmes worldwide (Keengwe & Onchwari, 2020; Tømte et al., 2015). While the face-to-face blended model is no different from conventional teaching and learning, the online learning elements, as many researchers found, can be both challenging and impactful from different perspectives (Brennan & Gorman, 2023; Gorman & Hall, 2023; Greenhow et al., 2022;

Landrum et al., 2021; Wallace, 2003; Wong, 2020). It is widely acknowledged that online learning provides many advantageous aspects in the education sector, such as cost-effectiveness and time effectiveness, the practicality of learning, and the inclusivity that online learning could facilitate (Sahlberg, 2021a; Tate & Warschauer, 2022). From the learners' perspectives, in particular, online courses provide flexibility and agency in terms of the pace of learning (Platt et al., 2014). As well as the benefits, there are also constraints embedded in online learning; apart from access to technology and availability of connectivity, fundamental challenges of online learning centre around the fact that “students not only need to learn a subject online but also need to learn how to learn online” (Lowes & Lin, 2015, p. 18). The authors make the related point that self-regulation is particularly crucial in the online setting. Being engaged and having good time management skills, knowing and understanding that distance and monitoring in an online context differ from the conventional learning session.

Pedagogical and Content Knowledge

Based on the OECD survey result (Schleicher, 2011), key aspects of teaching and learning to improve learning, among others, are 1) teachers' content knowledge, 2) teacher pedagogical knowledge, 3) effective classroom management, 4) differentiated learning, and 5) effective teacher appraisal. International studies strongly support the arguments that teachers' subject-specific content knowledge contributes to effective instruction (Blömeke et al., 2022; Fauth et al., 2019; Gore & Rosser, 2020; Shulman, 2013). The main objective of the TPE is ultimately to improve teachers' competencies in pedagogical content knowledge, which is conducted in the face-to-face workshop session. Therefore, the training focuses on using their content mastery and pedagogical knowledge in teaching by developing a lesson plan, designing teaching media, and peer teaching. The positive impact of training that focuses on content was shown by Desimone and Pak (2017), who state that content-focused training improves teachers' subject-specific content knowledge, eventually impacting students' performance. In addition, Gore and Rosser (2020, p. 9) reinforce three aspects of effective training that focus on pedagogical knowledge, “It changed their beliefs and practices, enhanced collegiality and fostered ongoing professional collaboration”. These positive traits of balancing pedagogical and content knowledge in teacher upgrading activities have long been researched as characteristics of effective programmes to improve teaching quality (König et al., 2023; Sokel, 2019).

School Placement

The teacher preparation programmes worldwide design teaching practicum or school placement as an integral part of the programme (Portman & Rass, 2019; Russell & Martin, 2016). Moreover, the benefits of teaching practicum for teacher education programmes are widely discussed in the literature as a means of connecting the theory to practice for teachers' professional development (Lithoxoidou & Georgiadou, 2023; Portman & Rass, 2019; Thompson & Schademan, 2019). In addition, school placement provides an opportunity to educate future teachers and change the paradigm about the role of teachers by being present in the actual classroom (Zeichner, 2010). The body of literature on teaching practicum also emphasises the importance of field experience, mentoring, partnership, autonomy, and agency in teacher education associated with teaching practicum or school placement (Clarke et al., 2014; Keiler et al., 2023; Rickard & Walsh, 2019). Nevertheless, despite the vast array of literature and research in the area of school placement, Thompson and Scademan (2019, p. 1) highlight the fact that "the central role that field experience plays in teacher preparation programmes vary widely, and the elements of what makes a strong field experience are not always well understood."

Quality in Education and Complexity of Teacher Education

The term 'quality' is contested in education. An extensive body of research shows that the term is closely related to teachers, teaching, teacher education, and accountability agendas (Darling-Hammond, 2020, 2021; Hanushek & Wößmann, 2007). In many education reform agendas across the globe, policymakers have widely used quality as the ultimate goal to improve educational performance as part of the accountability measures of a nation. For the past three decades, prominent figures in educational research and international bodies have extensively explored and researched quality issues. It is reported in many research studies that the quality of a nation's human index confirms the quality of education (Ehren & Baxter, 2021; Snyder, 2013; The World Bank, 2020b).

This section will explore the issues of teacher quality, teaching quality, teacher education quality, and accountability in the education reform agenda. Studies in many countries reveal that the problems of quality in education and student performance serve the main objectives of the reform, which heavily focuses on the quality of teachers that impact students' performance (Akiba et al., 2007; Cochran-Smith, 2021a; Naylor & Sayed, 2014). The discussion will also include the notion of quality of teaching instead of the quality of teachers and what constitutes teacher education accountability in the teaching

reform agenda. In the analysis of international literature, the debates about the quality of teaching and teachers are substantially examined. Yet, limited research addresses the quality of teacher preparation or teacher education programmes (Darling-Hammond, 2020; Ludlow et al., 2010; Russell & Martin, 2016). To serve this purpose, the discussion will explore Indonesia's TPE programme for in-service teachers.

Complex Context of Teacher Quality, Teaching Quality, and Teacher Education Quality

It is essential to distinguish the notions of teacher quality and the quality of teaching which have been the primary foci in the education policy debate and widely researched in the past three decades. Prominent researchers in teaching and teacher education elaborate further that the term 'quality' carries multiple meanings depending on how and who uses it, i.e. whether in the academic or political context (Cochran-Smith et al., 2013; Darling-Hammond, 2021; Hammerness & Klette, 2015). For school administration, for instance, quality could refer to performance in the classroom, which influences students' learning. For researchers, the term relates to effectiveness in teaching that influences students' competence. As for education policymakers, quality is regarded as accountability, shaping the policy of licensing and continuous professional development that impacts the regulation and management of teachers (Cochran-Smith & Zeichner, 2005; Darling-Hammond, 2009; Naylor & Sayed, 2014). The ongoing debates are on what constitutes quality in teaching and teacher quality (Darling-Hammond, 2009), the relation of teaching quality with student outcomes (Naylor & Sayed, 2014; Ro, 2020), and teacher education quality as a policy issue (Barnes & Cross, 2020; Cochran-Smith, 2021b). Furthermore, Sayed and Ahmed's (2014) research concerning global education quality discourse raises concerns about the need for a broader conceptualisation of quality, not reducing the meaning solely to literacy and numeracy measures. In countries such as Indonesia, the focus on quality teaching has been one of the driving forces of teacher reform policy for almost two decades, manifesting in the teacher certification programme and teacher professional education programme (Jalal et al., 2009; Suryadarma, 2011). Although the quality of teachers and the quality of teaching are agreed as key determinants of student learning outcomes (Nilsen & Gustafsson, 2016; Schleicher, 2011), it is challenging to measure and empirically understand the relationship between teacher quality, instructional quality, and student outcomes.

Despite the contentious conception of quality, its definition, how it is measured, and issues on improving quality (Bell & Youngs, 2011; Cochran-Smith et al., 2012; Olsen, 2021; Rice, 2006), researchers link the term teacher quality to teacher's attributes and traits, skills, and dispositions, which shape the teacher's teaching in the classroom. These qualities might include a teacher's credentials or academic qualification, strong content knowledge and pedagogy mastery, and teaching experiences that are associated with the capability to improve students' achievement (Cochran-Smith et al., 2018; Darling-Hammond, 2009). In this regard, excellent student achievement in international assessments, such as the PISA, is a reference and benchmark model of successful education. The countries with the highest achiever ranking are being mimicked for their successful curriculum model, teacher management, and teacher education programmes (Andrews et al., 2012; Tonga et al., 2019). For that reason, in many nations' education reform agendas, improving teacher quality is the main objective. High-quality teachers are highly sought after to improve education performance. Extensive research on characteristics of teacher quality or teacher effectiveness found that several qualities are considered key determinants and vital to student learning, such as: "teacher knowledge, teacher behaviours, and teacher experience" (Burroughs, 2019, p. 8), and further detailed by Darling-Hammond (2009) which include general intelligence, strong content knowledge, and pedagogy as well as understanding student learning. Furthermore, a report by OECD (2005) derived teachers' characteristics, among others, as skilled in conveying ideas, an enthusiast, and, most importantly, working with a colleague in the professional learning community. Despite many conceptions of teacher quality, Cochran-Smith (2021a, p. 8) asserts that "teacher quality does not have a unitary meaning, that there are multiple stakeholders who often have ideas that diverge dramatically from one another, and that constructions of teacher quality are multi-layered, complex, and shifting over time".

Teaching quality, on the other hand, is associated with strong instructional quality, or the ability of teachers to meet the demands of their teaching context, whether the context is about the student's level of education, diversity in the classroom and its dynamic, or any particular context that requires a different action. Darling-Hammond (2009) argues that the high quality of teachers might elevate teaching quality. However, context and condition of instruction are vital in this attempt to improve teaching quality. Teaching quality and effectiveness in recent years have been measured by student learning and student achievement. According to some researchers (Akiba & Liang, 2016; Garrouste & Le Saout, 2020; Harris & Sass, 2011), taking students' achievement into account for teacher

competence is problematic. Student's learning is influenced by many factors, including personal motivation, peer interaction, socioeconomic resources, and school context, in addition to teachers' skill and knowledge, beliefs and values of teaching (OECD, 2005, 2009a). Furthermore, the classroom is the smallest unit of the education system, which is very complex, and its dynamic influence significantly on students' performance. Therefore, relying on students' evaluation results to determine teaching quality or the quality of teachers does not capture the complexity of teaching and the complex concept of quality itself (Russell & Martin, 2016). Instead, it is paramount to determine the quality of teaching by considering the school work environment and support system for improving teaching quality rather than focusing only on the quality of teachers.

To improve students' performance by upgrading the quality of teachers, countries around the globe enact education reform policy which includes teacher education reform (Barnes & Cross, 2021; Delandshere & Petrosky, 2004; Wang et al., 2010). A large body of research on teacher education reveals a strong connection between the quality of teacher education programmes and the quality of teaching (Cochran-Smith & Zeichner, 2005; Darling-Hammond, 2017; Tatto, 2021), the complex concept of quality in teacher education (Barnes & Cross, 2021; Russell & Martin, 2016) and the accountability of teacher education (Cochran-Smith, 2021b; Cochran-Smith et al., 2020; Darling-Hammond, 2020). As the concept of quality varied from the perspectives of the stakeholders, similar to teaching quality and teacher quality, the notion of teacher education quality has been highly politicised (Barnes & Cross, 2020; Cochran-Smith et al., 2013). Russel and Martin (2016, p. 176) argue that

Quality is an elusive construct because there is no single definition that can apply universally to the teacher education practicum, teacher education classrooms and lecture halls, and relationships among individuals in roles as diverse as students and mentor teachers in schools, faculty supervisors who move between schools and universities, and teacher educators in colleges and universities. There is no single recipe for quality in a domain as complex as teacher education.

Therefore, to understand the complexity of quality in teacher education programmes, their study suggests the importance of acknowledging the voice of stakeholders' beliefs, attitudes, dispositions, and prior experiences, which comprises teacher candidates, mentor teachers, faculty supervisors, and teacher educators. They affirm that giving a voice to teacher education stakeholders will provide valuable insight to improve quality.

Since teacher education plays a vital role in shaping the quality of teacher and their teaching, the teacher reform policy includes close attention to teacher education programme quality (Mayer, 2021b). The main objective of the teacher education programme is to prepare teachers to teach students the knowledge and skills needed to adapt to global society. Therefore, teacher education programmes need to cater to all needs to prepare students from different backgrounds, cultures, abilities, and socioeconomic positions. A longitudinal study survey of the SETE project (Mayer et al., 2015, p. 158) identifies common characteristics of a strong teacher education programme: 1) having high-quality teacher educators, 2) incorporating effective teaching practicum experiences, 3) consisting of small tutorial classes, 4) imposing a practical assessment and class activities, 5) establishing strong linking of theory to practice, 6) advocating active learning and peer work activities and 6) carrying out teaching approaches that focus on practical hands-on pedagogy. As for popular belief about the complex concept of how to measure quality in teacher education, scholars urge further research on the “relationship quality teaching, students’ performance, and teacher learning” (Wang et al., 2011, p. 336). Whereas, a brief by the US National Education Policy Centre in ‘holding teacher preparation accountable’ reports that “the key to teacher education reform is accountability in the form of public assessment, rating, and ranking of states, institutions, programmes, and/or teacher candidates” (Cochran-Smith et al., 2016, p. 3).

The Complexity of Measuring Teacher Education Programme Effectiveness

Concern over the quality or effectiveness of teacher education programmes to improve the quality of a nation through upgrading teachers’ competencies has been researched over the past few decades (Cochran-Smith & Zeichner, 2005; Coggsall et al., 2012; Rowan et al., 2015) and in recent years, gained more attention as global comparative education testing significantly influences education policy and reform. The key point is to acquire whether the teacher education programme demonstrates evidence of impact on students’ learning (Ell et al., 2018; Tatto, 2021). Attempts have been made in many countries to measure the linear and causal relationship between teacher education programmes and students' learning using standardised testing.

To begin the discussion of characteristics of what constitutes an effective teacher education programme, Rauschenberger (2017) proposes key features presented by the work of Darling-Hammond (2006a) and Hammerness (2013) as a starting point. Darling-

Hammond elaborates on seven tenets of an effective teacher education programme, including:

1	The vision of good teaching	A common, clear vision of good teaching that permeates all coursework and clinical experiences, creating a coherent set of learning experiences
2	Standard of professional practice	Well-defined standards of professional practice and performance that are used to guide and evaluate coursework and clinical work
3	A strong core curriculum	A strong core curriculum taught in the context of practice and grounded in knowledge of child and adolescent development and learning, and understanding of social and cultural contexts, curriculum, assessment, and subject matter pedagogy
4	Clinical experiences	Extended clinical experiences—at least 30 weeks of supervised practicum and student teaching opportunities in each programme—that are carefully chosen to support the ideas presented in simultaneous, closely interwoven coursework
5	Active learning pedagogy	Extensive use of case methods, teacher research, performance assessments, and portfolio evaluation that apply to learning real problems of practice
6	Belief and Values	Explicit strategies to help students to confront their own deep-seated beliefs and assumptions about learning and students and to learn about the experiences of people different from themselves
7	Institution strong partnership	Strong relationships, common knowledge, and shared beliefs among school- and university-based faculty jointly engaged in transforming teaching, schooling, and teacher education

(Darling-Hammond, 2006b, pp. 305–306)

Meanwhile, in the context of teacher education programme in Norway, Hammerness (2013, p. 400) recommends three key features of an effective teacher education programme, among others: (1) to promote a clear vision of teachers and teaching; (2)

coherent, reflecting a shared understanding of teaching and learning; and (3) built around a strong core curriculum that is highly connected to actual teaching practice. Further research by Hammerness and Klette (2015) on a comparative study using the above three key features to explore the quality in 5 countries and 8 teacher education programmes: Cuba, Chile, Finland, Norway, and the United States, strengthens the claim that the key features utilised in this study are well-supported.

International literature on research in teacher education also includes common measurements of quality in teacher education programmes based on understanding the characteristics of effective teacher education programmes. According to Cochran-Smith (2001), the three ways of considered outcomes of teacher education, among others, are: 1) professional performance of teacher candidates; 2) teacher test score; 3) impacts on teaching practice and student learning. Therefore, comprehensive research on teacher preparation evaluation by Feuer et al. (2013) propose six key points of evidence to measure the quality of teacher education programmes, including 1) admission and recruitment criteria, 2) quality and substance of instruction, 3) quality of student teaching experience, 4) faculty qualifications, 5) effectiveness in preparing new teachers who are employable and stay in the field, and 6) success in preparing high-quality teachers. Despite the measurement criteria outlined above, Feuer et al. also highlight that each area has strengths and weaknesses.

The challenges of measuring the quality of teacher education programmes are notably due to “how to conceptualise, operationalise, and measure outcomes in teacher education programmes” (Rauschenberger et al., 2017, p. 25) and the complication of collection, interpretation, and management of data. According to previous studies, measuring or evaluating teacher education programme effectiveness was primarily conducted in small-scale, practice-based, and reflective practice, and future research calls for longitudinal, institutional, or national scale-based research which involved a large number of participants (Darling-Hammond, 2006a; Mayer & Oancea, 2021; Menter et al., 2010) to enrich the international research discourse of teacher education programme quality. However, relevant literature also suggests a far more in-depth analysis of how effectiveness is defined and articulated by key teacher education stakeholders and what constitutes evidence of effectiveness in teacher education programmes required by policymakers for accountability mechanisms (Darling-Hammond, 2006a; Mayer et al., 2017).

Equity and Teacher Education Policy

The report from the OECD on the PISA 2018 result raises an issue of Equity in Education, which is central to equal learning opportunities, but more importantly, focuses on the aspects students have no control over, such as socioeconomic or social circumstances that hinder their learning (OECD, 2018). The issues of equity in education have been long discussed in the literature (Burke & Whitty, 2018; Cochran-Smith, 2020; Kaur, 2012) and are currently in the spotlight for a better improvement of equity in education, specifically in teaching and teacher education (Cochran-Smith, 2023; Cochran-Smith & Keefe, 2022; Dismuke & Snow-Gerono, 2024). Equity issues in education, such as gender, socio-cultural background, economic disadvantage, and minority groups, should be the policy focus to improve education performance (OECD, 2019a). Cochran-Smith and Keefe (2022) argue that there is a strong need to reposition teacher education for change by addressing issues of inequity or promoting equity, not only as awareness but also as an action for implementation. The concepts of ‘thin’ and ‘strong’ equity in education (Cochran-Smith, 2020) frame equity as a non-singular and simple concept. It is a complex context in education in which ‘thin equity’ has to do with individual access to education and ‘strong equity’ refers to “the complex and intersecting historical, economic, and social systems that create inequalities in access to teacher quality in the first place” (Cochran-Smith & Keefe, 2022, p. 19).

As elaborated in the body literature of educational research, the notion of teacher quality and quality of teaching has been the focus of the education reform agenda in many countries in the world (Cheng et al., 2004; Mok, 2006; Wang et al., 2010), and teacher education programmes have been perceived as a policy problem that requires fixing and aligning with the government's priorities (Cochran-Smith, 2005; Cochran-Smith & Zeichner, 2005; Mayer, 2021b). Cochran-Smith (2017, p. 1) states, “‘holding teacher education accountable’ has been the major approach to reforming teacher education” in the US education system due to public scrutiny of the outcomes related to poor quality of teaching and declining student performance. She further asserts that greater accountability would escalate the quality of teacher education, which further heavily influences the teacher quality and teaching performance and eventually improves students’ achievement. In the current study on teacher education, however, Darling-Hammond (2020, p. 60) states that the concept of accountability in teacher education, or a quality assurance system to ensure high-quality teacher education, is still challenging to ratify. Findings of longitudinal research on the study of effectiveness in teacher education (SETE) in Australia further

advocate the researchers to challenge the conception of effectiveness in teacher education and what counts as evidence of effectiveness in teacher education which many times used to inform the design of policy for teacher education programme (Mayer, 2021b). The fact that policy in teacher education is lacking in using teacher education research to back up evidence requirement of accountability purposes, Mayer and Mills (2020) argue that the evidence required for accountability is not just teacher education itself but also evidence of teacher education's effectiveness, which is measured by retention, attrition, and employment rates. Thus, they assert that policy in teacher education should be firmly based on research in teacher education to provide a sound foundation.

Isomorphism and Global Teacher Education Phenomenon

Successful education practices in certain countries have become a point of reference that encourages other countries to borrow these practices by imitating, adopting, adapting, or any other way of implementing them locally (Sahlberg, 2021b; Sahlberg et al., 2017; Tonga et al., 2019). The attempt to create a similar programme to replicate others that have been successfully implemented has spread out globally as a 'reform' agenda (Anderson-Levitt, 2003; Andrews et al., 2017). Several studies in education reform found several countries, for instance, Nigeria (Ogwuiké & Ogenyi, 2022) and Indonesia (Hwa & Pritchett, 2021; Usman & Kurniasih, 2019) attempted to improve the quality of their teachers by implementing teacher quality improvement models similar to the ones in high-achiever countries, such as Singapore and Finland, with less effective results (Darling-Hamond, 2017a). In addition, similar educational reform implementation which is found in many countries, covers decentralised education systems, education accountability, quality assurance, performance-based assessment for teachers and students, and standardisation as well as certification/licensing (Letendre et al., 2001). The borrowed term from Mathematics to describe this global trend of institutions attempting to follow the steps of others is called Institutional 'isomorphism' (DiMaggio & Powell, 2015) or 'isomorphic mimicry' (Pritchett et al., 2013).

The term isomorphism in the organisational stance is described as the attempt to reproduce the outer appearance to look similar to the successful one in the field (Hwa & Pritchett, 2021) with the idea of borrowing or best practice. Duberley et al. (2012) elaborate on the four aspects of isomorphic learning from the organisational management's perspective (Toft & Reynolds, 2005) which includes event isomorphism (separate incidents, identical hazards), cross-organisational isomorphism (different

organisations, same sector), common mode isomorphism (different sectors, similar processes), and self-isomorphism (sub-units operating in similar ways). In the education sector, some of this pattern is evident in the label of teacher reform in many countries., such as teacher licensing in the US (Darling-Hammond, 2017) and teacher registration and certification in Australia (Barnes & Cross, 2020; Mayer, 2021a), which also impacts on the teacher education programme.

The literature on teacher education research and its measure for accountability undoubtedly has been a concern for education policymakers worldwide (Cochran-Smith et al., 2018; Darling-Hammond, 2020; Ehren & Baxter, 2021; Oon et al., 2019). A substantial body of literature on teacher education evaluation was drawn from the US education system and many other developed countries, such as Australia and Singapore, where political and socio-cultural contexts differ greatly from those in Indonesia. For one reason, extensive research in teacher education in developed countries has been the 'lighthouse' for other countries to follow the steps. In addition, the large-scale research enables other countries to attempt to adopt and adapt what suits the needs of their respective countries. This phenomenon is called isomorphic mimicry, according to Pritchett et al. (2013), is a key "technique of successful failure." Isomorphic mimicry itself is "governments and organisations pretend to reform by changing what policies or organisations *look like* rather than what they *do*" (Andrews et al., 2012, p. 1), which further elaborated that to achieve the capability, weak states will need decades or even millennia to accomplish a similar result. This is due to neglecting the core underlying functionalities while pretending to implement reforms that appear to be similar to those implemented by successful countries (Pritchett et al., 2013).

Summary of Key Findings in Literature Review

This chapter follows closely the complexity theory and the ecological system theory as the theoretical framework of this study. It elaborates on the teacher education programme and teacher professional development programme in light of its complexity. It also delves into the complex context of teacher quality, teaching quality, and teacher education quality that has been a trend in the reform agenda worldwide. In addition, the notion of accountability and teacher education policy in standardisation, professional certification, and licensing was also discussed in-depth, culminating with the underlying foundation of the reform agenda phenomenon worldwide. The phenomenon is called 'isomorphism' or 'isomorphic mimicry' and has been a current trend, particularly in the

education sector (Akiba, 2013; Andrews et al., 2017; Astiz & Akiba, 2016; Sahlberg, 2021b), for instance, teacher recruitment, performance tests, and teacher certification/licensing.

The discussion is organised thematically around key ideas of prominent education experts to build a strong argument and formulate research designs and methodology to answer the research questions. The iterative process of literature review instead of linear review was one way to ensure that all parts of the study ‘communicate’ tightly.

The following chapter of this research will elaborate extensively on how the conceptual and theoretical framework underlining this research, i.e., Complexity Theory and the Ecological System Theory, come into play as the research process occurs. The Methodology chapter and the Finding chapter, in particular, will closely follow the five dimensions of Ecological System Theory, which explain the Microsystem, Mesosystem, Exosystem, Macrosystem, and Chronosystem and their relation to the phenomena under study.

Chapter 4 RESEARCH METHODOLOGY

Introduction

Conducting research in education and social science and constructing an appropriate methodology is a challenging and non-linear process. In my research, the Ecological System Theory (Bronfenbrenner, 1979) serves as a theoretical framework, along with Complexity Theory, to understand research problems in the Teacher Professional Education (TPE) programme. The previous chapters extensively elaborate on how the theoretical framework is applied to the topic under study.

This study aims to discover the extent of the TPE's effectiveness and impact on teachers' professional practice and development from the perspective of the TPE's primary stakeholders. Effectiveness in this research is gathered from the key stakeholder's perspective on the TPE's relational aspects and how they relate to or impact their teaching at school.

My Ontological and Epistemological Underpinning

Ontology and epistemology are essential foundations in framing research. Both ask questions about fundamental understanding and existence. According to Duberley et al. (2012, p. 17), "Ontology is a branch of philosophy dealing with the essence of phenomena and the nature of their existence." There are two different stances on social reality: first, objectivism ontology believes that a natural phenomenon exists out there whether we realise it or not; meanwhile, subjectivism ontological stance argues that "what we take to be social reality is a creation or projections of our consciousness and cognitions" (Duberley et al., 2012, p. 18). On the other hand, Snape and Spencer (2003) elaborate on ontology as the nature of the world and what we can know about it. They further assert three distinct ontological stances: realism, materialism, and idealism. Realism refers to a distinction between how the world is and the meaning and interpretation of that world held by individuals. At the same time, idealism speaks that reality is only knowable through the human mind and socially constructed meanings. Lastly, materialism points out the material and physical features that hold the real world. As a variant of idealism, Snape and Spencer (2003, p. 16) believe that relativism assent to "reality is only knowable through socially constructed meanings", which suits the ontological belief in this study, that is to see the

constructed meaning of the TPE's key stakeholders through the lens of multiple domains of Ecological System Theory and Complexity Theory.

Correspondingly, epistemology concerns what we mean by the concept of truth and how we can judge whether knowledge claims are true or false. Epistemological foundations include objectivism, constructionism, and subjectivism (Duberley et al., 2012). Further, the proponents of objectivism hold that "meaning, and therefore meaningful reality, exist as such apart from the operation of consciousness" (Crotty, 1998, p. 8). In addition, the constructionism epistemological stance views "meaning is not discovered, but constructed" (Crotty, 1998, p. 9). In other words, people might construct meanings differently based on the same phenomenon. In subjectivist epistemology, on the other hand, "meaning does not come out of an interplay between subject and object, but it is imposed on the object by the subject" (1998, p. 9).

As this study employs a case study research design, the voices of multiple key stakeholders in the TPE are a way to understand the meaning or truth of the phenomena. Thus, the constructionist epistemic belief is a guiding principle in my study. As asserted by Snape and Spencer (2003, p. 17), social studies research embodies an interpretivism epistemological stance in which "findings are inevitably influenced by the researcher's perspective and values, thus making it impossible to conduct objective, value-free research, although the researcher can declare and be transparent about his or her assumptions." Using the Ecological System Theory and Complexity Theory as a theoretical framework, the investigation centres around the dynamic, non-linear interaction of multiple domains of the Microsystem, Mesosystem, Exosystem, Macrosystem, and Chronosystem of the TPE design and implementation.

The Study: Research Paradigm, Qualitative Research, and Research Design

My ontological and epistemological stance inform the methodological approach of this research, which will be a qualitative study based on relativism (multiple constructed meanings) and constructivism (engagement with reality) (Denzin & Lincoln, 2005). This research will employ a qualitative, holistic case study design.

Qualitative Research

A qualitative research approach revolves around understanding people's lives in a real-world setting (Bryman, 2012; Creswell & Poth, 2018; Denzin & Lincoln, 2005). Further, Denzin and Lincoln (2005) elaborate that qualitative researchers try to understand

and interpret events in terms of meaning that individuals assign to them in their natural setting. The common characteristics of the qualitative research study are summed up by Creswell and Poth (2018) by the following: 1) natural setting, 2) the researcher as a key instrument, 3) multiple methods, 4) complex reasoning, 5) participants' multiple perspectives and meanings, 6) context-dependent, 7) emergent design, 8) reflexivity, and 9) holistic account. The essential of qualitative study is to empower people to share their voices and convey their stories in which events, actions, and meaning are bound by context.

Understanding the research problems and the characteristics of qualitative study, the researcher needs to identify the appropriate research approach to explore qualitative methods that will address the research focus and work to examine the research problems further. The former emphasises the research objectives, whereas the latter refers to the issues of concern that lead to a need to conduct the study. For instance, exploration research on a single individual to tell stories on their life experiences would opt for narrative research or ethnography; meanwhile, a study to understand the essence of lived experience and their perspective of the phenomenon would employ phenomenology research. Thus, five approaches of the qualitative study presented as a guiding principle to find what best fit to examine the issues are narrative research, phenomenological research, grounded theory research, ethnography research, and case study research to assist the study to fit the research needs (Creswell & Poth, 2018; Yin, 2016). The five approaches are not limited since other creative qualitative methodology variants are commonly used, such as action research, critical theory, oral history, etc.

This study's primary focus is on the perceptions of the key stakeholders of the TPE programme in Indonesia. The voice of the key stakeholders is essential in this study to unravel the effectiveness of the TPE programme and its impact on their professional practice. A previous study utilising a mixed-method survey of the effectiveness of teacher education programmes in Australia (Mayer et al., 2017) centred on graduate teachers' perception of their preparedness for teaching. In addition, it also delves into the school principals' perception of the graduate teacher's effectiveness apart from the quantitative aspects of the study. From their study, Mayer et al. (2017, p. 31), opine that

perception is not the passive receipt of information but can be shaped by learning, memory, and expectation. Perception involves 'top-down' effects such as a person's knowledge, motivations, and expectations that influence perception and the 'bottom-up' processing of low-level information through the senses used to build up higher-level thinking.

Further, they argued that “perception of effectiveness can mediate by whom the perceiver is talking to, who else is present, or who will see the result,’ which could impact the ‘validity’ of the result” (2017, p. 32). Considering that the context under research requires an in-depth investigation of the participants’ perceptions, qualitative research is employed for this study to answer the research questions.

To answer this study's research questions, a qualitative research method is employed to investigate the perspectives of key stakeholders, including in-service teachers, HEI teacher educators, cooperating teachers, school principals, and TPE management, on the effectiveness of TPE in improving teachers' professional practice. Through in-depth interviews as the primary data collection technique and the researcher’s reflective journal, this study is expected to untie the knots of the complexity and dynamic nature of teacher professional education programmes in Indonesia.

Case Study Approach

This study seeks to explore the implementation of the TPE programme through the lens of the stakeholders’ perspectives on its effectiveness and impact on teachers’ professional practice. As educational research, it attempts to see the dynamic, interrelated system of the TPE programme from multiple groups’ perspectives to envisage its impact on teachers’ competencies and professional practice. The ultimate purpose is to understand the complex system of this programme and evaluate its effectiveness in improving the quality of in-service teachers. This study seeks an in-depth understanding of a phenomenon, which requires a qualitative approach for this educational research. Meanwhile, the case study approach in education research attempts to capture the context, the people, and the complexity of the phenomenon (Stake, 1995; Yin, 2018). Despite the most common qualitative study researchers employ, a case study is crucial in positively impacting educational policy and practice (Gerring, 2017; Hamilton & Corbett-Whittier, 2014).

Research Design

Research design is essentially a methodological plan for the researcher to map out the programme to get the answer to the problem raised. It is primarily concerned with the researchers’ work plan or, as Yin (2018, p. 60) elaborates, “Research design is as a

‘blueprint’ for your research, dealing with what questions to study, what data are relevant, what data to collect, and how to analyse the results.”

Table 2 The Relationships between research questions, data collection methods, and procedures for data analysis

Main Research Problem	Sub-Questions	Research Design and Data Collection
How do teachers perceive the Teacher Professional Education programme’s effectiveness in improving their competencies? Does it support their professional practice? If so, how? (Microsystem level)	The purpose of this study is to explore key stakeholders’ reflective experiences of the TPE’s learning stages and how it achieves the objectives.	<ul style="list-style-type: none"> • In-depth interviews of TPE key stakeholders.
How do the cooperating teachers, school principals, and HEI teacher educators view the TPE programme’s design and practice to support teachers’ learning? (Mesosystem-Institution level)	To explore the role and perspectives of HEI teacher educators, Cooperating teachers and school principals to support teachers’ learning	<ul style="list-style-type: none"> • In-depth interview <ol style="list-style-type: none"> a. HEI teacher educators b. Cooperating teachers, c. School principals
From the TPE management perspective, what challenges and obstacles inevitably develop as policies and practices are implemented? Exosystem	To evaluate the TPE, from the management’s perspective, about their role and how the policy and practice intertwined in the TPE implementation	<ul style="list-style-type: none"> • In-depth interview with the TPE management
In Indonesia’s complex teacher-professional education system, how do educational values and beliefs influence the implementation of the TPE programme? (Macrosystem and Chronosystem)	To understand the educational value and beliefs that influence the implementation of the TPE programme	TPE documents such as programme guidebook, regulations on TPE, etc.

Research in Action

Research Site and Participants

The researcher contacted five categories of participants to participate in this study to provide an in-depth analysis and a representation profile of the Ecological System Theory: in-service teachers as the TPE participants, Cooperating teachers, HEI teacher educators, School principals, and the TPE management. Data was collected at one HEI under the MoEC in 2021-2022. Given the study's potential scale, limiting the number of participants representing the samples is crucial. The participants were recruited based on the category mentioned earlier.

In-service teachers in the study are certified teachers with five to ten years of experience teaching numeracy, literacy, and natural science. They are teachers of Literacy, Mathematics, and Natural Sciences education. This requirement is essential to show that the teacher has already undergone the TPE during the 2018-2020 intake, passed the examination, and obtained teacher certification. Thus, it will be reasonable to explore these in-service teachers' perspectives of the TPE and its impact on their professional practice. The second participant category is HEI teacher educators. They are lecturers with the qualifications and credentials to teach in the TPE based on their subject expertise. Next, cooperating teachers in the category are the senior teachers appointed by the school principal's partner school. Their roles are to guide student teachers in the TPE programme during the school practice stage and to be the examiner during the performance examination. The school principal category is the school authority as a key stakeholder. Lastly, the TPE management category is the lecturers assigned to lead and manage the administration of the TPE programme. They run the administrative work, from scheduling, organising, and running the day-to-day programme to providing support for teaching and learning activities of the TPE.

The researcher used an in-depth semi-structured interview to investigate the research questions on the TPE programme's perspectives and experiences. Before the interview, the researcher explained the Plain Language Statement, and participants agreed to sign a consent form. The recorded interview with each participant took 50-60 minutes, and the protocol ensured data protection and that the DCU research ethics guidelines were followed.

On the sample size of qualitative research, Dworkin (2012, p. 1320) asserts that there is substantial debate on how many interviews should occur. Many considerations include "the quality of data, the scope of the study, the nature of the topic, the amount of useful

information obtained from each participant, the use of shadowed data, and the qualitative method and study design used.”

Participants profiles

TPE programme stakeholders greatly influence the running of the programme and its effectiveness. This research's qualitative convenient sampling aims to gather perspectives from the main stakeholders: in-service teachers, HEI teacher educators, cooperating teachers, school principals, and TPE management. The methodological framework, which covers the data collection method and analysis, has been extensively elaborated in the previous section of this chapter. Thus, this section presents the data demography of research participants and their brief profiles attained during the data gathering.

Table 3 Participant’s demography

	Profile	Institution	Gender	Subject Taught	Educational background
1	In-service Teacher 1	Private School	Male	Mathematics	Non-Teacher Ed
2	In-service Teacher 2	Private School	Male	Mathematics	Non-Teacher Ed
3	In-service Teacher 3	Private School	Female	Indonesian	Teacher Education
4	In-service Teacher 4	Private School	Female	English	Teacher Education
5	In-service Teacher 5	Private School	Male	Indonesian	Non-Teacher Ed
6	In-service Teacher 6	Private School	Female	Science	Non-Teacher Ed
7	In-service Teacher 7	Public School	Female	English	Non-Teacher Ed
8	In-service Teacher 8	Private School	Female	Science	Teacher Education
9	In-service Teacher 9	Private School	Female	Science	Teacher Education
10	Principal 1	Private School	Female	Indonesian	Teacher Education
11	Principal 2	Private School	Male	Science	Teacher Education
12	Principal 3	Private School	Male	Indonesian	Teacher Education
13	HEI teacher educator 1	University	Female	Science	Teacher Education
14	HEI teacher educator 2	University	Female	Science	Teacher Education
15	HEI teacher educator 3	University	Female	English	Non-Teacher Ed
16	HEI teacher educator 4	University	Female	English	Teacher Education
17	HEI teacher educator 5	University	Female	Indonesian	Teacher Education
18	HEI teacher educator 6	University	Female	Science	Teacher Education
19	Cooperating teacher 1	Private School	Female	Indonesian	Teacher Education
20	Cooperating teacher 2	Private School	Female	English	Teacher Education

21	Cooperating teacher 3	Private School	Female	English	Teacher Education
22	TPE Management 1	University	Male	Science	Teacher Education
23	TPE Management 2	University	Male	Science	Teacher Education
24	TPE Management 3	University	Female	Science	Teacher Education
25	TPE Management 4	University	Male	Indonesian	Non-Teacher Ed

Methods and Data Collection

For research instruments, Denscombe (2010) identifies four main instruments in social research: questionnaires, interviews, observations, and document analysis. The advantages and disadvantages of each instrument must be discerned in the research context. Constructivist underpinnings have influenced this research; therefore, a case study would fit this context to explore the possibility of using multiple data sources (Yin, 2018).

It is crucial to design the methodology in qualitative research in advance, including data collection techniques, data analysis, and data interpretation (Creswell & Creswell, 2018). This study uses interviews to generate data to respond to the research questions, which mainly focus on the TPE stakeholders' perspective on the programme's effectiveness and its impact on a teacher's professional practice. Interviews are a standard research instrument in a qualitative study as they allow for the exploration of social events and experiences in the lives of research participants (Bryman, 2012). Therefore, a semi-structured interview was employed to examine the perspectives of the TPE key stakeholders. Keeping the semi-structured interview will provide considerable flexibility and a positive rapport between the researcher and research participants during the interview. The interview questions are organised around topics relevant to the research questions.

The main research instrument used in this study is an in-depth semi-structured interview. A semi-structured interview is a qualitative research technique in which the interviewer has the freedom to explore specific themes or responses while also providing a pre-planned list of open-ended questions (Brinkmann, 2013). There were 25 key stakeholders as research participants in five different categories. The researcher followed the interview protocol as a guide to unravel the participants' perspectives on the TPE programme in their respective roles.

The interview was conducted in Bahasa Indonesia, in which the interviewer and the research participants are native speakers of the language. Using Bahasa Indonesia and the local language makes the interview process more relaxing for both parties. The context of

the talk requires a deep understanding and knowledge of the topic; therefore, the researcher anticipates a follow-up question to evoke long narratives for in-depth understanding. In-depth interviews allowed for the understanding of tone, gesture, and facial expression, and using the participant's natural setting ensured that the participant was at ease and comfortable during the interview process. For a better understanding of the content of the interview, the whole interview was transcribed verbatim and translated into English verbatim, and later, it was proofread for contextual purposes. The sentence structure was adjusted to conform with the English structure so that the utterances could be comprehended better.

Data Analysis

Transcription and Translation

The data collection gathered 25 research participants from five different categories. To immerse in the data, the researcher did all the transcription of the interview verbatim so that it could capture the nuance of the conversation. Since the interview was conducted in *Bahasa Indonesia* with a mix of research participants' native language and in informal and conversational settings, utterances sometimes were in incomplete sentences since the research participants assumed that the researcher understood the context of their saying. For that reason, the researcher did all the verbatim transcription by herself since the researcher plays a research instrument tool in qualitative research (Bailey, 2008; Pezalla et al., 2012). According to Bailey (2008), the transcription work is sometimes delegated to a research assistant or junior researcher, which could be a mistake when they are not adequately trained or briefed on the interview context. The transcription process involves manual work and consumes much time for repetitive listening; nevertheless, it was crucial to immerse data in the initial reflexive thematic analysis (RTA) stage. The transcribed interview script was done verbatim from Bahasa Indonesia to English. Later, the researcher proofread the translation result and restructured the sentences to conform to English for further analysis and better understanding. The whole translated script was then analysed and coded using NVIVO.

Data Triangulation in Qualitative Research

The data collection took place during the COVID-19 pandemic, which unexpectedly limited the scope of data collection. The MoEC halted the TPE for the face-to-face meeting in 2020, adhering to the mobility restrictions and social distancing. The complete online

training model has been maintained since 2020 until this report's findings are reported. Access to data is limited, such as classroom observation or gathering people for discussion, and in-depth one-to-one interviews must adhere to the social distancing regulation. Although the findings of this study have also sounded to expert colleagues who understand the context under study, nevertheless, the researcher considered the need to have a mechanism for ensuring validity or trustworthiness. Thus, the researcher used triangulation by using the data source.

Triangulation is an attempt to foster reliability and validity, which aim to ensure the trustworthiness of the research. Four triangulation methods are proposed: 1) data source, 2) investigator, 3) theory, and 4) methodology (Denzin, 2010; Denzin & Lincoln, 2005). This research collected data from five participant categories to answer the overarching research question of how the TPE improves teachers' competencies and professional practice from stakeholders' perspectives. Data source triangulation is involved "to gain multiple perspectives and validate data" (Carter et al., 2014, p. 545).

Cluster Analysis in NVIVO is an exploratory technique that can visualise project patterns by grouping sources or nodes that share similar word attribute values or are coded similarly by nodes. In this project, the cluster analysis uses the similarities of data sources and the Pearson correlation coefficient. It is explained that the similarity index displays a value that indicates the degree of similarity for each pair of items based on the similarity metric. Items with a high similarity index (maximum=1) show a substantial similarity and are displayed closely on the cluster analysis diagram (International, n.d.). The Pearson correlation coefficient indicates that the strength of the correlation is closer to +1. In other words, the data has reached data saturation for triangulation purposes. Studies on saturation in qualitative research show that qualitative research with empirical data in a homogenous population reached data saturation in 9-17 interviews (Boddy, 2016; Hagaman & Wutich, 2016; Hennink & Kaiser, 2022). It is essential to note that in qualitative research when enough data has been gathered to make crucial conclusions and the research process has reached data saturation, additional data collection will not yield insightful new information. For this research, the data triangulation using Cluster Analysis is calculated using NVIVO.

The following tables show the data source triangulation using NVIVO cluster analysis with the Pearson correlation coefficient index for each research participant category.

Table 4 Cluster analysis of in-service teachers' category

Code A	Code B	Pearson correlation coefficient
Cases\\People's Cases\\ In-Service Teacher 9	Cases\\People's Cases\\ In-Service Teacher 2	0.851174
Cases\\People's Cases\\ In-Service Teacher 8	Cases\\People's Cases\\ In-Service Teacher 2	0.849595
Cases\\People's Cases\\ In-Service Teacher 8	Cases\\People's Cases\\ In-Service Teacher 7	0.848498
Cases\\People's Cases\\ In-Service Teacher 8	Cases\\People's Cases\\ In-Service Teacher 6	0.847322
Cases\\People's Cases\\ In-Service Teacher 9	Cases\\People's Cases\\ In-Service Teacher 8	0.845345
Cases\\People's Cases\\ In-Service Teacher 6	Cases\\People's Cases\\ In-Service Teacher 4	0.845123
Cases\\People's Cases\\ In-Service Teacher 7	Cases\\People's Cases\\ In-Service Teacher 6	0.839577
Cases\\People's Cases\\ In-Service Teacher 2	Cases\\People's Cases\\ In-Service Teacher 1	0.827603
Cases\\People's Cases\\ In-Service Teacher 8	Cases\\People's Cases\\ In-Service Teacher 4	0.825896
Cases\\People's Cases\\ In-Service Teacher 9	Cases\\People's Cases\\ In-Service Teacher 7	0.825575
Cases\\People's Cases\\ In-Service Teacher 7	Cases\\People's Cases\\ In-Service Teacher 4	0.821733
Cases\\People's Cases\\ In-Service Teacher 4	Cases\\People's Cases\\ In-Service Teacher 2	0.819849
Cases\\People's Cases\\ In-Service Teacher 9	Cases\\People's Cases\\Teacher 5	0.818136
Cases\\People's Cases\\ In-Service Teacher 9	Cases\\People's Cases\\ In-Service Teacher 1	0.810045
Cases\\People's Cases\\ In-Service Teacher 7	Cases\\People's Cases\\ In-Service Teacher 2	0.808486

Cases\\People's Cases\\ In-Service Teacher 9	Cases\\People's Cases\\ In-Service Teacher 4	0.805656
Cases\\People's Cases\\ In-Service Teacher 5	Cases\\People's Cases\\ In-Service Teacher 2	0.802128
Cases\\People's Cases\\ In-Service Teacher 9	Cases\\People's Cases\\ In-Service Teacher 6	0.798663
Cases\\People's Cases\\ In-Service Teacher 6	Cases\\People's Cases\\ In-Service Teacher 2	0.795115
Cases\\People's Cases\\ In-Service Teacher 8	Cases\\People's Cases\\ In-Service Teacher 1	0.771692
Cases\\People's Cases\\ In-Service Teacher 5	Cases\\People's Cases\\ In-Service Teacher 1	0.764983
Cases\\People's Cases\\ In-Service Teacher 7	Cases\\People's Cases\\ In-Service Teacher 1	0.758535
Cases\\People's Cases\\ In-Service Teacher 8	Cases\\People's Cases\\ In-Service Teacher 5	0.753562
Cases\\People's Cases\\ In-Service Teacher 4	Cases\\People's Cases\\ In-Service Teacher 1	0.741445
Cases\\People's Cases\\ In-Service Teacher 7	Cases\\People's Cases\\ In-Service Teacher 5	0.729611
Cases\\People's Cases\\ In-Service Teacher 9	Cases\\People's Cases\\ In-Service Teacher 3	0.717467
Cases\\People's Cases\\ In-Service Teacher 3	Cases\\People's Cases\\ In-Service Teacher 2	0.713312
Cases\\People's Cases\\ In-Service Teacher 4	Cases\\People's Cases\\ In-Service Teacher 3	0.709722
Cases\\People's Cases\\ In-Service Teacher 5	Cases\\People's Cases\\ In-Service Teacher 4	0.7007
Cases\\People's Cases\\ In-Service Teacher 5	Cases\\People's Cases\\ In-Service Teacher 3	0.698768
Cases\\People's Cases\\ In-Service Teacher 8	Cases\\People's Cases\\ In-Service Teacher 3	0.698646

Cases\\People's Cases\\ In-Service Teacher 3	Cases\\People's Cases\\ In-Service Teacher 1	0.694314
Cases\\People's Cases\\ In-Service Teacher 6	Cases\\People's Cases\\ In-Service Teacher 1	0.692768
Cases\\People's Cases\\ In-Service Teacher 7	Cases\\People's Cases\\ In-Service Teacher 3	0.659884
Cases\\People's Cases\\ In-Service Teacher 6	Cases\\People's Cases\\ In-Service Teacher 5	0.659768
Cases\\People's Cases\\ In-Service Teacher 6	Cases\\People's Cases\\ In-Service Teacher 3	0.617537

Table 5 Cluster analysis of principal category

Code A	Code B	Pearson correlation coefficient
Cases\\People's Cases\\Principal 2	Cases\\People's Cases\\Principal 1	0.857203
Cases\\People's Cases\\Principal 3	Cases\\People's Cases\\Principal 2	0.854732
Cases\\People's Cases\\Principal 3	Cases\\People's Cases\\Principal 1	0.827919

Table 6 Cluster analysis of HEI teacher educators category

Code A	Code B	Pearson correlation coefficient
Cases\\People's Cases\\ HEI Teacher Educators 3	Cases\\People's Cases\\ HEI Teacher Educators 2	0.859312
Cases\\People's Cases\\ HEI Teacher Educators 5	Cases\\People's Cases\\ HEI Teacher Educators 4	0.83673
Cases\\People's Cases\\ HEI Teacher Educators 2	Cases\\People's Cases\\ HEI Teacher Educators 1	0.832945
Cases\\People's Cases\\ HEI Teacher Educators 6	Cases\\People's Cases\\ HEI Teacher Educators 1	0.832531
Cases\\People's Cases\\ HEI Teacher Educators 5	Cases\\People's Cases\\ HEI Teacher Educators 2	0.818065
Cases\\People's Cases\\ HEI Teacher Educators 4	Cases\\People's Cases\\ HEI Teacher Educators 2	0.812442
Cases\\People's Cases\\ HEI Teacher Educators 6	Cases\\People's Cases\\ HEI Teacher Educators 2	0.809948

Cases\\People's Cases\\ HEI Teacher Educators 4	Cases\\People's Cases\\ HEI Teacher Educators 3	0.803869
Cases\\People's Cases\\ HEI Teacher Educators 6	Cases\\People's Cases\\ HEI Teacher Educators 5	0.802995
Cases\\People's Cases\\ HEI Teacher Educators 6	Cases\\People's Cases\\ HEI Teacher Educators 4	0.801249
Cases\\People's Cases\\ HEI Teacher Educators 5	Cases\\People's Cases\\ HEI Teacher Educators 3	0.798469
Cases\\People's Cases\\ HEI Teacher Educators 4	Cases\\People's Cases\\ HEI Teacher Educators 1	0.797888
Cases\\People's Cases\\ HEI Teacher Educators 6	Cases\\People's Cases\\ HEI Teacher Educators 3	0.794892
Cases\\People's Cases\\ HEI Teacher Educators 3	Cases\\People's Cases\\ HEI Teacher Educators 1	0.778485
Cases\\People's Cases\\ HEI Teacher Educators 5	Cases\\People's Cases\\ HEI Teacher Educators 1	0.774828

Table 7 Cluster analysis of TPE management category

Code A	Code B	Pearson correlation coefficient
Cases\\People's Cases\\Management 3	Cases\\People's Cases\\Management 2	0.863141
Cases\\People's Cases\\Management 4	Cases\\People's Cases\\Management 2	0.777379
Cases\\People's Cases\\Management 4	Cases\\People's Cases\\Management 1	0.748631
Cases\\People's Cases\\Management 2	Cases\\People's Cases\\Management 1	0.734103
Cases\\People's Cases\\Management 3	Cases\\People's Cases\\Management 4	0.728763
Cases\\People's Cases\\Management 3	Cases\\People's Cases\\Management 1	0.61704

Table 8 Cluster analysis of cooperating teachers

Code A	Code B	Pearson correlation coefficient
Cases\\People's Cases\\cooperating teacher 3	Cases\\People's Cases\\ cooperating teacher 2	0.874594
Cases\\People's Cases\\ cooperating teacher 3	Cases\\People's Cases\\M cooperating teacher 1	0.781844
Cases\\People's Cases\\ cooperating teacher 2	Cases\\People's Cases\\ cooperating teacher 1	0.726057

Analysis of Reflexive Thematic Analysis (RTA) and NVIVO Audit Trail

The following section demonstrates the qualitative analysis using Reflexive Thematic Analysis (RTA), presented in the NVIVO audit trail. RTA is a qualitative data analysis approach that identifies and analyses patterns, giving the researcher flexibility and the opportunity to construct themes in a given data set (Braun & Clarke, 2012). Braun and Clarke (2019, p. 594) emphasise “the researcher’s reflective and thoughtful engagement with their data and their reflexive and thoughtful engagement with the analytic process.” In other words, RTA encourages the researcher to embrace reflexivity and keep the analytical process of constructing themes as principles instead of finding themes emerging from the dataset. According to Bryne (2022), three aspects differentiate RTA from other approaches in thematic analysis: 1) coding reliability thematic analysis, 2) codebook approaches to TA, and 3) the reflexive approach to TA. In working with the data analysis of this research, the process follows six phases of RTA (Braun & Clarke, 2022). The phases explained in the following flowchart illustrate how each stage was done in RTA using NVIVO and how it is empirically presented in the findings chapter. The flowchart shows the comparison of stages in thematic analysis (Braun & Clarke, 2006) and reflexive thematic analysis (Braun & Clarke, 2020). To reiterate, each stage implemented in this section will be illustrated as follows:

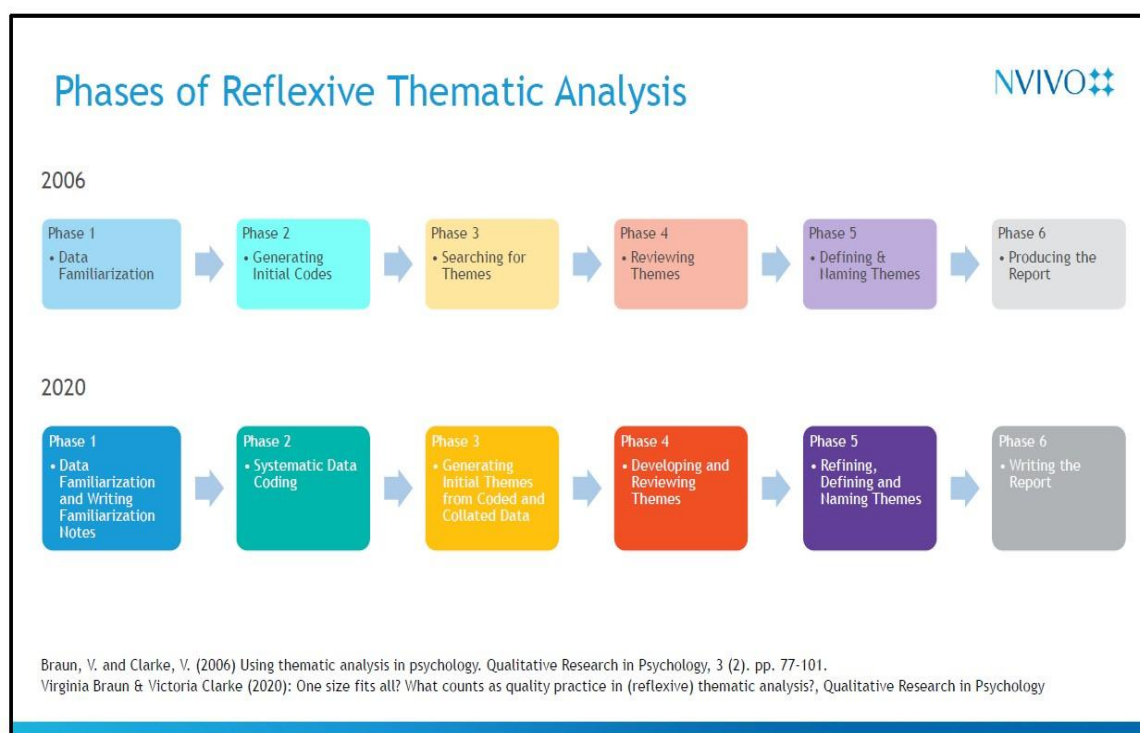


Figure 12. Reflexive Thematic Analysis in Action (Braun & Clarke, 2020). Taken from QDA Training Ireland (with permission)

Phase 1 of data familiarisation covers active reading of literature, verbatim transcription, verbatim translation from native Bahasa Indonesia to English, and comprehensive translations that capture the nuance of the interview and context of the topic. Using an inductive qualitative data analysis approach, the researcher spent the most time ensuring accuracy by familiarising with the data. During data familiarisation, the researcher creates a memo documenting every step in data processing and analysis. Familiarising with the data, the researcher also annotates utterances and phrases to provide context and meaning to their utterances, shift or area of focus, and, most importantly, record the researcher's thought processes and reflection. This memo and annotation set down comments and observations for the reader to understand the context and follow the researcher's main points. The following note captured the researchers' active, reflective journal on each stage using NVIVO. The first screenshot is the transcribing and translation process of a semi-structured interview, from the making meaning from Bahasa Indonesia to English. The second screenshot demonstrated the journaling of decisions made during the second translation cycle in English. There are other notes made during the initial thought of data analysis in phase 1, which justify the decision-making.

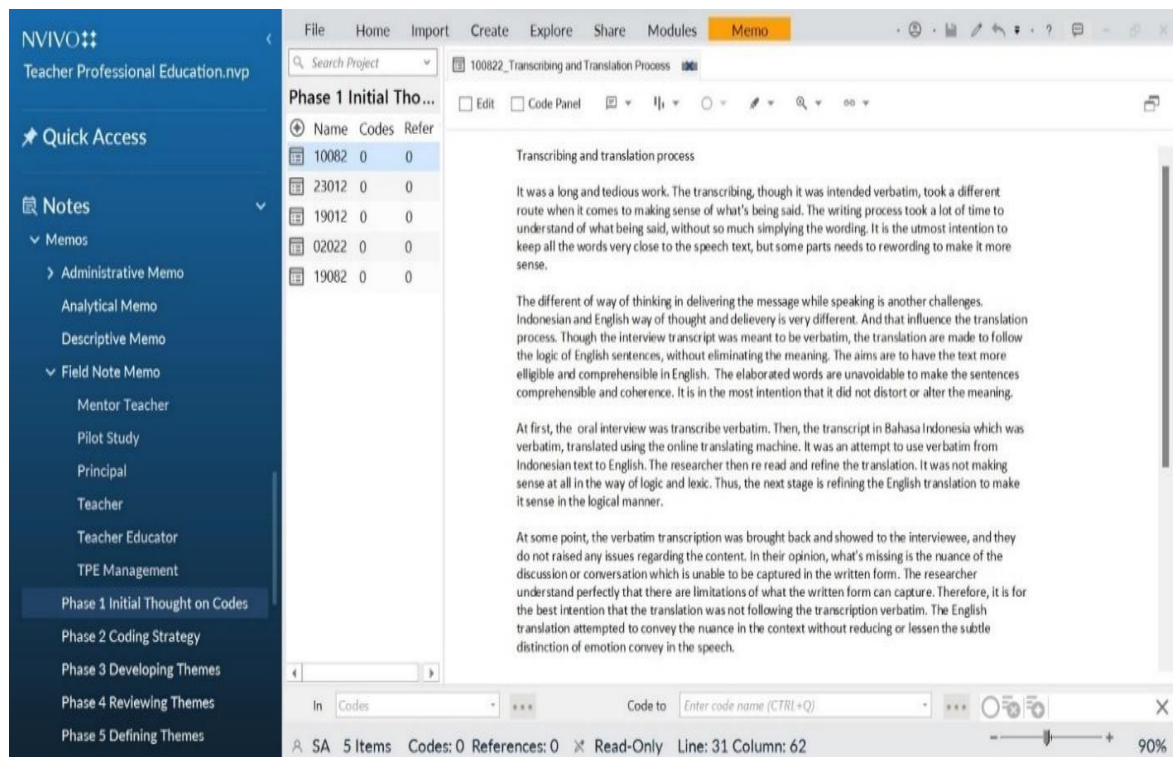


Figure 13. Memo about the transcribing and translation process

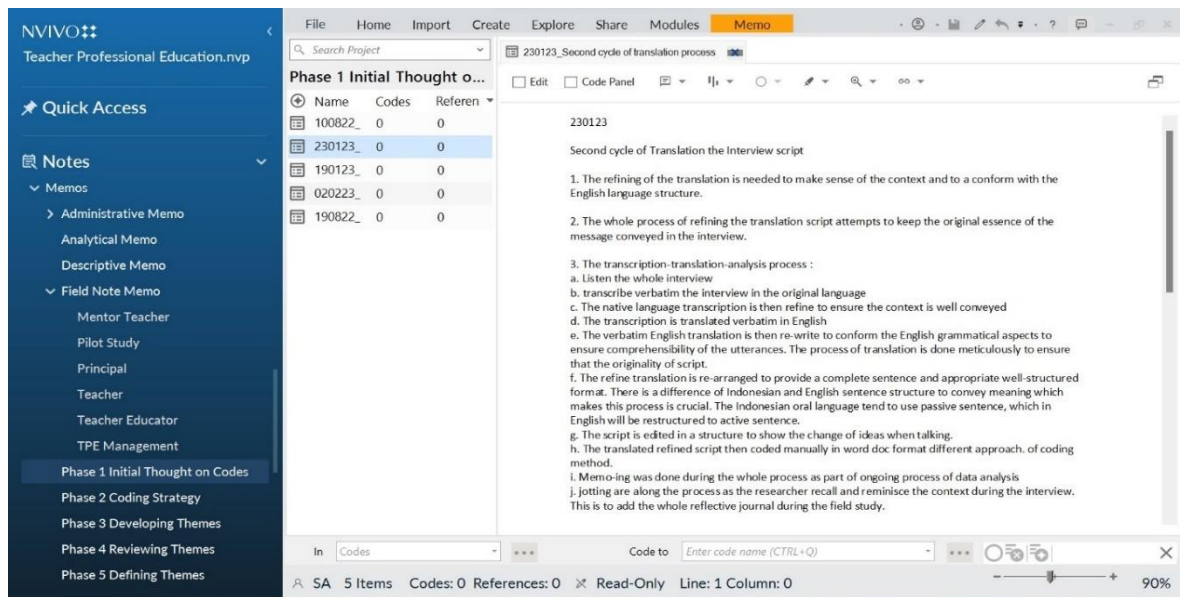


Figure 14. Memo on the second cycle of translation of the interview transcript

Memos enable the researcher to document the project's ideas, insights, and interpretations or develop a grasp of the subject matter, such as deciding on a coding approach and field notes of informal conversation before and after the semi-structured interview session, which closely relates to the topic. Meanwhile, annotation clarifies the context for the reader and the researcher during the analysis process. It is a crucial part of familiarisation of the data. During the interview, the research participants assume that the researcher and the 'audience' have the same understanding of the context while answering the research questions. The annotation also serves as a reflective journal for the researcher to understand the underlying meaning of context in the participants' responses and get

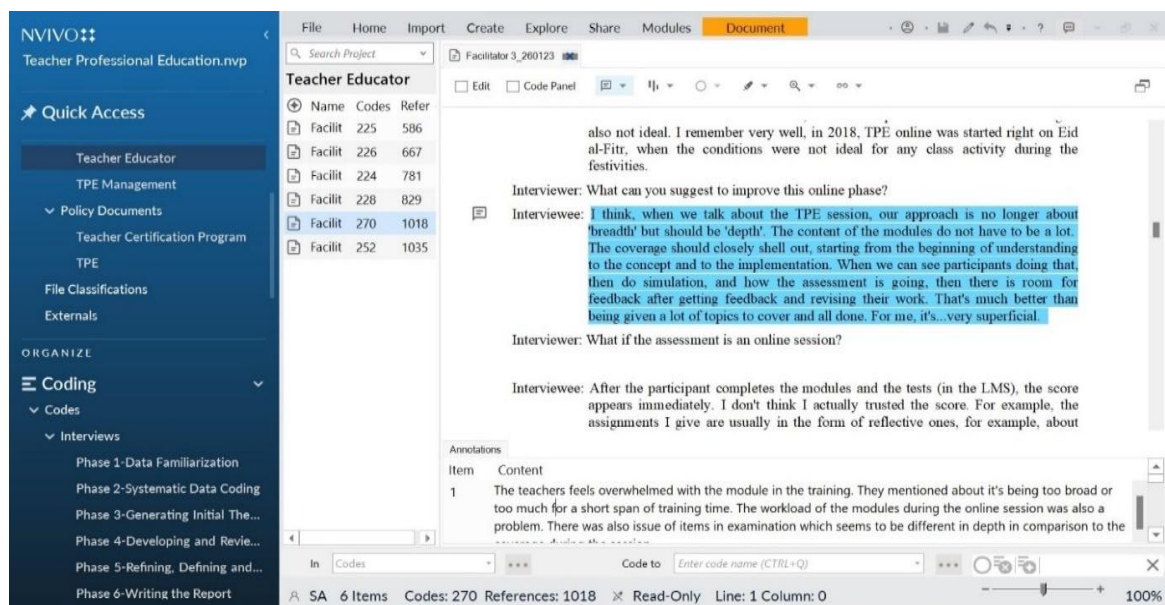


Figure 15. Annotation highlighted in blue is the participants' utterance on making meaning from the context.

In phase 2, systematic data coding covers the initial code from the data set and open coding activity in NVIVO. The researcher set the cases and attributes or demography of research participants and, later, set up the interview transcript in NVIVO for open coding. At this stage, the researcher decided on what coding strategy to implement to capture the nuance of the interview. This phase involves the initial coding activity by identifying features of the data that appear interesting and correspond directly with the interview questions. All the analytical process of the coding training is recorded in the memo, which serves as the field notes for each step of the research journey. The open coding in phase 2 marks the researchers' way to comprehend the meaning beyond the text before developing themes involving interpretative data analysis. The annotation and memo-ing keep going simultaneously while coding, recording crucial decisions on the coding approach and strategy in the initial coding activity. In coding activity, the researcher must use an analytical lens, constantly requiring questions and re-questioning the decision (Bezeley & Jackson, 2013; Saldana, 2016).

Coding is a non-linear activity; instead, it is a more circular stage in which the researcher revisits and revises the coding book established; therefore, it is crucial to keep coding field notes. The coding approaches utilised are the Descriptive, In Vivo, Process, and Value Coding approaches (Saldana, 2016). In this initial stage, codes are freely created on whatever fits the needs; however, at a later stage, some are cut, and some are deleted. The initial coding activity in this study was messy and frustrating. The researcher tried many manual coding methods, such as MS Word, Excel, and Post-it, before eventually deciding to use NVIVO.

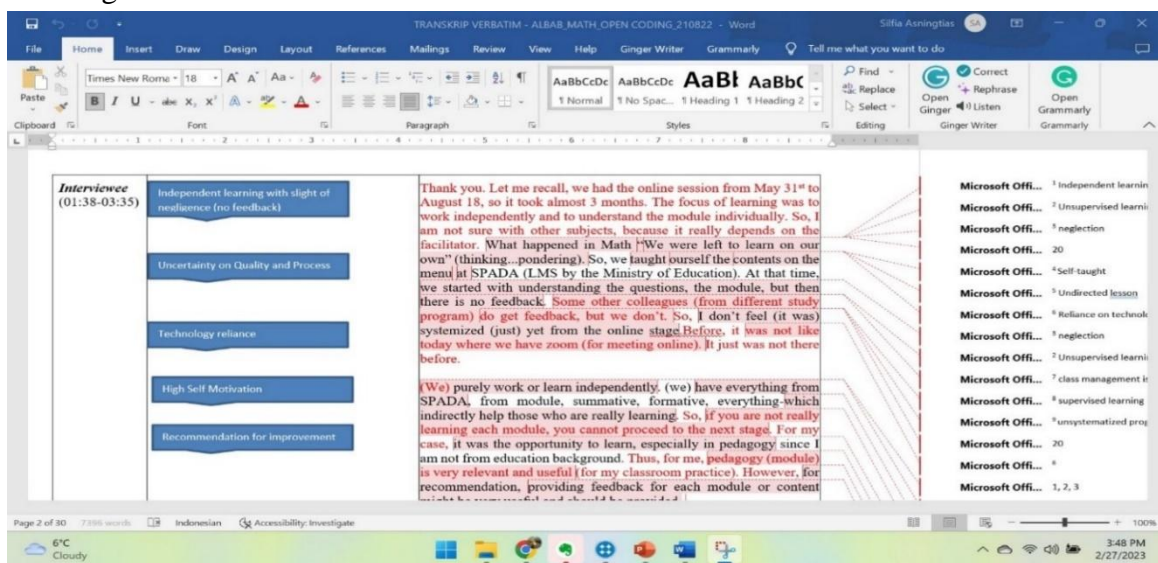


Figure 16. Initial coding activity in MS Word

The screenshot shows the NVivo software interface. On the left is a blue sidebar with navigation options: Quick Access, Coding (with sub-items: Codes, Interviews, Literature Coding, Relationships, Relationship Types), Cases (with sub-items: Cases, People's Cases, Policy Documents, Case Classifications), and Case Classifications. The main window is titled 'Phase 2-Systematic Data Coding' and contains a table of codes. The table has columns for Name, Files, References, Description, Created on, and Modified. At the bottom of the table, it says 'SA 140 Items'.

Name	Files	References	Description	Created on	Modified
Academic Misconduct	11	16	Anything related to perspectives that shows academic misconduct	3/12/202	3/18/202
Anxiety in TPE training	11	25	Anything related to anxiety of TPE training including about TPE	3/12/202	3/20/202
Assessment in TPE	10	16	Anything related to assessment happened during TPE training	2/27/202	3/26/202
Certified VS Uncertified Teacher	3	21	Anything related to comments on certified VS uncertified teacher	2/23/202	3/3/2023
Challenges in Management of TPE	2	9	Anything related to challenges faced in managing the TPE training	3/20/202	3/20/202
Class Management Issues	2	2	Anything they encounter as class management issues during TPE	2/27/202	3/15/202
Classroom Action Research (CAR)	11	28	Anything related to classroom action research class or session	2/27/202	3/26/202
Collegiality and Collaboration	15	44	Anything related to Teachers work in team	2/21/202	3/25/202
CPD after TPE	6	19	Anything related to sustainability program upon completion of	2/21/202	3/16/202
Designing assessment for teachers	2	2	Anything related to session in which teachers learn about designing	2/27/202	3/14/202
Designing lesson plan	11	24	Anything related to session where teachers learn about designing	2/27/202	3/18/202
Disruptive in students' learning	7	13	Anything related to situation when teachers are away for TPE training	2/21/202	3/16/202
Dissemination program	2	4	Anything related to Teachers disseminate their knowledge after	2/21/202	3/3/2023
Does Not Sit Right for me	14	44	Anything related to Emotion regarding new recruit teachers work	2/21/202	3/20/202
Easy to manage	2	3	Anything related to Issues of teacher recruitment as it is easier	2/21/202	3/3/2023
Effective learning activity	4	13	Anything related to what the teacher considered effective learning	2/27/202	3/19/202
Effective tools of technology	3	6	Anything related to effective tools of technology they used during	2/27/202	3/15/202
Feeling Overwhelmed	13	42	Anything related to teacher's feeling about the learning activity	2/27/202	3/20/202
Government Led	2	2	Anything related to management of TPE in the Government level	3/20/202	3/20/202
Government Policy on Teachers	7	16	Anything related to government policy that requires teachers to	2/21/202	3/20/202
Hard to Measure	0	0	Anything related to assessment during TPE that is hard to measure	2/27/202	2/27/202

Figure 17. Stage 2 of RTA Systematic data coding

Phase 3 is the immersion stage in the coding activity, which aims to generate initial themes from coded and collated data. The conceptual framework of themes was created as part of the initial work of connecting patterns in codes to form themes. In the figure that shows stage 2 of RTA systematic data coding, 140 codes were created from the semi-structured interview data. There are dominant codes with many references represented by most participants and more minor codes with fewer references. To help sort out the different codes into the potential themes, the researcher uses a mapping of themes that collate relevant codes and identify themes that correspond to the research questions. The table below illustrates the researcher's initial thoughts on candidate themes and sub-themes and their significance in answering different research questions.

Table 9 A mapping of themes

	Theme/Sub-theme	How does this theme/sub-theme address relate to the overarching research questions?
1	Academic misconduct	It discusses academic misconduct issues during the training or the exams that strongly relate to whether the training is practical.
2	It does not sit right with me.	It was about the phenomenon the actors of TPE experienced in TPE training implementation.
3	Feeling overwhelmed	It elaborates on how TPE training implementation from their perspective
4	Government Policy on Teacher	It was about the government policy of teachers, teacher education, and teacher certification programmes.
5	Impact on Professional Practice	It was about how TPE impacts on teacher's professional practice
6	Management of TPE training	The TPE management role in shaping the teacher training programme implementation
7	Policy in TPE	It highlights the evolving policy in TPE since the enactment of the teacher's law in 2006
8	Unexpected finding	It is all about the unexpected finding, which is more technical and unpredictable and highly influences the teaching and learning in the TPE programme.

	Theme/Sub-theme	How does this theme/sub-theme address relate to the overarching research questions?
9	School's role	It was about the school's position regarding the TPE implementation
10	Teacher Certification Programme	It was related to the TPE implementation programme and aligned with the teacher certification programme.
11	Teacher's education background	It was related to the teacher's educational background (education or non-education), which influenced their performance during the TPE and their professional practice in general.
12	Teacher professionalism and disposition	The topic covers teachers' characters and their professionalism in teaching
13	Teacher recruitment	It was related to teacher recruitment in both the TPE programme and the issues of teacher recruitment in the Indonesian education system, which influences the TPE in general.
14	Teacher motivation	Teacher motivation in doing the TPE on both internal and external motivation
15	Teacher workload	The situation in which teacher workload influences the TPE training
16	The problem in Indonesian education	The topic covers the problem of Indonesian education, which influences TPE training.

	Theme/Sub-theme	How does this theme/sub-theme address relate to the overarching research questions?
17	Recommendation and Expectation	It talks about the recommendations and expectations of TPE stakeholders
18	Weakness of the TPE programme	It covers the issues of TPE training programme implementation
19	TPE implementation	The theme covers the stages of TPE programme implementation
20	A previous model of the TPE programme	The topic focuses on the previous model of the TPE programme, which influences the present policy of TPE training.

The mapping themes help the thought processes of connecting the dots in generating initial themes.

Name	Files	Refere	Description	Create	Modifie
Academic Misconduct	11	22	Anything related to perspectives that shows academic misconduct in TPE trai	3/28/2	3/28/2
Does Not Sit Right for	16	63	Anything related to Emotion regarding new recruit teachers who take Pre-se	3/28/2	3/28/2
Feeling Overwhelmed	13	42	Anything related to teacher's feeling about the learning activity during TPE tr	3/28/2	3/20/2
Government Policy on T	9	31	Anything related to government policy that requires teachers to be certified i	3/28/2	3/28/2
Impact on Professional	24	225	Anything related to Impact of TPE training on professional practice for certifi	3/28/2	3/29/2
Management of TPE tra	22	242	Anything related to management aspect and policy of TPE training	3/28/2	3/28/2
Policy in TPE	6	70	Anything related to policy in TPE program	3/28/2	3/28/2
Previous model of Prof	13	70	Anything related to previous model of Professional Teacher education Trainin	3/29/2	3/29/2
Recommendation & Ex	24	94	Anything related to recommendation and expectation for improvement of T	3/28/2	3/26/2
School's Role	11	76	Anything related to school's role in maintaining or improving the quality of t	3/28/2	3/28/2
Teacher Certification Pr	16	79	Anything related to Teaching certification is about obtaining license or certifi	3/28/2	3/28/2
Teacher professionalis	23	153	Anything related to Teacher's character and professionalism	3/28/2	3/28/2
Teacher Recruitment	6	54	Anything related to School policy on teacher recruitment	3/28/2	3/28/2
Teacher's Education Ba	13	37	Anything related to Teachers from teaching and non-teaching education bac	3/28/2	3/29/2
Teacher's Motivation	15	36	Anything related to teacher's motivation in partaking TPE program	3/28/2	3/28/2
Teacher's Workload	15	42	Anything related to Teacher's workload in general including teaching prepar	3/28/2	3/28/2
The problem in Indone	11	58	Anything related to Problem in Indonesian education is not only teacher and	3/28/2	3/26/2
TPE implementation	25	1041	Anything related to TPE implementation	3/28/2	6/26/2
Unexpected Finding	14	39	Anything related to unexpected finding	3/28/2	3/26/2
Weakness of the TPE pr	19	173	Anything related to what considered weakness or drawbacks of TPE training	3/28/2	3/29/2

Figure 18. Stage 3 of Generating Initial Theme

Phase 4 in RTA in this research shows the development of initial themes to construct the emergence of themes by developing and reviewing themes. This stage reviews the initial themes by connecting with the literature and references to see the consistency and coherent patterns. At this stage, candidate themes are expected not to be well connected with the literature or provide a meaningful function to answer the research question, which is later deleted, revised, or broken down into separate themes. This study followed Braun and Clarke's (2012, p. 65) critical questions in reviewing potential themes; they are :

- Is this a theme (it could be just a code)? If it is,
- What is the quality of this theme (does it tell something useful about the data set and research question)?
- What are the boundaries of this theme (what does it include and exclude)?
- Is there enough (meaningful) data to support this theme (is the theme 'thin' or 'thick')?
- Are the data too diverse and wide-ranging (does the theme lack coherence)?

Reviewing codes and potential themes for the ninth time resulted in collapsing some themes and splitting the big broad themes into more specific and systematic themes. The next step is considering the validity of individual themes concerning the data set. The conceptual framework in stage 3 helps review each candidate theme's importance. The following sample is from phase 4, in which codes were broken down into more minor substantial codes and put under the candidate themes.

Name	Files	Refere	Description	Created on	Modified on
(Cat) Assessment and Examinations	22	218	All about the evaluation and examination	6/23/2023 5:	6/23/2023 5:
(Cat) Beliefs and Values	17	67	All about the beliefs and values in Indonesian educ	6/23/2023 8:	6/27/2023 9:
(Cat) Impact on Professional Practice	25	295	All about impact of the training program towards te	6/23/2023 8:	6/23/2023 8:
(Cat) Model of Training program	19	126	All about the models of teacher training past initial	6/23/2023 8:	6/30/2023 9:
(Cat) Modules	21	159	All about modules in TPE training	6/23/2023 5:	6/23/2023 5:
(Cat) Monitoring and Evaluations	13	45	All about monitoring and evaluation process during	6/28/2023 9:	6/28/2023 9:
(Cat) Online stage	21	266	All about online stage in TPE training	6/23/2023 5:	6/23/2023 5:
(Cat) Policy in Education	15	81	All about Educational Policy in Indonesia	6/23/2023 5:	6/23/2023 5:
(Cat) Policy regarding TPE training	9	60	All about policy related to TPE program	6/23/2023 5:	6/23/2023 5:
(Cat) Recommendation	24	143	All about recommendation to improve the TPE train	6/28/2023 8:	6/28/2023 8:
(Cat) School Placement Stage	21	207	All about school placement stage	6/23/2023 5:	6/23/2023 8:
(Cat) School's context	22	211	All about the school's context regarding TPE trainin	6/23/2023 9:	6/23/2023 9:
(Cat) TPE actors	21	126	About TPE actors and their roles in TPE	6/27/2023 7:	6/27/2023 7:
(Cat) TPE in general	21	84	All about the perspectives of TPE participants in ge	6/23/2023 8:	6/27/2023 7:
(Cat) TPE Management	9	75	All about Management or administrative aspects of	6/23/2023 8:	6/23/2023 8:
(Cat) Unexpected Findings	25	259	All about unexpected findings in TPE program impl	6/23/2023 5:	6/23/2023 5:
(Cat) Weakness of TPE program	21	98	All about perspectives of weaknesses of the TPE pro	6/29/2023 1	6/29/2023 1
(Cat) What they perceived about Tea	21	137	All about teacher competences	6/23/2023 8:	7/3/2023 10:
(Cat) Workshop Sessions	23	193	All about workshop session during TPE	6/23/2023 5:	6/23/2023 5:

Figure 19. Phase 4 of Developing and Reviewing Themes

The final is phase 5, which focuses on refining, defining, and naming themes. Defining themes signifies identifying the essence of what each constructed theme contributes to answering the research questions. While refining, highlight the shaping of the collated codes and clustering codes to final themes. For this work, the clustering was done in an Excel spreadsheet to make it clear to move codes to themes, which can be seen in Table 10 which provides a sample of clustering themes. The refining and defining themes by clustering process can be seen in the Appendix (see Appendix ...) as well as the final thematic framework with an excerpt from phase 5 RTA (see Appendix ...) in which researchers make sense of the themes constructed and how the themes relate to the research questions.

Table 10 The sample of clustering themes

	Themes	Files	References
1	Assessment and Examinations	22	218
2	Beliefs and Values	17	67
3	Impact on Professional Practice	25	295
4	Model of the Training Programme	19	126
5	Modules	21	159
6	Monitoring and Evaluations	13	45
7	Online stage	21	266
8	Policy in Education	15	81
9	Policy regarding TPE training	9	60
10	Recommendation	24	143
11	School Placement Stage	21	207
12	School's context	22	211
13	TPE actors	21	126
14	TPE in general	21	84
15	TPE Management	9	75
16	Unexpected Findings	25	259
18	Weakness of the TPE programme	21	98
19	What they perceived about Teacher Competencies	21	137
20	Workshop Sessions	23	193

The following are the phase 5 NVIVO snippets, which show defining, refining, and naming themes and sub-themes. These were later translated into phase 6, the writing phase. The completed codebook is presented in the appendix.

Phase 5-Refining, Defining and Naming Themes

Name	Files	Refere	Description	Created	Modifie
(Theme) Recommendation	24	143	All about recommendation to improve the TPE training p	7/5/20	7/5/202
(Theme) Unexpected Findings	25	259	All about unexpected findings in TPE program implemen	7/5/20	7/5/202
RQ1_Teacher Perspectives on Effectiven	25	1316	All about teacher's perspectives of TPE program effective	6/23/2	7/5/202
(RQ1) Evaluation and Assessment	22	218	All about the evaluation and Assessment	6/23/2	7/12/20
(RQ1) Impact on Professional Practic	25	295	All about impact of the training program towards teachers	6/23/2	7/12/20
(RQ1) Online stage	21	266	All about online stage in TPE training	6/23/2	7/12/20
(RQ1) School Placement	21	207	All about school placement stage	6/23/2	7/12/20
(RQ1) What Perceived as Teacher Co	21	137	All about teacher competences	7/5/20	7/12/20
(RQ1) Workshop Session	23	193	All about workshop session during TPE	6/23/2	7/12/20
RQ2_Perspectives of mentor teacher, pri	25	639	All about mentor teacher, principal teacher educator's vi	6/23/2	6/22/20
(RQ2) Module of TPE Training	21	159	All about modules in TPE training	6/23/2	7/12/20
(RQ2) Monitoring and Evaluation	13	45	All about monitoring and evaluation process during TPE o	7/5/20	7/12/20
(RQ2) School Context	22	211	All about the school's context regarding TPE training	6/23/2	7/12/20
(RQ2) The TPE main actors	21	126	About TPE actors and their roles in TPE	6/23/2	7/12/20
(RQ2) Weaknesses of TPE training	21	98	All about perspectives of weaknesses of the TPE program	6/23/2	7/12/20
RQ3_Perspectives of Management on C	21	219	All about TPE management perspectives, what challenge	6/23/2	6/22/20
(RQ3) Policy in TPE training	9	60	All about policy related to TPE program	6/23/2	7/12/20
(RQ3) TPE in general	21	84	All about the info of TPE in general	6/23/2	7/12/20
(RQ3) TPE Management	9	75		6/23/2	7/12/20

SA 158 Items

Figure 20. Phase 5 NVIVO snippets

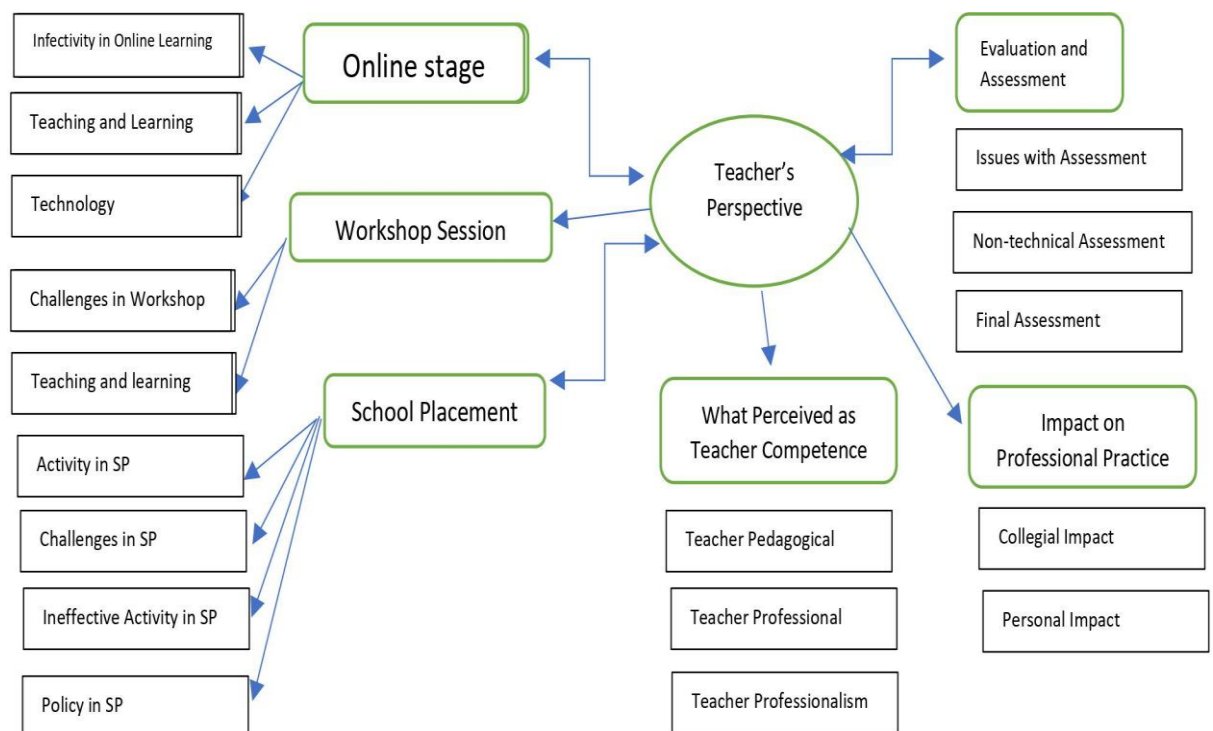


Figure 21. Thematic Map RQ 1

As phase 5 is the crucial phase in RTA, the data analysis employs approaches to boost trustworthiness or triangulation, such as comparing themes and using diagrams and graphs for deeper analysis. Generally, qualitative research presents data using words rather than numbers or statistics. However, Bazeley (2009, p. 6) notes:

I argue that qualitative data require and support much deeper analysis. Strategies that might assist researchers in enriching their analysis of qualitative data are described. These strategies include improving the interpretation and naming of categories; using comparison and pattern analysis to refine and relate categories or themes; using divergent views and negative cases to challenge generalisations; returning to substantive, theoretical or methodological literature; creating displays using matrices, graphs, flow charts and models; and using writing itself to prompt deeper thinking.

Therefore, the final phase 6 extensively lays out the whole writing process and how it is elaborated in NVIVO.

The following is a case coding comparison example of RQ 1, theme 'What is perceived as teacher competence?' comparing teacher pedagogical competence and teacher professional competence. In short, this sample diagram comparison shows a strong connection between the two sub-themes, which most participants share.

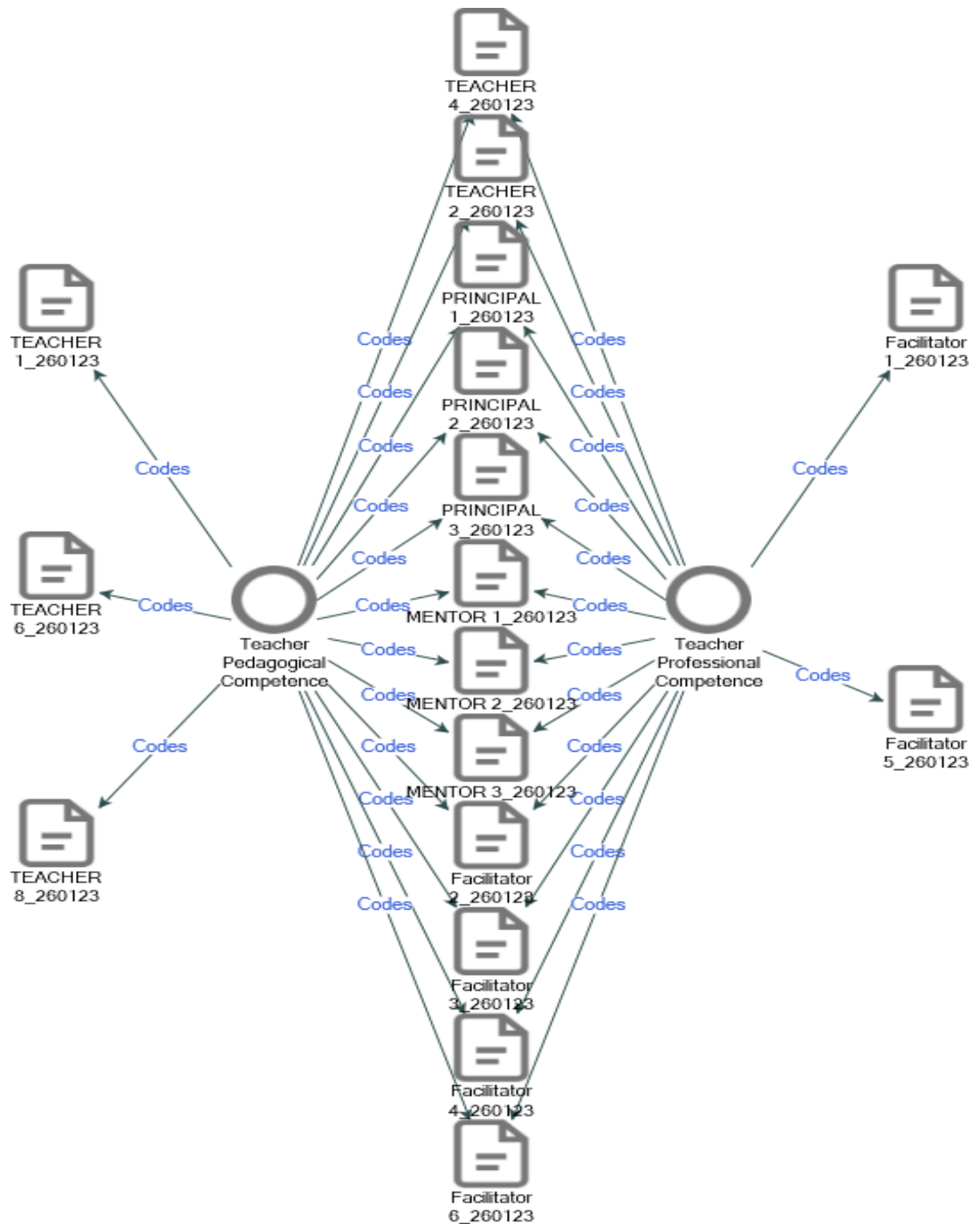


Figure 22. Cases Coding Comparison in NVIVO

Phase 6 of RTA is all about contextually writing the findings. Themes are connected to build a narrative of the data. At this final stage, the themes have been entirely laid out to construct a concise, coherent, and logical 'story' supported with evidence and extracts. Ultimately, the analytic narrative aims to make sound arguments to answer the research questions.

Pilot Study

The pilot study and randomised control trial are terminologies mainly used to indicate the initial data collection stage for testing before the actual data collection occurs. Conducting a pilot study allows the researcher to avoid any potential mishap or damage to the study (Arain et al., 2010; Shader, 2015; Vogel & Draper-Rodi, 2017). It is a mini-study to ensure that the elements of research, such as participants' willingness and the instrument's readiness, are all in place before an actual scale of data collection stage.

For this reason, the researcher conducted a pilot study before the actual data collection. The pilot study intends to assess the 'workability' of the instruments and research procedures. The pilot version of the semi-structured interview allows research participants to review the clarity and readability of the questionnaire's items/questions and instructions presented (Morin, 2013). Concurrently, the piloting of semi-structured interviews helps clarify the interview questions and interpretation of the question being asked to avoid any potential issues before implementing a more extensive study. The pilot study participants were involved in the representation of each group/category. For this study, they were invited voluntarily and were willing to take the pilot study. The result of the pilot study influenced the adjustment of leading questions, focus, and duration based on the five categories.

Ethical Consideration

Participants recruitment

The study took place in one HEI that runs the TPE. The researcher sent the HEI's president a letter seeking permission to conduct the research. Participation in the study, however, was voluntary. The researcher personally approached the HEI teacher educators and TPE management participants category, requesting their willingness to participate in the study. All the research participants were informed of the letter of permission to research the institutions, including the study's aims and significance. In addition, A Plain Language Statement (PLS) and an Informed Consent form were also explained before the interview session. It was also emphasised that withdrawal from any research stage was permissible and acceptable. The data gathered from this study abided by the protocol from DCU Research Ethics and GDPR procedures, i.e. the data would be kept in the researcher's DCU account and password-protected to ensure the security of the data.

Informed and Voluntary Consent

Participants were informed of data confidentiality in the interview consent form and the study information sheet. The researcher also highlighted this at the start of the interview. The participants' confidentiality was respected using a label instead of names indicating their identity. Simultaneously, anonymity is impossible due to the researcher and participants engaging in the interview. Thus, once the interviews were transcribed, a participant's number was assigned, and the audio recording was destroyed, abiding by the DCU Research Ethics regulations.

Potential Risk and Management Procedure

The study aims to understand TPE key stakeholders' perspectives on effectiveness and its impact on their professional practice. By investigating the stakeholders' views, the researchers expected to gain insight into how the training was implemented and what could be improved from current practice to enhance the quality of teachers.

The potential risk to participants that might occur would be in the management and HEI teacher educators' category. As the main actors running the programme in the field, there was an uneasiness in unravelling its complexities to the external people, alongside its strengths and weaknesses, since the programme itself is top-down and heavily prescribed. Therefore, all personal attributes were treated with confidentiality to minimise the risk. No potential risks were anticipated as the study examined uncontentious education relating to the participant's experience engaging in a teacher education programme.

Summary

The methodology section in this research serves as the foundation of the study, which includes the ontological and epistemological underpinning, research paradigm, data collection, the instruments of conducting the study, the step-by-step data analysis and ethical consideration for conducting this research.

This chapter elaborates on the critical points of this case study research and the relationship between the research questions and research design to answer the research problems. The themes were constructed from the data collected from the literature review. Clarification was laid out on the triangulation to ensure the validity and reliability of the research. It also provided detailed RTA stages of analysis, audit trail, and snippets of each stage. The write-up of the themes will be presented in the forthcoming section, Chapter 5 the Research Findings Chapter.

Chapter 5 RESEARCH FINDINGS

Introduction

This chapter presents the findings, and it is divided into sections to respond to the research questions:

1. How do teachers perceive the TPE programme's effectiveness in improving their competencies? Does it support their professional practice? If so, how?
2. How do the cooperating teacher and principal HEI teacher educators view the TPE design and practice to support teachers' learning?
3. From the TPE management perspective, what challenges and obstacles inevitably develop as policies and practices are implemented?
4. As a complex teacher-professional education system in Indonesia, how do educational values and beliefs influence the implementation of the TPE programme?

The analysis of data collected is elaborated in Chapter 4, research methodology, and the themes are constructed to answer the above research questions. Referring to the section on the theoretical framework of Ecological System Theory (Bronfenbrenner, 1979). In Chapter 3 of the literature review, the organisation of this chapter will follow the five dimensions of Microsystem, Mesosystem, Exosystem, Macrosystem, and Chronosystem. In this chapter, the microsystem will elaborate on the findings of TPE implementation in each stage, as well as the assessment and its impact on teachers' professional practice. Secondly, the mesosystem will explain the HEI teacher educators, cooperating teachers, and the school principal's role in the programme. Next, the exosystem domain explores the TPE management's outlook on implementing the programme and its challenges in dealing with the dynamics of key stakeholders' interactions. Lastly, the macrosystem explains the educational values and beliefs firmly embedded in the running of the TPE programme. At the same time, the chronosystem describes the time aspect that influences the TPE model, which has been extensively discussed in Chapter 2, Context of the Study.

Overview

As explained extensively in Chapter 2, the Context of the Study, the TPE programme is a top-down professional teacher education programme embedded in the teacher certification that has undergone a series of changes as an impact of education policy. The TPE was first launched in 2006 (Jalal et al., 2009; Permendiknas, 2007c). It started with

the portfolio scheme and targeted teachers with teaching experience of more than 20 years. Later, it changed into PLPG with 12 days of on-site training and to TPE hybrid learning with credit-bearing. Due to COVID-19 restrictions, the hybrid learning model was altered to fully online learning with a shorter duration and simplified stages of learning. Overall, Chapter 2, the Context of the Study, elaborates a detailed explanation of the chronosystem and the programme timeline.

As discussed in the previous chapter, this study involves the key stakeholders of the TPE, i.e. in-service teachers, HEI teacher educators, cooperating teachers, school principals, and the TPE management at the HEI. The following table serves as a guideline for each category and ensures consistency of the terminologies used throughout the dissertation.

Table 11 Participants' category and their role in the TPE programme

No	Category	Definition	Role
1	In-service teachers	Teachers who are employed in formal schools enter the TPE programme through the quota system from the local district education office and pass the entrance exam.	TPE participants
2	HEI teacher educators	HEI lecturers who qualify to teach in the TPE programme	Course facilitator of the TPE programme based on their expertise.
3	Cooperating teachers	Teachers in the HEIs partner schools	Mentoring, supervising, and monitoring during the school placement activity
4	School principals	Principals in the in-service teachers' respective schools	End users of TPE graduates
5	TPE management	Lecturers appointed to manage the TPE programme	Handling TPE management at the University level

Perspectives towards Effectiveness of TPE Programme to Improve Teacher's Competences

The programme's primary stakeholders are the in-service teachers, who are TPE participants. Ultimately, their perspectives serve as the primary reference for TPE and its effectiveness in improving their professional practice. Hence, this section elaborates on the perspectives of research participants, as mentioned previously, as TPE stakeholders in this study and their views of TPE in enhancing teachers' competencies, with in-service teachers as the main focus. The data analysis aims to achieve a holistic comprehension of how effective the programme is in improving teachers' competencies as in its objectives and whether the programme has significantly impacted teachers' professional practice.

Following phase 5 RTA of the data analysis in Chapter 4, the themes constructed from the research participants' perspectives are on the main activities of the TPE, namely, online independent learning, workshop sessions, school placement, and assessment. The following section elaborates extensively on each key point, supported by an excerpt of the data to support the arguments.

The Online Independent Learning Stage

The HEI receives around 2000 to 3000 students annually, divided into several batches. The online learning design would allow the TPE management to organise the human resources, facilities, and other necessary arrangements for training purposes, including the school placement activity, which involves the HEI's partner schools. Having online learning allowed the TPE management to accommodate the mobility of students to experience the three phases of the programme.

The TPE programme from 2018-2020 was designed in three phases: online independent learning, workshop, and school placement. The programme aims to acquire four essential competencies: pedagogy, professional, social, and interpersonal (Permendiknas, 2007c). In addition, from the MoEC guideline, a teacher should have the ability "to integrate critical thinking and problem-solving, communication and collaborative skill, creativity and innovative skill, information, and communication technology literacy, contextual learning skill, as well information, and media literacy through TPACK approach" (Kemendikbudristek, 2022b, p. 2). The first phase of TPE was online independent learning, which aimed to provide content mastery and subject-specific enrichment before the workshop session. The enrichment session in the online stage was

a course that was carried out in a problem-based analysis of subject-specific modules to fill the gap between content knowledge mastery and pedagogy (Kemdikbud, 2021). The online learning was designed to engage the TPE participants in the modules through LMS before the in-person workshop session. From the MoEC consideration, online learning was considered practical to cut the time for teachers being away from school, although several issues still hinder its effectiveness.

The data revealed several concerns during this online phase, including the in-service teacher's readiness to use technology in the online session, the teaching and learning activities during this phase, and the challenges of online independent learning in general. The following subsection elaborates on these aspects of online independent learning.

Technology Related Matters

At the initial stage of implementation of online self-regulated learning, the debate was not only on the use of the LMS platform and the module but also on the readiness of the TPE participants to use technology in learning, considering the demography of TPE participants was varied in age, competencies, and, most importantly, digital literacy skills. HEI teacher educators' view related to the technology mentioned that the issue with in-service teachers as TPE participants' readiness was the primary problem during online learning. In one of the statements, HEI teacher educator 1 stated:

Some of the challenges presented by teachers were, first, they did not master IT (or work using IT) even during the online (phase) and second, the internet connection was weak in many areas in Indonesia. Some said they had to climb to higher ground to get a good internet signal. In some areas such as Maluku and Nusa Tenggara, for example...the obstacle was not only in the ability of teachers to use technology but also in the presence of technology as in hardware (such as operating computers) and the infrastructure (as in unstable the internet connection). (*Interview, HEI teacher educator 1*)

As mentioned, the fundamental issue of online learning was mainly about the in-service teachers' readiness; it was not only about the basic skills to operate a computer and navigate the internet. One pertinent issue in TPE online learning was learning the essential operation of LMS and learning with the LMS. According to most TPE participants, LMS was a new and foreign technology for them since they had yet to learn about it during college many years ago, and LMS was non-existent at the secondary education level. In-service teacher 4 reported during the interview, "Unfortunately, there was no induction about the TPE online stage at all, those who have never been familiar with LMS and then have to navigate learning using LMS in the TPE, were lost and confused" (*Interview, In-*

service Teacher 4). To summarise, in-service teachers did not have the necessary skills, and with no induction on the learning technology used during the programme, they had to learn by themselves. This is aligned with Pei and Wu (2019) statement that many things could prevent effective online learning, including technical skills and ineffective design and arrangement of multimedia used in online learning. To sum up, the statement from the in-service teachers emphasised that LMS was a new technology for them that is used primarily at higher education levels. Since these in-service teachers graduated long ago, learning to use LMS in online learning was challenging for them.

In addition to struggling with learning on LMS, in-service teachers stated that the asynchronous model in LMS prevented them from experiencing a balanced classroom dynamic. While there was a discussion board in LMS, the in-service teachers considered spoken feedback in video conferencing more effective. As In-service teacher 2 stated, “Learning using LMS was still something new for us, and I still found it ineffective. It was asynchronous; we could only chat using the feature in the LMS, and there was not a timely response from the HEI teacher educator if we had something to discuss” (*Interview, In-service Teacher 2*). From the in-service teacher 2 perspective, since there was no session for feedback on their online assignments and exams during their TPE sessions, they expected that having active interaction during online learning would significantly improve their learning experience. However, the limited feature in LMS for interactive communication among in-service teachers and HEI teacher educators hindered effective connection and collaboration.

Another crucial issue mentioned was the basic infrastructure of technology, which differed from the regions where the in-service teachers were originally from. At some point, teachers had to have their laptops and subscribe to internet service at home, which, in some regions, was only sometimes available. Although access to technology was not always a problem for those who live in the city, considering the diverse Indonesian geography as described in Chapter 2, the accessibility to technology was still a hindrance for online learning in TPE. The readiness to learn using LMS was a problem, in addition to the essential issue for some teachers with limited access to basic hardware technology, such as desktop computers, laptops and internet connectivity at home. As stated by HEI teacher educator 1, some TPE participants have to climb up to higher ground to have a better reception of the internet in their regions. At the same time, some others have to look for good access to the internet in local government offices and stay there to work on their test and assignments:

Regarding the online stage, many of the teachers from the remote island used the facilities of the regional education office to fulfil their obligation to teach online since the internet connection was stronger than the individual broadband from a mobile phone. (*Interview, HEI Teacher Educator 1*)

Another HEI teacher educator who encountered a similar experience and found that technology issues have become an obstacle to online learning in the TPE:

During online (sessions), the challenge was (mainly on) the internet connection, which goes for both the teacher educators and the student teachers of the TPE programme. We were lucky if it was an unstable internet connection because an internet connection is a luxury in some (remote) regions in Indonesia, where the teacher was originally from. So, online learning through LMS carries a huge bandwidth, which is almost impossible in certain areas. (*Interview, HEI Teacher Educator 6*)

In the Indonesian context, the problem with technology infrastructure is a common issue in many regions, considering the geographical landscape in Indonesia (The World Bank, 2020a, 2020c). Improving the technology infrastructure and access to technology were part of the education reform agenda (INOVASI, 2023; Yarrow et al., 2022). In contrast, with many in-service teachers stating their struggle in using technology in online learning, few of them felt confident navigating their learning online, such as In-service teacher 1, who affirmed that this online independent learning stage was quite helpful for based on his experience:

I found that using LMS was very efficient and flexible for us to study independently. It was equipped with everything needed for us to work individually and independently, regardless of time and place. Although there was a ‘deadline’ for each assignment, I found the technology helpful for me, as I had other teaching responsibilities and personal things. (*Interview, In-service Teacher 1*)

In-service teacher 1 was confident with the knowledge and technical skills to navigate working with LMS. It was not hard for him to use LMS since he was familiar with education technology. He weighed the flexibility aspects of online learning as beneficial for working around his busy schedule, and LMS helped manage this well. Another in-service teacher echoed this:

online learning was quite effective. The LMS we used, SPADA, was relatively easy to navigate, so I had no difficulties with technology during this online phase, whether during module learning, assignment collection sessions, or formative and summative exams in each module. (*Interview, In-service Teacher 6*)

Reflecting on the characteristics of the participants, those who had confidence in learning with technology were the young demography in the category.

From this data, the technology-related matters showed two divided opinions. Some research participants emphasised the need to connect with the community, which lacks online learning and insufficient multimedia support. Meanwhile, some others value their independence of working on their own time, space, and pace with online technology for learning.

Teaching and Learning in Online Independent Learning Stage

Concerning teaching and learning activities during the online independent learning stage, the research participants highlighted the central issue of online learning: teaching more to the test approach rather than comprehension of modules delivered. For some, the cycle of an online module, including tests and assignments, was repetitive and overwhelming. As stated by In-service Teacher 2:

It was a repetitive process, so we had the module, studied independently, and at the end of the module, there would be an online test in which the score would be automatically displayed once we finished. It was independent (learning) and asynchronous. (*Interview, In-service Teacher 2*)

This claim was supported by most of the in-service teacher participants, who stated that the teaching and learning approach was test-oriented. Another statement supporting this assertion was from In-service teacher 1, who mentioned online independent learning is a cycle of tests and assignments: “Then, at the end of the module, there was a summative assessment. The exam covered all the topics in the module. It was too much, to be honest. Test all the times” (*Interview, In-service Teacher 1*). This frustration was mirrored by others who expected online learning to fulfil their needs for content master enrichment. All in all, for some participants, the teaching for the test approach and the lack of active interaction during the process hindered the comprehension of the modules. There were even assumptions and doubts that since the online module was self-independent learning and lacked direct interaction, that was all expected from them, as In-service teacher 9 affirmed:

But if I was asked what I get in the online session, it seems almost nothing. So, in the online session, the important thing is to finish the series of topics in the module, work on the problem, and get a tick, completed and the graph goes up. That’s all. (*Interview, In-service Teacher 9*)

The voice of In-service Teacher 2 represents many other research participants on why online learning is ineffective for them. He stated that, “The nature of independent online learning was very much a drilling method; we read the module, did the test

afterwards, and got the score. And that's all of it for the whole three months and around ten modules" (*Interview, In-service Teacher 2*). Meanwhile, from the point of view of HEI teacher educators, online learning brought out different aspects of teaching online, as she stated:

For us, the TPE teacher educators, this online session was also less effective. It was because, in online learning, we couldn't see whether they listened or understood the material given. For example, in a class of 30 people, only 10 people were actively discussing, while the others, we couldn't measure whether they understood or not since they were all mute and off camera. To measure their understanding, they were working on the formative test. So, they have to listen to the lecture; otherwise, it will be difficult to do the test. In the formative test, the score comes out immediately after completing the test. (*Interview, HEI teacher educator 6*)

The statement from the HEI teacher educator was in line with In-service teacher 6's opinion on one of the reasons online learning was ineffective: "In this online phase, the tasks and assessments were numerous and demanding" (*Interview, In-service Teacher 6*). From what In-service teacher 6 and others stated, it was challenging to meet the learning objectives without proper management of modules and schedules in online learning.

According to the TPE guideline by the MoEC, the module of online learning was designed to meet the needs of innovative learning (Kemendikbud, 2020a; Kemenristekdikti, 2018), which consisted of professional and pedagogical modules, such as learning theory, educational psychology, social culture, social construction, and diversity. At the same time, the subject-specific modules comprised advanced materials that train teachers to develop lessons with Higher-Order Thinking Skills (HOTS). These designed curricula were to meet the teachers' needs in the classroom. However, without considering aspects that make online learning effective, such as agency, competence, active learning and a sense of relationship and community (Archambault et al., 2022; Wong, 2020) and omitting the hindrance of online learning, for example, support of time to study, and poor management (Pei & Wu, 2019), online learning would be a challenge. As experienced by In-service teacher 9 as the following:

The online phase in 2019 lasted for around two months and it was in the middle of us doing our routine teaching at school. It was overwhelming, to be honest, because we had to set time to study, do the assignment, do the exam and submit it all online while juggling to prepare for the class. (*Interview, In-service Teacher 9*)

Poor online session management inhibited effective learning, which might impact learning gain. In this online stage, the in-service teachers regarded learning as part of the obligation rather than a need to improve their knowledge and skills.

From the previous illustration, although some considered online learning ineffective, some in-service teachers still valued the independence and flexibility aspect of the online learning stage; as one of the teachers stated, “The online phase was a self-study or independent learning session. Because the HEI teacher educators in this phase did not have any conference sessions or anything, we had to look for learning resources or materials on the internet, libraries, and others” (*Interview, In-service Teacher 9*). In-service Teacher 6 also stated, “In my opinion, independent online learning was effective enough to refresh the pedagogical and professional competencies, but as for the performance activity, then this online phase was less practical”. This situation further strengthens the idea that online learning promotes learner-centeredness, flexibility, and agency (Archambault et al., 2022; F. Martin & Borup, 2022). Wong (2020) further asserts that online learning provides autonomy and competence, although not necessarily relatedness. From the explanation, the teaching and learning in the online independent learning stage received mixed responses. It can be argued that online learning has benefits as well as drawbacks in its implementation in TPE.

When the in-service teachers were questioned further about how online learning activities could improve the content subject-specific mastery, the data that emerged from this research showed that they strongly mentioned aspects of online independent learning that they considered ineffective, such as lack of feedback. Regarding the lack of feedback the in-service teachers mentioned, from the HEI teacher educators’ views, they said they provided feedback on the reflective activity after finishing the whole module since online learning was supposed to be independent learning. Moreover, the feedback was on general aspects, such as whether they had the level of comprehension and the follow-up plan after the TPE, which is contrary to the in-service teachers’ progress and comprehension. One of the HEI teacher educators emphasised that feedback was given for some aspects of teaching and learning:

Every time we finished the module, there was always a reflection session, either in the online or offline phase, about what they could learn from the lesson. Whether it was about the lecturers, the materials, or the learning conditions, TPE participant students said there were already improvements in the programme in general. (*Interview, HEI teacher educator 4*)

From the explanation of HEI teacher educator 4 and some in-service teachers, it was apparent that there was a different level of feedback that the HEI teacher educator provided and in-service teachers expected. As one of the teacher participants suggested in this situation, “In my personal opinion, the online stage was less effective. There still needs to be development, for example, in providing feedback or improving the delivery method. Providing feedback for each content module might be very useful and should be provided” (*Interview, In-service Teacher 1*). The lack of feedback during online independent learning dominated the data and showed how crucial the feedback was expected from the TPE participants' perspectives. Most of the research participants in the study leaned towards online learning, which was not impactful on their learning gain because of a lack of feedback during this stage.

TPE participants considered issues in teaching and learning the online independent learning stage that they had to juggle their day-to-day activities as teachers during the online stage of the TPE. Therefore, the pressure was high due to the pressing time needed to complete the module and the deadline for formative and summative assessment of each module. Since passing this stage was crucial to moving on to the workshop stage, some issues of anxiety and academic integrity came into play. According to In-service teacher 8, keeping up with teaching and learning in the online stage was a struggle to adjust to the busy schedule in their classroom:

One module must be completed within 3 days. Then the tasks must also be uploaded to the LMS. Because this online phase was held while we were teaching at school, the workload was quite heavy. If we weren't on teaching assignments, maybe we could focus more and do better. (*Interview, In-service Teacher 8*)

Another one stated, “During the online phase, we were still full-on schedule teaching in our respective schools, so I would admit that we were distracted” (*Interview, In-service Teacher 2*). Although the purpose of online learning was to reduce the time of teachers' absence for attending the TPE, the struggle of when it was conducted during a teacher's busy schedule was a problem itself, as the HEI teacher educator said extensively on how teaching and learning during the online stage was a challenge for most teachers, which was aligned with the previous statement:

After the participant completes the modules and the tests (in the LMS), the score appears immediately. I didn't think I actually trusted the score. For example, the assignments I gave are usually in the form of reflective ones, about teaching with technology... After following this module, can you measure yourself whether you can call yourself as a 21st-century learning teacher?'. For that, the

teacher has to talk about himself. Well, if the time given is only 2 days, it probably won't be enough because, within that time, the teacher must teach first, continue domestic affairs at home, and only have time at night. There is also a possibility that there is a problem with the internet connection, so basically, it's not effective. It should be (effective) if the intention is already reflective, but given the limited time to work on the module is not too much, the result will not be optimal. (*Interview, HEI teacher educator 3*)

According to the HEI teacher education 3, several issues were being addressed in online learning, such as monitoring issues during online independent activity, flexibility in scheduling and the workload of the module during a short time, and academic integrity issues.

TPE participants mostly reiterated academic integrity issues in the online stage. Similar to HEI teacher educator 3, In-service Teacher 1 stated, "We couldn't be sure of honesty and transparency since there was no monitoring of feedback from the HEI teacher educator during this stage, especially when the test items were multiple-choice" (*Interview, In-service Teacher 1*). Similar opinion from In-service teacher 5 was expressed: "If it was just a repeated test, I didn't think it would be effective...especially in the Indonesian education context, there must be cheating in the process or 'leaks' on the exam sheet" (*Interview, In-service Teacher 5*). Exploration of academic integrity in TPE will be discussed in unexpected findings in this chapter.

After three months of online independent learning, the in-service teachers attended the workshop session at the appointed university. The location could be in different cities or even other regions. To attend this session, in-service teachers and the school must allocate time on leave and find substitutes to manage their classrooms while participating in the TPE programme.

Workshop and Seminar Session

During the interview, the in-service research participants first reflected on their experience in the workshop session, which was the second phase of the TPE and required TPE participants to attend the session face-to-face in the HEI premise. According to the in-service teachers under the study, some were lucky enough to be assigned to partake in the workshop at the HEI in town. Some others had to do their TPE at the HEI out of town, which required them to stay in the dorm for the duration of the TPE. One of the in-service teachers reflected on the experience of TPE outside of her hometown:

So, for eight weeks (of the online stage), I continued to teach while doing the online module. When I started the workshop session, I asked for a leave from school for the

duration because the venue was out of town, and the face-to-face learning session began at 7 until 6 from Monday to Saturday, so we had to stay in the city where the TPE was held. (*Interview, In-service Teacher 8*)

At the teachers' respective schools, there was a dilemma regarding the period teachers (eight weeks) leave their classrooms to partake in TPE, and it was due to the lack of human resources in the school. To overcome this issue, some schools temporarily implemented team teaching to cover absent teachers; meanwhile, other schools required teachers to find their sublet for the duration they were away from schools to attend the TPE. Teachers would pay for their sublet at their own expense for this temporary leave arrangement during the workshop session and the school placement.

One of the research participants from a private school elaborated on her experience of partaking in TPE and should leave her classroom, thus she needed to find a substitute teacher for her classes. In-service teacher 4 shared her experience: "The first reason was I couldn't leave my class for too long, although I hired a substitute teacher for my class while I am busy with other things at TPE" (*Interview, In-service Teacher 4*). This measure is unavoidable for a private school with fewer human resources to support the teacher's absence. Even if they have to pay the substitute teachers with their own money for the time being, as in Teacher 4 experience, she reflected that it was necessary in her situation. At some other schools, this situation could be handled by the school authorities by managing teachers who were on leave of absence for a pretty long time. Principal 2 commented on the school's experience dealing with this situation:

The arrangement was managed by the vice principals of academic affairs and the respective head teachers to ensure that students were well cared for. For instance, 3 out of 8 school math teachers were nominated to join the TPE programme (in 2018); therefore, the remaining Math teachers covered their colleagues for the duration. (*Interview, Principal 2*)

The above statement was from the principal of a private school with enough teacher resources to cover up the lengthy teacher absence. In the typical situation, however, teachers should find their own substitute teacher to get permission from the school. This commonly happens to teachers from small private schools in the small region, "some teachers reported that it was tough for them to get permission from the school. Especially for teachers from private schools. So, when they asked for permission, they had to find a substitute teacher to cover their class" (*Interview, HEI teacher educator 3*). Although inconvenient, this situation was inevitable for teachers who wanted to keep their employment and partake in TPE for teacher certification programmes.

For most in-service teacher participants, the workshop stage in TPE was a crucial aspect that contributed to the programme's effectiveness. This was especially true for in-service teachers from non-education backgrounds. They could only apply what they learned in the pedagogy module through face-to-face interaction during the workshop. In-service Teacher 2 in this study represented the voices of other teachers from non-education backgrounds who considered the workshop session to be beneficial for their professional and personal development:

It was the feeling of going back to school vibe again. It was refreshing and exciting. We met the professor during class and interacted face-to-face with my colleague. The course was fascinating for me since I was from a non-education background. We learned a lot about pedagogical content knowledge in real after only learning the theory during the online phase. We worked on designing lesson plans and syllabi and created teaching media in a natural context, which was something totally new for me. I learned a lot about mathematics realia that I think I only studied in the math education department, and I did not learn that in my undergraduate studies. Oh, we also learned on CAR, totally something new for me. We also do peer teaching before the school placement. It was totally enriching. (*Interview, In-service Teacher 2*)

Although teachers with non-educational backgrounds are a minority, issues related to teachers' education and their assigned subjects at school are complex in Indonesian schools. Therefore, the workshop session in TPE provided aspects of training and re-training for teachers.

This section provides a general illustration of the workshop session, and the following section elaborates on teaching and learning, the main activities of the workshop session, such as designing lesson plans and classroom action research, and the challenges of the TPE face-to-face workshop stage.

Teaching and Learning in Workshop Session

After completing the online stage, the TPE participants move forward to the next stage, the workshop activities. From the data of this study, the workshop session was considered adequate because it highlighted the strengths, such as the opportunity to network and share knowledge with teachers from different levels and regions. In-service Teacher 8, in particular, highlighted the experience of meeting teachers from different backgrounds, particularly enriching:

Personally, I was delighted to meet fellow teachers from all over Indonesia and new lecturers. It made me highly motivated to learn. For me, face-to-face learning was effective regarding time and modules delivered. In this face-to-

face session, what impressed me was the new experience. (*Interview, In-service Teacher 8*)

Another research participant also fondly shared this opinion, stating, “I found all the sessions during the face-to-face workshop beneficial for my professional practice. It was memorable as well. I met teachers from different parts of Indonesia and am learning about their school context and the student's background” (*Interview, In-service Teacher 2*). This positive attitude was part of what made the teaching and learning during the workshop session interesting since the participants were highly motivated to learn, not only to gain knowledge but also for the opportunity to meet other teacher colleagues who internally motivate them to learn (Kennedy, 2019; P. R. Taylor, 2017).

The teaching and learning activity during the workshop stage was a crucial part of the programme. It was designed for TPE participants to study with the professional experts in person and interact with other teachers in a classroom context. The main activities in the workshop were designing lesson plans, introducing students to CAR, and conducting assessments with peer teaching at the end of the workshop session (Kemendikbudristek, 2021, 2022e).

The main activities of the workshop session were reiterated mostly by in-service teacher participants who focused on active learning, in which the modules in the online learning stage were discussed. In-service Teacher 1 commented on what workshop session activities he found useful:

After that, during the workshop, we discussed the module we learned online and how we could put it into practice in our classroom and teach the topic or content to practice. The workshop focused more on designing the lesson using the topics covered in the module practice, with some added sessions on classroom teaching methodology and developing a good lesson plan. (*Interview, In-service Teacher 1*)

As most of the TPE participants stated, considering that the theoretical aspects of the module have been delivered in online independent learning, HEI teacher educators supported this statement by commenting that “What we (HEI teacher educators) did in classroom learning was more about problem-solving. To be honest, we didn't have ample time to discuss the theoretical concept at a great length because of the time constraint of each session” (*Interview, HEI teacher educator 5*). What was considered needed for classroom implementation was the focus of the workshop session. This was quite contrary to the expectation of the in-service teachers, who expected that the module they had in online independent learning be further discussed once they were in a workshop session,

“it was too bad that a load of content material covered online for 3 months could not all be discussed in the workshop since it was only half the time, which is only 4 weeks. So, there were many things left unanswered” (*Interview, In-service Teacher 1*). It was disappointing for the in-service teachers who had questions left during the content subject module in the online stage and could not expect to get answered during the workshop session.

The face-to-face class activity during the workshop session was also meant for teachers with a hard science background, such as Physics, Chemistry and Biology, to have more exposure to laboratory experiments and embed it in their classroom practice since the teaching and learning in the TPE incorporated the experiments practice in the module. This was particularly important for participants from disadvantaged schools with fewer facilities or those from regions in the remote areas of Indonesia where school infrastructure is limited. As confirmed by the HEI teacher education 6:

Yes, there was (work in the laboratory). For the Science education subject, we have sessions where the teacher designed lessons in the lab. So even though the TPE schedule was tight, they still had to master the content about Science, which involved learning in the laboratory for simulation. (*Interview, HEI teacher educator 6*)

Although Science laboratory activity was only a small part of the workshop process, science In-service teacher 9, a science education teacher at a secondary school level with a biology education background, still appreciated it. She said, “We were divided into groups with 3-4 teachers. We performed individually under the supervision of one teacher educator and got feedback on our (laboratory) teaching performance in great detail from all aspects” (*Interview, In-service Teacher 9*). Although she was teaching in a private school in a big city with sufficient infrastructure, skills in teaching in a laboratory are rare; therefore, the TPE classroom activities provided adequate experiences to re-train the teachers on their skills in demonstrating the science practicum.

There are some points in the 2018-2019 TPE in which some part of the programme was conducted online, and several activities such as practicum and simulation were done through online streaming or video tapping, which was later posted in the discussion online board in the LMS. This learning video was brought into the discussion via video conferencing tools for feedback. Although this activity was considered doable with the technology to replace the off-site activity, according to some HEI teacher educators and in-service teachers, the obstacles regarding the recording technology, technical skills and the quality of learning video itself were still significant drawbacks. In-service teacher 4

elaborated on her experience in creating classroom videos, “I personally hired a professional to videotape my teaching at the school. I didn’t have the skills and time to create a learning video. Thus, I hired a professional to help me with that” (*Interview, In-service Teacher 4*). Meanwhile, some other TPE participants, like In-service teacher 1 and In-service teacher 2, relied on their own skills to videotape the classroom activities and did the editing by themselves or asked a friend:

Actually, we could hire someone to do the video editing; however, we have a deadline to meet for posting the video. All teachers should post the video at the assigned time; thus, we did not have enough time to hire professionals in video editing. We finally just learned by ourselves about video editing. (*Interview, In-service Teacher 1*)

Another crucial classroom activity in TPE was the peer-teaching activity. The peer-teaching activity was when the TPE participants prepared a lesson plan and performed micro-teaching with their peers acting as students. Some of the teachers explained their positive experience of the peer teaching activity “For me, peer teaching definitely helped me before I started my school placement” (*Interview, In-service Teacher 1*), and this sentiment was strongly supported by another teacher fellow “We also did peer teaching before the school placement. It was totally enriching” (*Interview, In-service Teacher 2*). The positive attitude towards their peer teaching was aligned with studies that show the benefits of peer teaching, among others, building confidence, strengthening motivation, and promoting collaboration and communication skills (Rusli et al., 2021; Stigmar, 2016; Tullis & Goldstone, 2020). Besides the HEI teacher educators, cooperating teachers from the partner schools were invited to the session during the peer teaching. Their presence was intended to introduce them to their potential cooperating teacher and give a glimpse of their school placement teaching context. Furthermore, the cooperating teachers' role during the session was to elaborate on what was expected from the TPE participants, their responsibilities during the school placement, and points of assessments. Cooperating teacher 1 reported:

we were also involved during the peer teaching before the actual school placement started. As a role model and someone who knows more about the school where the placement took place, the cooperating teacher guides these teachers to get to know the school environment and the class where they will teach. (*Interview, Cooperating teacher 1*)

Although these teachers were in-service teachers with years of experience, considering the diversity of these teachers’ such as backgrounds in regions, types of schools, and length of experience, based on responses of in-service TPE participants in this study, they

mentioned that peer-teaching activities prepared teachers to be more confident and ready for an actual classroom activity in their school placement stage.

One problem in peer-teaching sessions was the feedback aspect, which was inconsistent according to TPE participants. Again, the issue of providing feedback emerged in both the online and workshop sessions. One of the in-service teachers highlighted the feedback issues during peer teaching sessions by noting, “I also thought the assessors were different in the two microteaching sessions. Each HEI teacher educator had different standards and could not be treated the same, so even though there were improvements from the first (presentation), it was as though it was completely new” (*Interview, In-service Teacher 9*). the HEI teacher educator 3 agreed with this, stating “Feedback was very important for TPE participants. Even though we knew that as HEI teacher educators, we didn't have time to give feedback. The slightest feedback was needed by the participants, and unfortunately, it did not always work that way” (*Interview, HEI teacher educator 3*). HEI teacher educator 3 further explained the situation of peer teaching sessions that happened in the classroom:

From the students' stories (they said that), sometimes, when they make presentations, the HEI teacher educator would only comment, 'okay..good..next'. No detailed feedback on the issues of their lesson plan or presentation. The HEI teacher educator only comments, '... okay, no problem, it's good. Next...'. Well, it happened. Thus, the learning objectives in the TPE guideline will not necessarily be achieved. (*Interview, HEI teacher educator 3*)

This statement was further reinforced by In-service Teacher 7: “We had a peer teaching performance test in which the teacher educator scores, but we never knew how well we did in that session” (*Interview, In-service Teacher 7*). Because the feedback given on students' performance was unclear and limited to time for each session, the in-service teachers was left confused about what to improve and how to improve their teaching performance. This inconsistency in providing feedback again arose in another session about designing lesson plans.

Overall, during the four-week workshop session, TPE participants mainly participated in classroom discussions on pedagogical and professional modules they have learned in online independent learning. Even though the workshop session required extra effort in terms of cost and time, responses from the TPE participants show a more positive attitude despite the challenges they have gone through by being away for a few weeks to attend the programme. In their view, the workshop session allows them to experience classroom dynamics by meeting colleagues from different levels of teaching, school

backgrounds, and regions (Admiraal et al., 2019; Gore & Rosser, 2020). In their opinion, it was a rare opportunity to interact with colleagues and HEI teacher educators first-hand since the chance to take part in a teacher professional development programme was not that frequent. According to the in-service teachers, the highlights of the workshop session were the classroom dynamics among the peers and the HEI teacher educator's feedback. Compared to the lengthy online independent learning, they affirmed that the workshop sessions were more effective in implanting the value of becoming a teacher by experiencing practical and hands-on activities during the TPE.

Designing Lesson Plans and Assessments

After the classroom discussion on the modules learned during the online session, the main activity in the workshop session was supporting teachers in planning their lessons and assessments. In the session, the HEI teacher educators emphasised the innovative learning approach to be embedded in their classroom practice lesson plan and authenticity, as stated by the cooperating teacher:

So, our senior teachers did not even know how to design their lessons, or maybe up until now. For those who have been teaching for 10-20 years, making their lesson plan is more about fulfilling the administrative work, where they copy-paste from the ones available online. As it was for the sake of administrative obligation, teachers needed to submit the document. (*Interview, Cooperating teacher 1*)

This situation happened among teachers in general and was confirmed by some of the TPE participants, “The pedagogical content subject in the TPE was about designing a lesson plan, in which the teacher was not doing well. Teachers tended to copy and paste other people’s work from the internet” (*Interview, In-service Teacher 4*), and another teacher supports this statement in their real school context “The workshop session was more into the syllabus and lesson plans. In our daily practice, when we needed lesson plans for administration purposes, we just downloaded them from the internet” (*Interview, In-service Teacher 3*). Further, In-service teacher 8 stated, “In the real classroom, some things were not written and done in so much detail”. For these reasons, designing lesson plans was essential to the workshop session.

Studies on Indonesian education performance assert that Indonesian teachers encounter challenges in professional and pedagogical competence (Kusumawardhani, 2017; Yusrina et al., 2022). Besides learning modules on content subjects, teachers must also be well-versed in designing classroom lesson plans. According to in-service teacher

4, “The focus was on preparing lesson plans because it turns out that every school or even individual has a different understanding of lesson plans and syllabi” (*Interview, In-service Teacher 4*). Further, this situation is especially true in the in-service teacher 2 statement, “What I found unique in this session was that one teacher educator could have a different opinion from another, and it was confusing for me and colleagues. Sometimes, during the group discussion, we tried to find a middle ground” (*Interview, In-service Teacher 2*). Therefore, a substantial amount of time during the workshop was dedicated to developing and acting out the lesson plan in a peer-teaching session. Since the lesson plan was expected by the school principals and the school superintendent during the class supervision, the ability to design an innovative and authentic lesson plan was essential. One reason for this was administrative, and the most important reason was to have essential preparation for teaching. From the in-service teacher explanation, the fact that understanding lesson planning differed from one school to another, or even from one HEI teacher educator to others, this session is reinforced during the TPE to have better skills in designing their lesson plan.

Echoed with the previous statements on differences in lesson planning template, cooperating teacher 3 shared:

During the workshop before the placement, it was true that they had learned how to write a lesson plan for the assessment. However, most of the time, the lesson plan format was different from the ones we had at (our respected) school. Many times, I heard students inform me that at the TPE workshop session, differences among lecturers happened and how the lesson plan should be structured. (*Interview, Cooperating teacher 3*)

For a long time, the layout and template of the lesson plan were a more significant issue than the teachers’ inability to design effective learning strategies. In-service teachers pointed out that developing lesson plans was always a topic of debate and somewhat of an administrative burden for them, and this was agreed by the HEI teacher educator 3:

For a long time, the layout of the lesson plan was a more significant issue than the teachers’ inability to design effective learning strategies. In-service teachers pointed out that developing lesson plans was always a topic of debate and somewhat of an administrative burden for them. (*Interview, HEI teacher educator 3*)

For HEI teacher educator 3, this raised a concern since the underlying problem of teachers not being skilful in designing a lesson was their limited knowledge of content mastery, teaching strategies, and learning approaches. Unfortunately, the key stakeholders of TPE, such as the curriculum developer and HEI teacher educator at TPE, focused on the surface

level of skill. This supports the literature on misdiagnosing what the teachers need and what happens in the classroom to meet the teachers' needs (Hwa & Pritchett, 2021; Russell & Martin, 2016), and despite the government's attempt to improve teachers' quality through professional activities, the result was not satisfactory (Revina, 2020; Revina et al., 2020). Overall, the fundamental issue of the teachers was not their inability to design lesson plans but the teacher's low subject-specific knowledge and pedagogical competence, which support the reasons for designing the lesson plan as a crucial part of the workshop session.

Recently, the MoEC launched a new policy to simplify lesson plans and cut the problems of lesson planning for teachers. The MoEC encouraged teachers to focus more on the teaching strategies and approaches to delivering the subject rather than the template. Alas, the debate about the layout and template of lesson plans had been a classic issue, which hindered the essence of the substantial problematic matter in teachers' low-performance quality.

Classroom Action Research (CAR)

In discussing teaching and learning in workshop sessions and what was considered helpful for the in-service teacher's professional practice, the research participants brought up the topic of Classroom Action Research (CAR) embedded in the curriculum. The information of the research participants regarding CAR implementation in their TPE activities varied. Teacher 1, who did the TPE in 2018, elaborated on his experience:

For us in Math, there was not much work or assignments over this CAR. As far as I remember, what we did during the workshop was design research questions on what we wanted to do in our CAR in that session. (*Interview, In-service Teacher 1*)

The module of CAR in TPE varied in different periods. However, all research participants agreed that CAR is an important element of TPE to equip teachers with the necessary skills to conduct research in their classroom, "I think having the knowledge to conduct CAR is crucial" (*Interview, Cooperating teacher 1*). This statement was reinforced by In-service teacher 2 on the importance of CAR skills for teachers "I think CAR was very important to improve teaching and learning, so it was necessary to know what works and does not work in my class. So, I think CAR is the most relevant" (*Interview, In-service Teacher 2*). For TPE participants in other periods, such as teacher 9, who graduated in 2019 TPE, she described her experience of CAR during her TPE period as follows:

In essence, we had to make a CAR research proposal which will be done during the school placement. So, CAR was not a mandatory activity during the school placement. We made CAR research proposals for us to try out, but it's not compulsory. (*Interview, In-service Teacher 9*)

The reasons for reducing the time allotment for CAR sessions, among others, were the short duration of TPE and the in-service teachers' workload during the programme. Moreover, there was an apparent disparity in teacher's competencies and skills, making CAR an overwhelming task to finish in a short duration of time.

From the perspective of HEI teacher educator 1, the reason for the reduced activity of CAR in TPE due to many reasons:

In my opinion, one of the reasons was the short time (of school placement) and the workload during the programme. And finally, this student just wrote a CAR report as part of the final assignments (for the TPE programme). There was no learning from this CAR that really reflected the conditions in the class (during the school placement) and what they will do as a teacher (later in their real classroom). (*Interview, HEI teacher educator 1*)

Moreover, this agreed with the teacher's experience that due to time, it was challenging to write a CAR project, let alone to conduct CAR experiments "The CAR session was short, and I think it was meant to introduce CAR rather than did a real project on CAR. We did write a brief proposal for CAR though at the workshop session." (*Interview, In-service Teacher 8*). The duration and the workload during TPE were partly the reasons that CAR activity focused on the ability to design research questions and address the problem in the classroom instead of a CAR report.

One particular importance of having CAR skills, according to the research participants, especially for teachers in public schools, was the skill needed to earn credit points for career promotion as was told by in-service teacher 6, "Public school teachers were very enthusiastic about implementing CAR, which impacts credit scores for promotions". As for other teachers in a private institution, the ability to conduct CAR experiments was not particularly enticing. As mentioned by in-service teacher 4, who worked in a private school, "Implementing CAR at my school was difficult because many teachers were not interested" (*Interview, In-service Teacher 4*). These findings support the literature on the relationship between motivation and teacher learning, whether external motivation or internal motivation (Appova & Arbaugh, 2018; Korthagen, 2017). The dimension of motivation encouraged teachers' learning; in this case, the public school teachers found the reason that motivated them to improve their knowledge and skills, while

mostly the private school teachers were reluctant to learn since they were not as interested in as mentioned by in-service teachers 4 who is teaching at a private school.

Challenges in Workshop Session

In workshop sessions, some TPE participants considered several classroom activities during the workshop session more effective than online learning, such as peer teaching and microteaching, as well as classroom dynamics in pair work and group work. The session with the HEI teacher educators also received positive remarks despite several issues, such as the disagreement on the lesson plan template or lack of feedback on the students' work. Overall, TPE participants valued the workshop session, and the HEI teacher educator gave feedback as the opportunity to share the learning experience with their colleagues from different school backgrounds and regions.

Despite all the positive remarks on the workshop's effectiveness, TPE participants also elaborated on several aspects of the challenges in the session that were crucial to address for future reference. The participants' responses on the future reference note were presented in the recommendation section of this chapter. The challenges, among others, were the scheduling and workload, which influenced the running of the programme and the mixed-level classes.

One exciting aspect of the challenges the TPE in-service teachers mentioned was the HEI teacher educators' skill in delivering the programme. Although this applied as a one-by-one case rather than a general assumption, this particular issue was in the conversation among the TPE participants, as retold by in-service teacher 7, "What I remember most in this face-to-face phase was when the workshop learning started, there were striking differences in learning concepts from one lecturer to another" (*Interview, In-service Teacher 7*). Other teachers in her experience supported the statement during workshop sessions: "If some were not good at delivery, it was because he is already very senior, so the atmosphere in the class is less interactive and more of lecturing" (*Interview, In-service Teacher 8*). Although some participants gave away weaknesses in their HEI teacher educator performance during the workshop session, it was not in a general sense and merely a case-by-case situation.

As for the HEI teacher educator 5 viewed their main challenges as the diverse backgrounds of TPE participants, which include their educational background, culture, and mixed-ability mastery of content subject knowledge and pedagogy:

Second, for me personally, facing them from different cultural backgrounds was also quite challenging. The TPE participants came from all over the region, not only from Java. Many (of them) are from outside Java. Teaching with mixed ability classes, backgrounds, language, age, (and experience of teachers in this position is very challenging. We adjust the (content) material, teaching style, and approach. Although the module is very general, we still have to adjust to the characteristics of the students in the class. (*Interview, HEI teacher educator 5*)

As teachers' competencies differed from those in urban and rural areas, the HEI teacher educators faced the challenge of mixed ability classes in addition to mixed-level classes, as explained in the next section. Another section of this chapter will further discuss the issue of diversity in the cultural, ethnic, and linguistic background of the TPE participants in the macrosystem dimension, which concerns education beliefs and values as an integral part of TPE.

Another challenge in the TPE workshop session was the issue of mixed-level grouping, with many of the in-service teacher categories raising concerns about this mismatch. In online independent learning, the work was mostly individual; meanwhile, the workshop session tended to be more classroom dynamics with group work and peer work, which In-service teacher 1 recounted on the situation in his classroom:

During the workshop stage, we were mixed and put into other groups. I remember that those teachers who were senior in age and have been teaching for so many years had a hard time adjusting. They must work hard to fit in with the new fellows and the group dynamics. To be honest, it was apparent to see these teachers struggling. (*Interview, In-service Teacher 1*)

From the In-service teacher 1 perspective, the problem with mixed-level classes is the different levels of competencies of teachers from secondary and high school backgrounds, not to mention the difference in interest and experience. For the junior high school teachers, for example, after so many years of teaching at junior high, the knowledge they learned during their undergraduate was almost forgotten, while the senior high school teachers were more familiar with high-level topics coverage since they taught at senior high school level. This also applied to teachers from different background studies, such as Chemistry, Biology, and Physics, who are put in the same grouping with mixed levels, which was a struggle for many TPE participants. Aligned with In-service teacher 1, HEI teacher educator 3 concurred:

The TPE classes are mixed between junior, senior, and vocational school. So, there is no differentiation at each level. So, the content subjects and topics covered in the modules are also general. It is a bit unfortunate, though, because, on the one hand, this TPE material is made for general or (intended for) all

levels. Still, we also know that the junior and vocational curriculums are very different. (*Interview, HEI teacher educator 3*)

Although some participants considered the mixed-level classes positive, more teachers struggled to learn content that they felt was new and too complex for their level, not to mention that the modules were irrelevant to their teaching context. One aspect that the teacher positively viewed mixed-level grouping was the experience and exposure of meeting teachers from different backgrounds, which enriched them.

In my class, there are 3 levels in one room, junior high, senior high and vocational. Because of such a mixed class, I learned a lot of new things from my colleagues from different levels. The discussion was expanded beyond what I usually have in the junior high topics, which is very positive. (*Interview, In-service Teacher 4*)

The scheduling and workload issues were predominantly stated as reasons for challenges among teachers participating in TPE workshop sessions. As clearly stated by In-service Teacher 1 on his experience of attending workshop sessions in person:

Another thing that I recalled at this stage was the scheduling and the workload. I think it was too much, too dense; everything was crammed into so little time. Every day, we start at 7 AM and finish by 5.30 PM. The break was only during prayer time. For the whole day, we sat and talked about the topic, and then discussed the test items, working on assignments for each lesson, designing teaching media and the module for peer teaching activity; I was overwhelmed, and that's for the 4-5 weeks duration of the workshop stage. For me, it was no variation at all. (*Interview, In-service Teacher 1*)

The TPE management was aware of this situation and suggested ways to reduce the workload and boredom, "The second reason was to help break the boredom of being in an intense programme from 7 to 5, six days a week for the whole month" (*Interview, TPE management 4*). Considering that TPE was a top-down approach with less flexibility, including scheduling, the TPE management could only propose alternate ways that differed among HEIs.

One crucial aspect of the challenges in the workshop session was related to assessment anxiety, which was described by In-service Teacher 1:

The HEI teacher educator distributed the test item indicator to the questions grid of past exams. Some of my colleagues also had it from students in previous years. We spent so much time discussing these test items because we were anxious about the written exam. We discussed the possibility of particular topics, like algebra, and similarities, for example, appearing in the upcoming test. So, yeah, it is mainly on that activity. (*Interview, In-service Teacher 1*)

Due to the anxiety of failure in cognitive exams, the workshop session could become a gridding session, and this is in line with the findings by Yusrina et al. (2019) that the TPE

sessions in several universities under study tended to focus on preparing the TPE participants for the final examination. Using the past exam documents, they utilised sessions in the workshop stage for grinding activity. Another piece of evidence supporting this finding was an explanation from TPE management 4 on how the HEI set the session before the exam for this enrichment session to anticipate the test's high anxiety. Further, TPE management 4 elucidated, "The final assessment is performed as a written test, and most students fail the written test. Thus, we initiate an enrichment in anticipation of student's failure in the written exam." (*Interview, TPE management 4*)

This section extensively discussed the workshop session and its positives and drawbacks that impacted teachers' learning. The discussion was on the crucial aspects of teaching-learning, what works for in-service teachers, the CAR session, changes over time, and the particular challenges in a workshop session. Following the stages of TPE, the next section will examine the school placement stage and its importance in implementing the TPE programme.

The School Placement Stage

The third stage of the TPE was school placement, in which participants were allocated to the HEI partner schools for four to five weeks doing practicum teaching in an authentic context. School placement is a central part of the three stages of TPE, even though the participants were in-service teachers with extensive experience teaching for years in formal schools. The objectives of school placement in the TPE were to provide knowledge, skills and exposure for teachers from different backgrounds to teach in standard schools under the guidance of experienced senior teachers. Considering in-service teachers' diverse backgrounds, they positively regarded school placement as enriching and rewarding.

In the 2018 TPE guideline, the school placement amounted to six credits, emphasising real-context teaching experience to develop teachers' main competencies: professional, pedagogical, social and personal competencies (Kemenristekdikti, 2018). The exposure to real-context teaching at this TPE stage referred to immersing students in academic and non-academic activities. All TPE stakeholders were involved in the school placement process, which indicates the complex nature of school placement from the planning, school recruitment, student deployment, monitoring and assessment and performance examination (Cochran-Smith, Ell, Ludlow, et al., 2014; Williams, 2014).

This section demonstrates each of the TPE key stakeholders' roles in school placement, school placement activity, school placement dynamics, and implementation challenges.

Activity in School Placement

All TPE stakeholders play a role in school placement. Nevertheless, cooperating teachers' roles and in-service teachers' dynamics interaction was the highlight of this stage of the TPE programme. Following the cooperating teachers' understanding of school placement, cooperating teacher 2 described her views on school placement activity in her school as "I believe school placement activity will improve their understanding of the real teaching context. How can they apply the theories they learn to the natural dynamic of teaching situations? They cannot learn these things in the HEI or their peer teaching class" (*Interview, Cooperating teacher 2*), which demonstrated her positive attitude towards welcoming the in-service teachers in the TPE programme in her classroom. Her statement showed that school placement provides experience and exposure to classroom teaching that could not be achieved in the HEI classroom. Considering that the cooperating teacher is an expert teacher based on the MoEC assessment, this positive attitude was required to set the best experience for TPE participants during the school placement since the session is long in duration and challenging, as explained by the cooperating teacher 3:

I think school placement during TPE was stressful and high-pressure. Their workload was no joke. With the limited time, they have to do many things, from designing a lesson plan, teaching, conducting CAR, writing a report, and participating in school activities. So, the reason behind the plagiarism in their report might be this situation. They didn't have enough time, with so much to do, especially during the TPE at school when they attended physically. They also needed to create learning videos and edit while working on other responsibilities. So, it was overwhelming, to be honest. (*Interview, Cooperating teacher 3*)

Generally, TPE management organised school placement in the HEI partner schools. The main activity in school placement comprised academic activities, such as practicum teaching and classroom observation. Following the guidelines of TPE, the participants were also expected to be involved in non-academic activities like teacher study groups at school, students' extracurricular, and other school activities to get the whole teaching experience. Narrating her TPE experience in her batch, in-service teacher 8 described, "The placement itself was about 4 weeks. I have 7 times the opportunity to do teaching practices from 3 classes I was responsible for" (*Interview, In-service Teacher 8*). She further explained that during that teaching practice, the cooperating teacher would act as

an observer and vice versa, which implied that in-service teachers would have the time to observe the cooperating teachers before they actually practice teaching. In-service Teacher 8 stated they had the time for preparation and discussion with the cooperating teacher before teaching. In agreement with the in-service teacher statement, the cooperating teacher elaborated on the school placement from her experience, “we usually give feedback after teaching. During the weekly gatherings, we would discuss their challenges in teaching, either on the topic, the approach, the classroom management, or the assessment. Moreover, they would need to improve based on the feedback” (*Interview, cooperating teacher 1*). As part of the programme plan to improve teachers’ professional competence, mutual TPE participants and cooperating teachers’ interaction would positively impact in-service teachers’ performance.

Following their description of in-service teacher and cooperating teacher interaction, some in-service teachers have diverse responses depending on the model of school placement they experience. For instance, In-service teacher 2, who graduated in 2018 and experienced his TPE school placement in their respective school, described his interaction with cooperating teachers, “Since in our TPE period, the school placement was in our respective school, we didn’t have many sessions with cooperating teachers. There was no observation session with the cooperating teacher since it was the principal” (*Interview, In-service Teacher 2*). For those in a similar situation as in-service teacher 2, their school placement experience might be similar. The account from in-service teacher 4 showed that her school placement activity in her respective school due to school closure for a long holiday was not effective, in her opinion. She explained, “I felt that the school placement for my batch was less effective. We didn’t have a cooperating teacher; we didn’t have monitoring or supervision on our progress while I was teaching at my own school” (*Interview, In-service Teacher 4*). She elaborated, “The cooperating teacher for the school placement was the senior teacher or the principal. However, we were all aware that the principals are busy with other work, so it was hard to get the most out of the school placement experience” (*Interview, In-service Teacher 4*). From other in-service teacher participants who did the school placement in the HEI partner school, the experience was not that much different. The role of cooperating teachers is the school placement was not optimal, as shared by In-service teacher 9, who was placed in a public school:

In my school placement experience, I only met my cooperating teacher a few times, and that was for signature purposes. It was not as intense as I expected and my cooperating teacher was not really at school often, so I would say that

we worked independently during the school placement. (*Interview, In-service Teacher 9*)

From these descriptions of school placement experience, the issue might not be the place or location of the school placement but the gap in knowledge and skills about what it entails to be a cooperating teacher in the school placement structure.

These findings aligned with the literature on cooperating teachers' participation in teacher education. It is acknowledged as significant but lacks a comprehensive understanding of their role in supporting school placement, such as mentoring and supervisory roles (Chu, 2019; Russell & Russell, 2011). According to Clarke et al. (2014, p. 175), "Providing feedback is clearly one of the most significant elements of cooperating teachers' work with student teachers, and this provision is not only expected but also largely defines the work of cooperating teachers". Unfortunately, the quality of cooperating teachers' feedback can be varied. It was further asserted that the issue of mentoring and supervision in school placement lay in inadequate training for preparing the cooperating teachers in their role and supervisory work. Creating a positive interaction among those involved in the school placement was challenging without properly understanding their role.

Challenges in School Placement

Like the previous two phases, namely online independent learning and face-to-face workshop sessions, the school placement stage had challenges due to internal and external factors. From the perspectives of the TPE Managements, the main challenges of school placement were the scheduling, HEI teacher educators' workload, and knowledge and skill gap among in-service teachers. From the cooperating teachers' perspective in this study, based on their years of experience in the supervisory role of school placement, surprisingly, the issue of cultural and linguistic barriers was part of the discussion. These findings echoed the previous section on workshop sessions, in which some HEI teacher educators flagged the linguistic and competence gap, which influenced the teaching and learning in the workshop session. This situation similarly also took place in the school placement, in which cooperating teacher 2 extensively explained her position as a cooperating in dealing with a diverse cohort of TPE participants in her school:

We experience students coming from different backgrounds and regions and, of course, cultures. I would say there is a difference between teachers from Java and non-Java. I do not mean to discriminate, but teachers from other parts of Indonesia say there is a language and cultural barrier from the eastern part of Java. There is also a gap in school culture from their origin. So, teachers from

Java have a similar background in the school context, making it easier for them to adjust during their placement. During the teaching preparation and delivery, the teachers from the eastern part of Indonesia are struggling. (*Interview, Cooperating teacher 2*)

She further expressed that this situation ultimately impacts the teaching and learning at school. During the in-service TPE participant's practicum teaching session, students in their classrooms also struggled to understand. Although it was unexpected, this finding shows a window for improvement of the TPE programme. In agreement with the above statement, cooperating teacher 1 reinforced:

Several times we received students doing their TPE placement from Flores and Papua regions, and I could tell it was difficult to even communicate with them, let alone have them teaching our students. I might be being harsh, but that's what I could tell about the situation with these students in our school. I would suggest that these teachers from the eastern part of Indonesia have their teaching practicum in their respective regions to be more relevant. (*Interview, Cooperating teacher 1*)

In this situation, in-service teachers doing TPE school placement, cooperating teachers, and the students at school need to adapt to the differences and solve the problem. The problem was not only the cultural differences but also the gap in competencies of the TPE participants.

Another challenge that the cooperating teacher described during the school placement was the element of gaps in knowledge and skills in teaching. Cooperating teacher 3 highlighted her observation on this matter by stating:

Their teaching context is very different, with no electricity, no internet access, and no technology, making it hard for them when they come to our schools. They must utilise and perform those I mentioned in their teaching classroom here. It was hard for them, and it was hard for us as well. So, it was also challenging for the school to let these teachers teach our students. The language barrier, the skills, and many things. I think the government should evaluate that. (*Interview, Cooperating teacher 3*)

It must be admitted that the discrepancy in Indonesia, as illustrated in Chapter 2, Context of the Study, was part of the struggle to give equal access to quality education and other aspects, such as technology, infrastructure and many more. Here, cooperating teacher 3 pointed out the difference in competencies among teachers from different regions. Having the school placement at schools with a very different setting could be positive and negative, but most likely requires the TPE participants to adjust to their situation. The positive side was that student teachers learned about school management in urban areas and innovation that they could bring back to their respective schools. However, the

negative aspect would be that the school had to compromise with the student teacher's content subject mastery and pedagogical competence in teaching students at school. Although cooperating teachers supervised these students closely, it was inevitable nonetheless. The HEI teacher educator also acknowledged this competence gap:

There was also an element of a gap between the (student teacher) place of origin of teaching, which shaped their teaching skills, and the school where the school placement was located and vice versa (teachers were from remote areas, and the school placement was in the urban city school). (*Interview, HEI teacher educator 1*)

From the management perspective, the challenge of school placement was to secure an agreement with the HEI's partner school for the TPE school placement. As narrated by TPE management when they needed to accommodate 1000 students in one batch:

the most challenging issue in managing the TPE programme was when we needed to synchronise the cohort of students we received per batch and the teacher educators available. There was also a problem with the school's availability for school placement activity and scheduling (room assignment, time allotment). cooperating teachers in partner schools were also a big issue since they are out of our system. We need to get approval from the schools and give them extra work and responsibilities during the placement. It was chaotic sometimes. (*Interview, TPE Management 2*)

Since the government's TPE programme was a top-down approach, its running schedule was inconsistent. Meanwhile, the school has a fixed academic calendar, including the teaching and exams period. To accommodate the demand from the partner HEI for TPE school placement, the school had to work around the schedule to allow these teachers to have their teaching practicum, assign cooperating teachers, and allocate rooms and other facilities during school placement. Sometimes, this could be accommodated, while other times, it was impossible since the exam period could not be compromised. In addition, certain times during school holidays or the end of the academic year also impacted the school's academic calendar. One of the in-service teacher participants provided her school placement experience in her batch during the 2018 period. She described, "When it came to school placement, it was a holiday season for the partner school (at that time); therefore, they (TPE management) decided that we would do the school placement in our respective schools" (*Interview, In-service Teacher 4*). For these reasons, some schools were reluctant to sign an agreement for school placement, or even if they did, they would accommodate certain times that are allowed in the school academic calendar. As one of the cooperating teachers stated, "There could be around 3-4 batches in one year. This means 4 months of

our teaching and learning activities at this school will be ‘disrupted’ by the visit of these students doing their placement” (*Interview, Cooperating teacher 3*).

Lastly, in the previous sections on school placement, many participants brought up the issue of school placement, which was different from periods. The period could refer to the year or even a different batch within the year. The TPE guideline did not have specific regulations regarding the model of school placement, and here TPE management 4 elucidated the different models of school placement in different periods:

In 2018, the TPE model was introduced and we were trying to imitate their real-life teaching situation or context. Then we came up with the idea of teaching practicum in their respective school under the supervision of their school principals. In 2019, there were 2 choices, if I could recall. First, they could still choose to do their placement in their respective school and record the whole process on video with the rules, as mentioned previously. Second, this was especially applied to those outside Surabaya, where they would be placed in HEIs partner school. The result of the first option was not satisfying with the reasoning I mentioned earlier; thus, the 2020 model was all placed in HEI's partner school with no other option. (*Interview, TPE Management 4*)

From the in-service teachers' responses in the previous section, it was apparent that the school placement model had a different impact on their competence and learning experience. It highlighted many of the teachers' preferences, although it was admitted that each model has its benefits and drawbacks.

The previous sections extensively discussed the three main TPE stages, which focused on improving teachers' competencies. The next section will elaborate on the TPE's assessment elements, which are closely related to the policy of the teacher certification programme.

Assessment in TPE Programme

Assessments are crucial parts of the TPE programme that determine whether the in-service teachers receive a professional teaching certificate. There are several assessment elements in the TPE, called the *uji kompetensi mahasiswa program profesi guru* (UKMPPG) or student competence exam for the TPE. According to the ministry decree (Permenristekdikti, 2017), four aspects determine students' final performance: 1) process and product assessment of lesson plans, 2) process and product assessment of school placement, 3) competence exam, and 4) social and personal assessment (Kemenristekdikti, 2017, 2018). Out of the four aspects of assessment, the most prominent one is the competence exam at the end of the TPE programme. The competence exam itself is divided

into two: 1) the content mastery and pedagogy exam (UP) and 2) the teaching performance exam (UKIN). These two examinations are equally important for an overall passing grade.

Content Mastery and Pedagogy Exam (UP)

Following the question on the assessment of TPE, the research participants reflected on their experience of observing, assessing, and taking the assessment. This test received the most attention considering it was a high-risk exam with a high failure rate, as stated by one of the teachers, “The fail rate for UP was very high, and many of us had to retake the exam” (*Interview, In-service Teacher 9*). One of the in-service teachers admitted that she failed UP, “I admit that I failed the first attempt of UP, and I must retake it the second time. I had to study hard and focus on passing the exams” (*Interview, In-service Teacher 6*). She had to study three subjects, Chemistry, Physics, and Biology, for the UP exam, even though her background study was Biology. In-service Teacher 9 experience was similar to what in-service Teacher 6 went through during the UP exam:

The fail rate for UP is very high, and many of us have to retake the exam. So, we questioned the whole session where the assessment was carried out, which of all those we did contributed to the final score. There is no transparency in our UP score. If we don't pass the exam, we will not get the teaching certificate. UP is a cognitive written test that assesses our mastery of the content subject. Even though I am from a biology education background and taught in junior high, the test was all about science in general in which I will have Biology, Chemistry, and Physics with the level of difficulties of a college entrance exam. (*Interview, In-service Teacher 9*)

For in-service teachers who had been teaching in secondary and high school for many years, much of the knowledge in undergraduate coursework has long been forgotten; thus, it was challenging for them to take the UP exam. Because many of the TPE participants failed UP, several in-service teachers in this research revealed that they also failed the first attempt at the UP exam and had to retake the exam the second time. According to In-service teacher 5, as he recalled:

There were (around) 100 exam items in 2 hours. The content was on pedagogy and content subjects. Maybe about 70% content subject matter and 30% pedagogy. And the notification was only ‘PASS or FAIL’. We never knew our score or the minimum passing score. We could retake the exam three times, and I did one retake before getting my teaching certificate. (*Interview, In-service Teacher 5*)

There was a high anxiety in TPE assessment since TPE participants had to receive a pass on both the cognitive and performance exams, with the passing grade for the cognitive

exam being 80 (Kemenristekdikti, 2018; Kusumawardhani, 2017). Considering the high fail rate of the UP exam, the TPE management held an extra session to grind before the examination to overcome the participants' anxiety. To some extent, the TPE participants even requested some of the workshop sessions to be used as a grinding session, as In-service teacher 1 recalled what happened in his workshop session classroom:

I thought that's also why we focused more on the content subject in the discussion because the failure rate was higher in written exams. So, we spent a lot of time drilling the text items for the written exam. Not exactly all the time, but yes, a large portion went to the drilling method for the written exam. Also, we discussed the test item grid or test item indicator. (*Interview, In-service teacher 1*)

In-service Teacher 1 was a 2018 TPE graduate. Since the early TPE implementation, the anxiety about the UP exam has persistent, as echoed by In-service Teacher 8, a 2019 TPE graduate who experienced a similar situation and anxiety but luckily passed on the first attempt:

There was a drilling session slot for exam preparation during the workshop session. We were using the exam grid and the previous year's exam material. Nearly 80% of the exam questions were more or less the same as what we have learned during online and workshop sessions. So, I passed the exam on my first attempt. Others had to do it twice because the failure rate was relatively high (*Interview, In-service Teacher 8*)

The anxiety of taking the UP exam, as it was a high-risk, high-stakes exam, was even worse on the early TPE model, where the participants were primarily senior teachers who were digitally illiterate. HEI teacher educator 3 shared her observations from her involvement in the TPE for many years, and the same fear and anxiety persist until today:

I saw that in the PLPG, many teachers who were attending PLPG at that time were senior teachers. Often when I took part in the PLPG, I met my teacher in junior high school, so the pressure of not failing was very high. Some of them fainted and got sick during their training because they saw that PLPG's output was certification and incentive, which was a high stake in their eyes. (*Interview, HEI teacher educator 3*)

Their anxiety about the examination was justified since the TPE teaching and learning activities, as referred to in the previous section, focused on designing lessons and teaching practicum to sharpen their professional practice; meanwhile, their cognitive exam at the final of the training was more on the subject-specific content (Yusrina et al., 2019), with a heavy weight on the theoretical aspect. From these shared perspectives of the UP exam, the compelling aspect that was missing was that teachers not only needed a good mastery of content mastery and pedagogy aspects, but UP participants also needed a good

command of technology and time management. Indeed, a teacher requires a good knowledge of subjects to do well in exams, but having control over the technical aspect is also paramount. An interesting take from TPE management regarding the high fail rate of the UP exam is the following:

If we looked at the passing rate for senior high school teachers was higher than other levels, such as junior high, primary, or early childhood teachers. The pre-service teachers' programme passing rate was also high. My assumption was not because the module is too broad or the test is too difficult. The problem lies in the level of teacher competence itself. Let me put it this way. The TPE programme covered pedagogical and professional competence, and these modules were beyond these teachers' teaching level. This meant that all teachers, although teaching from different levels, would sit in the same class, taking the same module. In addition, they would be tested with the same thing they learned in the module. (*Interview, TPE Management 3*)

The overall discussion of the UP exam, from exam coverage and grinding session to anxiety due to the exam's high fail rate, shed light on the fact that research participants in this study shared the same experiences and sentiments towards the issue of examination in the TPE programme.

Teaching Performance Exam (UKIN)

The second final exam was called the teaching performance exam, which was held after TPE participant finished their school placement. Questioning the in-service teacher perspective towards UKIN, most of them found UKIN less intimidating compared to UP for some reasons shared by In-service teacher 1 during his UKIN exam:

I remember during the performance test, the HEI teacher educator and examiner at the exam were kind and comforted us by saying, 'As you are already a practising teacher with more than years of experience, I believe you can do it well.' Also, I think that's why they do not put too much emphasis on pedagogical aspects during the workshop stage. I believe that they think we have had enough experience in the classroom setting for so many years; they thought that pedagogy or teaching methods wouldn't be an issue. (*Interview, In-service Teacher 1*)

For the in-service TPE programme, the participants are all experienced teachers who have mostly worked at school for many years. The shared experience by in-service teacher 1 might be applied to most teachers from an urban area; however, if we recalled the school placement context in this chapter where in-service teachers were from different backgrounds and knowledge as well as skills, even though they were all in-service teachers, the UKIN experience might not be the same for all.

The teaching performance exam (UKIN) attempted to capture the teacher's teaching skills in real class situations. The assessors would be the HEI teacher educators and the cooperating teachers. According to cooperating teachers, only a few TPE participants failed the UKIN exam, and most UKIN exam takers passed on their first attempt. For those who failed, the cooperating teacher cited some reasons:

There were also elements of anxiety, mental breakdown, physical sickness, and many others during the exam day. And that eventually influenced their performance on that day. All these situations should be considered since it was pretty normal to happen. You can get sick during the exam day, and you cannot attend the exam. (*Interview, Cooperating teacher 2*)

However, due to the rigid guidelines of the UKIN exam, late attendance could not be tolerated. Cooperating teacher 3 recalled her experience of having a TPE participant fail in UKIN due to a non-technical matter, "I experienced one student who failed in the UKIN. This was not because they performed poorly but because he/she was late during the exam. So, it was more about a technical matter rather than about their performance" (*Interview, Cooperating teacher 3*). Although the passing rate was high, aspects of the performance exam could be improved, according to HEI teacher educator 1, "from (my) TPE teaching experience for many years, UKIN is a one-shot in an extended period, so the test only captures teaching abilities in that theme on that particular day but does not look at the overall teaching ability of teachers" (*Interview, HEI teacher educators 1*). They expected the performance exam to consider the teaching performance during the school placement rather than a shot exam that only captured that moment. Since teaching is about the dynamic of human interaction, there is nothing the same in each performance. No matter how well-planned the teachers were for the performance exam, there were always unpredictability elements.

Further on UKIN, the discussion emerged from the data on the UKIN location policy. Some in-service teachers who graduated in 2018 did their UKIN in their respective schools since their placement was in the same place. The examiner would be the same cooperating teachers, the school principal and HEI teacher educator, and their supervisor. In-service Teacher 4, however, even when she graduated in 2018, she was from a different batch. Her school placement was in her own respective school; nevertheless, during the UKIN, she was placed in a different school; as she recalled, "The UKIN was done in the HEI's partner school with examiners and cooperating teacher" (*Interview, In-service Teacher 4*). Another statement about the different approaches of UKIN was retold by teacher 8, who recounted her UKIN experience in 2019, "I did my UKIN at the same place I had my

school placement. The difference was on the UKIN assessor. My cooperating teacher was not allowed to get involved in the assessment of UKIN” (*Interview, In-service Teacher 8*). The policy around the performance exam has changed many times, as shared by in-service teacher participants. From the TPE management perspective, there were several reasons underlying the changes, as shared in the following:

Another consideration was the objectivity of the examination itself. Since it was a performance test, they will need to show their teaching skills in different contexts, different cooperating teachers, different schools and students, or basically, out of their comfort zone. Some people said that it was more superficial, but at this point, the 2019 model is more impactful than the 2018 model, in which you do all in your school or comfort zone. (*Interview, TPE Management 4*)

From the reiteration of school placement experience, similar changes occurred in UKIN due to subjectivity. UKIN, in this matter, is part of the national exam, and as previously mentioned, it was part of the overall score to pass the TPE programme. Thus, many aspects were considered and calculated to achieve the best result.

The section on assessment concisely examines the two types of TPE examinations, which determine whether the TPE participants pass the programme and how they perceive the overall process of the exam. The following section focuses on the discussion of TPE's impact on teachers' professional practice.

Impact of the TPE Programme

Accountability of a programme has been closely associated with its impact, such as improved student performance and meeting the standard quality (Cochran-Smith, 2021b; Mayer & Mills, 2020). The TPE aimed to shape a professional teacher with pedagogical skills and content subject mastery. The TPE accountability, although mainly focused on improving teacher competencies, was ultimately concerned with the quality of education by looking at students' performance in international student assessments, such as PISA, PIRLS, and TIMSS. A competent teacher was expected to impact their professional practice and improve students' performance. This section of the TPE programme's impact on teachers will be discerned from both the personal aspect of the teachers and the collegial impact. It elaborates on how TPE shaped their growth as a teacher and how it motivates them to improve themselves in their careers.

Personal Impact

The in-service teacher participants displayed increased efficacy when the question was on how the TPE impacted their professional practice. In-service Teacher 1, whose background is non-educational, shared his personal growth after partaking in the programme in terms of pedagogy competence and digital literacy skills. He explained:

My educational background was pure science, so teaching was new for me. The session where we worked on designing our lesson plan and creating teaching media to evaluate students' learning was constructive. From this training in TPE, what I learned the most is how to create content videos in teaching or learning, such as how to design lesson plans, how to create material for your lesson, and the media. (*Interview, In-service Teacher 1*)

For him, the newfound confidence impacted his teaching style. As he has been teaching at the secondary school level for many years, teaching with technology was not a big part of the classroom activity, and due to the exposure to technology during the TPE, he was more motivated to bring technology into his classroom. This self-efficacy was echoed by In-service teacher 2, who was also of a non-education background. He reflected:

I was from a non-educational background, so I never had any experience with pedagogical subjects during my undergraduate degree. So, at that point, I have to learn from the beginning about learning theories, students' learning styles, classroom management and pedagogical content knowledge. (*Interview, In-service Teacher 2*)

From their perspective, they believed that every TPE stage benefits them somehow. However, the most effective for them was the workshop session, in which they experienced the classroom dynamics and built a network apart from re-educating themselves with innovative learning, which was personally enriching. In their view, shaping a teacher's character and motivation, learning should occur by directly interacting in actual teaching situations. In-service Teacher 9 narrated her excitement about the TPE programme experience, stated:

I learned a lot about designing assessment instruments. Also, the peer teaching during the microteaching session was very engaging, in which I had the opportunity to see other teachers teach and get feedback from our teacher educator. It was the most impactful of my TPE experience. (*Interview, In-service Teacher 9*)

The voices of other in-service teachers in this study mirrored those previously mentioned. Although the TPE programme they experienced had weaknesses, as mentioned in other sections of this Chapter, the take-outs of the TPE were positive.

The positive responses and improved self-efficacy upon completing the TPE programme drive a positive change in their professional practice. From the international literature, teacher belief and classroom practice are intertwined, and international research explores how teacher change impacts professional practice (Biesta et al., 2015; De Vries et al., 2012; Whitworth & Chiu, 2015). Specifically, TPE is inclined to change in-service teachers do and think regarding their professional practice, and ultimately is to improve student's learning outcomes (Yusrina et al., 2022). The TPE stakeholders also shared their sentiments about teacher change and how the TPE has impacted teacher change.

Overall, the TPE in-service teachers expressed positive feelings that the TPE they underwent for six months has influenced them as individuals and professionals. However, cooperating teacher 1 doubted this, as she said, "Changes did not take place just because of 6 months of training. Changes were ideal but did not necessarily happen right after the programme" (*Interview, Cooperating teacher 1*). Principal 1, agreed to the statement that the change after the programme would not last long. From her observation of certified teachers in her school, "change was usually in the first year or two after certification or the TPE. When teachers later felt comfortable, and the monitoring and evaluation after the certification was weak, I observed that they would return to old patterns and habits" (*Interview, Principal 1*).

What contributed to the short-lived change, as stated by Principal 1, was the weak monitoring and evaluation system after the programme, the school workload and the lack of support from the school. Aligned with Principal 1's statement, Principal 2 highlighted the change in his schools: "Over the years, with more responsibilities or administrative work that took much preparation time, these teachers started to compromise on their teaching" (*Interview, Principal 2*). This was proven true when In-service Teacher 5 claimed that "to be honest, with workload and responsibilities back to school, the most important thing to do was to deliver the lesson and make sure that our student understands regardless of the approach" (*Interview, In-service Teacher 5*). From this statement, what hindered teacher change was partly the school influence, be it the workload, the busy schedule or unsupportive school culture.

For In-service teacher 6 who was a teacher in a private school, change was relative as she said:

For school implementation, not everything I learned at the TPE could be applied due to different school conditions and cultures. Private schools might be different from public schools where public teachers were very enthusiastic

about implementing CAR, which impacts their credit scores for promotions.
(*Interview, In-service Teacher 6*)

In her school context, even if she was motivated to improve her quality by disseminating her TPE experience, other teachers or school leaders did not necessarily share the same enthusiasm. Other teachers with different school contexts, such as In-service teacher 2, could maintain his motivation due to supportive school leaders. He shared, “At my school, teachers from the same subject regularly have a professional learning activity. In that activity, the senior teacher would share their best practice on teaching a topic, strategy for dealing with students and classroom management in general” (*Interview, In-service Teacher 2*). For him, his school fully supported teachers after completing the training by encouraging collaboration and knowledge sharing. This claim that aspect of school culture influenced teacher change was supported by the school principal 3:

In my opinion, the culture in schools needs to be managed. With the many (teacher) professional development activities that have been conducted or even TPE, when the school culture does not encourage teachers to develop or improve themselves and to go out of their comfort zone, there will not be much to be expected change after TPE. (*Interview, Principal 3*)

This finding supports the literature on the role of leadership and school culture in supporting the professional development of teachers (Admiraal et al., 2019; Louws et al., 2017; Postholm, 2019). Supportive leadership and a conducive environment for change will positively impact the teacher’s learning (Postholm, 2012).

From this study's findings, the personal impact of completing the programme was the increased motivation to partake in professional development activities and more involvement in professional learning communities. Principal 1, for example, shared her observation from the teachers at her school: “As the school principal, I saw this change for those (teachers) who are already certified in our school. These teachers were enthusiastic about improving their professional competence by actively participating in training” (*Interview, Principal 1*). She further explained that one of the reasons for this increase in motivation for professional development was the financial incentive they received after certification. In some regions, for example, the regional government issued a regulation that encourages certified teachers to be actively involved in the continuous professional development programme (Perbup, 2013). This law encouraged all certified teachers, including principals, to participate in professional development, write academic publications, and produce innovative work. As a result, teacher performance in the region increased (Kemdikbud, 2023).

The central government also provided a mechanism for these teachers to partake in professional development after completing TPE, and it was called *Pengembangan Keprofesian Berkelanjutan* (PKB), as explained by one of the in-service teachers:

PKB was an online content for teaching learning designed by the Ministry of Education in which teachers shared their best practices, such as SIMPKB (*pengembangan keprofesian berkelanjutan*) or an online system for professional development for teachers. The content was more targeted to the students on their respective levels. Instead of the independent learning online stage in TPE last time, I felt more beneficial using the learning app. (*Interview, In-service Teacher 1*)

From this programme, certified teachers could partake in the activity recommended by the school or the local education office. The current study of the efficacy of PKB, however, shows problematic issues around PKB implementation (Revina et al., 2020, p. 3), “The PKB programme has not targeted teachers based on years of experience, has not followed up teachers with post-training activities, has not incorporated teaching practice through lesson enactment, and has not built upon teacher existing practice”. The question of the efficacy of PKB was also resonated from the principal 3 statement:

As for the PKB that I knew so far, it seems that the important thing was to finish (the training), but I didn't see the seriousness of the teacher to really study (in that programme. As long as you have completed the mandatory attendance at PKB training, you are good to go. (*Interview, Principal 3*)

The problem with the professional development (PD) programme in Indonesia and its effectiveness in improving teaching quality has been widely researched, and the findings show the incoherent policy and implementation of the PD programme (Bjork & Susanti, 2023; INOVASI, 2023; Rosser & Fahmi, 2018).

Collegial Impact

This study questions school principals about what they observed from teachers after completing their TPE programme, obtaining the teaching certificate, and receiving financial incentives. All the principals in this study acknowledged that TPE impacted the teachers on a personal level, such as improved self-efficacy, motivation to partake in PD activities, and a better view of building collaboration with their colleagues. In addition, they also recognised these teachers’ improvement in their professional practice, as stated by one of the principals on teacher’s classroom practice:

The difference was significant for those who were already certified and not yet certified (in classroom management). We saw that classroom management from certified teachers was better than from uncertified teachers. If you look at the

learning innovation of these certified teachers, the impact of TPE was not that distinctive. Still, compared to before they started TPE, these teachers seem to be more confident in their teaching and have improved (their) classroom management (skills). (*Interview, Principal 1*)

Other principals also noticed that after the TPE programme, teachers became more aware of administrative teaching responsibilities, school attendance, classroom management and discipline. As for attendance, this was correlated with the monthly incentive they received as a professional teacher. Since they are entitled to a professional teacher salary, so their work performance is closely monitored. Professional teachers must hold 24 credit hours a week, and absenteeism is part of the report to the local education office, which manages teachers' performance reports and salary disbursements (Permendiknas, 2007a).

An increased sense of collegiality was also reported as an impact of partaking in the programme. The principal 3 stated, "These certified teachers had more leadership in the teacher study group and acted as cooperating teachers. They would lead the dissemination programme and provide training (to improve) the teaching and learning (in general) at school" (*Interview, Principal 3*). As evident in the previous section of teacher's involvement in the TPE activities, from the teachers' perspective, meeting other teachers from various backgrounds during workshop sessions enriched their view of teaching and expanded their network. School principals also noticed that these certified teachers were motivated to mentor junior teachers, especially uncertified teachers. As shared by one of the principals about practice in his school:

In this school, we had a school culture called peer teachers. The point was mentoring programmes for senior teachers to juniors (teachers). (we) hoped that more experienced teachers could pass (their knowledge or skills) on to friends with less experience in teaching. (*Interview, Principal 2*)

Based on his observation at his school, the certified teachers have more leadership in the teacher study group and mostly lead the training for other teachers. Similar to what happened in Principal 2's school, another principal also reported on the increased sense of leadership from these certified teachers:

During the monthly meeting (in internal team teaching), they could discuss the issues in the classroom (teaching) and find a solution. Actively involved in PLC by sharing the experience with others, from class management, material development, or learning assessment. (*Interview, Principal 3*)

Based on the literature, a school culture of collegiality significantly impacts teachers' classroom performance. "Collegiality creates an environment where professional communities can develop, and teachers can learn and work together as they apply changes

to their practices” (Whitworth & Chiu, 2015, p. 127) and teacher collegiality improves teacher self-efficacy (Ke et al., 2019).

This section provides evidence of the impact on teachers’ professional practice on both personal and collegial levels that emerged from the data. The findings further support the international body of literature on the impact of professional education programmes for teachers on their teaching performance, which, among others, is also influenced by leadership and school culture.

The following section of this chapter investigates the perspectives of other stakeholders, HEI teacher educators, cooperating teachers, and school principals on developing and practising TPE programmes to support teachers’ learning.

HEI Teacher Educators, Cooperating Teacher, and Principal Roles in TPE

The TPE’s stakeholders played an essential role in the whole process of TPE and upon completion of the programme. In this research's mesosystem dimension of Ecological System Theory, HEI teacher educators, cooperating teachers, and school principals' roles in the effectiveness of the TPE are discussed in this section. These stakeholders are involved in teacher recruitment, teacher induction, teacher career progression, teacher quality assessment and monitoring, and teacher preparation and setting up professional standards in the school context. Therefore, their roles were crucial in the overall process of TPE. This section discussed the stakeholders’ insight into the TPE design and practice to support teachers’ learning.

HEI Teacher Educators

HEI teacher educators in this study were involved in TPE programmes at different levels. Some HEI teacher educators were involved in managing the TPE under their department, and others were assigned only to teach some modules during the online stage and workshop session. Therefore, their responses to involvement varied throughout the programme. As stated by one of the HEI teacher educators who was part of the management at the department level:

HEI teacher educators were involved in all these phases, including being the examiner for performance tests as the final examination. They were not necessarily the same person (HEI teacher educators) for each stage, but they had responsibilities for what was assigned. (*Interview, HEI teacher educator 2*)

From the interview, HEI teacher educator 2 was involved in the TPE programme for many years; thus, she deeply understood the programme's objectives and what it entails to be an HEI teacher educator in this programme. As a coordinator of the TPE programme in her department, one consideration for HEI teacher educators to be involved in the programme is their expertise and availability. Not many lecturers are qualified to teach in the TPE, and according to her, even if they were eligible, they were overloaded with work to teach at the Undergraduate, Master, and Doctorate levels. For scheduling, HEI teacher educator 5 agreed in response to the complex scheduling of the TPE classroom in her statement, "In my study programme, the scheduling, module distribution and everything else were decided on the time availability of the teacher educator" (*Interview, HEI teacher educator 5*).

Reflecting on the previous section on TPE management's challenges to managing 1000 people in one cohort, not only was accommodating the facilities and infrastructure challenging, but allocating human resources was the most difficult. Either the HEI teacher educators or the cooperating teachers. As the issue of time availability is a crucial aspect of scheduling, the TPE coordinator at the department level was struggling to appoint an HEI teacher educator, as shared by the following:

Time availability and personal intention were considered, and people with the expertise could refuse to teach in the TPE programme, which means those who sometimes did not have the competence or expertise (to teach the TPE programme) need to be included to fill the void. (*Interview, HEI teacher educator 3*)

From this statement, human resources in TPE were an issue regarding availability and expertise, which might have impacted the implementation of TPE.

Other HEI teacher educators who were only assigned to teach have a different perspective on their role as a facilitator in this programme. HEI teacher educator 6, for instance, reflected on her role in facilitating learning and following the TPE guidelines:

Personally, I didn't know. The one who knew better was the head of the department or the one in charge of the TPE programme at my department. I assumed that the rules change according to the need. For example, teachers must be creative in implementing student-centred learning, and then the rules change to accommodate that need. All in all, as HEI teacher educators, we just follow the guidelines. (*Interview, HEI teacher educator 6*)

For her, it was not her responsibility to follow through with the student's progress or keep a portion out of her own. She also cited that her busy schedule prevented her from working

to that extent in the TPE. And this resonated with what HEI teacher educator 5's experience during her TPE activities:

As for the HEI teacher educators, to be honest, we were assigned to teach a module without knowing the whole structure of the curriculum. So, I would say I did not know much about it. All I knew was to get the schedule of what to teach. I had the guidelines on how to teach the topic and which group (class) I had to teach. After that, we manage our own learning materials, approach and everything else in our class. (*Interview, Teacher educator 5*)

According to her, she has already played her role in delivering the module assigned to them, so she would not know what happened after her session since they were also not involved in other aspects of TPE. Implicitly, the problem with HEI teacher educators' teaching approach to designing lesson plans, for example, that was brought up in the previous section, might be due to the detachment sentiment of their role as HEI teacher educators and other reasons such as the one mentioned:

There was a logbook where all HEI teacher educators should record what they had covered in their respective sessions so the next lecturer could continue. The problem was that even though the course was an advanced one, the paradigm of the HEI teacher educator can be different. (*Interview, HEI Teacher educator 3*)

For these reasons, although there was induction before the TPE programme started on the role of HEI teacher educators and guidelines they can refer to, these differences persist, as expressed in this research data.

Cooperating Teachers

Cooperating teachers were appointed senior teachers in the HEI's partner schools to participate as mentors, supervisors, and assessors during the TPE school placement stage, the teaching performance exam, and the peer-teaching at the workshop session, as previously discussed in other sections. Their significant role was acknowledged in the school placement, and the MoEC paid deep attention to improving their knowledge and understanding of their role as cooperating teachers. The way the role of cooperating teachers was understood from the responses in this study, one of the cooperating teachers stated:

In my opinion, the role of cooperating teachers was as a role model and someone who knows more about the school where the placement took place; the cooperating teacher guided these teachers to get to know the school environment and the class where they will teach. The cooperating teacher also played a role as supervisor for their work, and at the end of the placement, the cooperating teacher and the HEI teacher educators from the HEI would assess the

performance test. Among all those roles I mentioned, I think the most crucial role of a cooperating teacher was to provide a model of being a good teacher, showing commitment and dedication towards teaching, and taking these student teachers to experience the actual context of school. (*Interview, Cooperating teacher 1*)

There are several points that she mentioned as her role: 1) an expert teacher, 2) a supervisor, 3) an assessor, and 4) a role model, and this is in line with the government's regulation of what constitutes a cooperating teacher in the TPE programme (Permenristekdikti, 2017). The regulation also states that a cooperating teacher must have a minimum bachelor's degree and hold teacher certification. A new regulation set an additional criterion that a cooperating teacher must have a registration number and partake in special training to improve their capacity as a cooperating teacher. Their role of being a model of good teaching was referred to the session where the cooperating teacher shared best practices by demonstrating in her classroom session, and the in-service teacher TPE would sit as an observer before their actual teaching practicum, as expressed by the cooperating teacher 2:

One of the many roles of cooperating teachers was in planning the lesson. So, we acted as a mentor when they designed their lesson plan, prepared them to prepare for teaching, and observed them during their teaching practice. We give them guidance on classroom management, knowing and dealing with students, and building rapport with students. And getting them involved in school activities. (*Interview, Cooperating teacher 2*)

In this study, cooperating teacher respondents shared the same opinions. They had a good grasp of what constitutes a cooperating teacher, which further aligned with the international literature on the importance of knowing their role in better-supporting students in school placement activity (Mitchell et al., 2023; Rajuan et al., 2007; Russell & Russell, 2011).

Similar to HEI teacher educators' challenges in TPE, being a cooperating teacher also demands much commitment regarding time, energy and mental capacity. Cooperating teacher 3 stated, "During school placement, the main challenges are the scheduling and workload, which sometimes overlap with my responsibilities at school" (*Interview, Cooperating teacher 3*), cited that her responsibilities other than teaching were part of the challenges to become a cooperating teacher, as refer to the previous section on the number of times in academic calendar they had to welcome students in their school. The number of students under her supervision also demanded attention and guidance for their other

work, such as CAR, providing feedback for their reports and other non-academic activities during their stay at the school. In reflection on her role, cooperating teacher 2 narrated:

In my opinion, the main challenges would be time management and patience during mentoring activities. The student teachers came from many different backgrounds, which was a challenge. Different regions, sometimes different dialects, or different school contexts. So, I really need to be patient to cater to all the needs of these students, apart from doing my responsibilities. (*Interview, Cooperating teacher 2*)

This situation of school placement from the perspectives of cooperating teachers resonated with the previous study on school placement (Mitchell et al., 2023; Santoro, 2017). Her frustration with being a cooperating teacher might only be due to the high demand of balancing her time to manage all her responsibilities as a subject teacher, a school programme coordinator, and a cooperating teacher for school placement. In her case, being a cooperating teacher was already taxing, but adding patience to the equation in dealing with different aspects of students might drive them to the corner.

An interesting aspect emerged in the data regarding the dynamics between the HEI teacher educators and the cooperating teachers during their supervisory activity in the school placement, as TPE management 4 remarked:

Lecturers as teacher educators in the TPE also visited schools and worked with the teachers. However, it was mostly an unbalanced partnership as the lecturers were considered superior with more authority and knowledge. Especially when the teacher educators involved are those senior lecturers who used to be their lecturers back in their (senior teachers) college years. So, there was this unequal power struggle in the dynamic. In this situation, the cooperating teacher mostly relies on the lecturer for guidance and mentoring during the TPE and has less role in shaping the student teacher of the TPE programme. (*Interview, TPE management 4*)

From her observation, many of the cooperating teachers in the HEI partner school used to be graduates of the HEI as undergraduates or obtained the certification from the same HEI. Fortunately, according to her, this dynamic does not influence the quality of the process in the school placement stage.

School Principals

The main stakeholders of in-service TPE graduates are the school leaders where the in-service teachers would return to teaching upon completion of the TPE programme unlike the pre-service TPE programme. For this programme, the school is thoroughly involved in all stages of the TPE until their last assessment before obtaining their

professional teaching certificate. As part of the requirement, shortlisted in-service teachers to partake in TPE were required to report to the school authorities for a letter of permission. Generally, the school would permit teachers; however, there were some cases in which the school reconsidered their participation, either due to personal reasons or the school context, such as when the number of teachers in that school was small, that teacher's prolonged absence would disrupt the school schedule. A letter of permission from the school was a must for in-service teachers, and to obtain this letter, teachers needed to convince the school about their teaching conditions, as HEI teacher educators retold:

Some teachers reported that it was very difficult for them to get permission from the school. Especially for teachers from private schools. So, when they ask for permission, they must find a substitute teacher to cover their class. (*Interview, HEI teacher educator 3*)

In the previous discussion, it was made known that in-service teachers needed to find their own substitute teachers while she was away for TPE. In contrast, some others relied on the vice principal to manage their absence by team teaching or any necessary arrangement. School principals' leadership influenced the variety of schools dealing with teacher absence in their respective positions. The role of school principals in supporting TPE is crucial in that their support of their teachers' doing TPE will have a positive impact, as also discussed in the previous section of this chapter.

One of the most significant roles of school principals in the TPE, apart from their positive leadership to encourage teachers in their professional learning activities, was to ensure that the in-service TPE graduates would be allocated a minimum of 24 hours of teaching slots to fulfil the minimum of hours to receive the financial incentive (Permendiknas, 2007a, p. Ar.6). Principal 2 stated:

Therefore, there would be some internal conflict because this will have a multiplier effect on the situation (at the school level, ultimately). For example, we already have senior teachers here, and sometimes the teaching hours (min. 24 hours teaching per week) were not enough because private schools don't necessarily have a constant number of students coming in (each academic year). Then, suppose I (the school) recruited new teachers holding teaching certificates already. In that case, I need to provide a schedule (24 hours of teaching per week) for these new teachers to fulfil the requirements for (eligible) teaching allowance, which will undoubtedly impact reducing teaching hours for other senior teachers. And this is problematic. (*Interview, Principal 2*)

After obtaining the professional teaching certificate, in-service teachers are eligible for an extra salary if their performance meets the standard. The 'stick and carrot' policy, to some

extent, works for improving teacher attendance at school, which previously was a huge concern in Indonesian education (ACDP, 2014; Suryadarma et al., 2006; The World Bank, 2020c; Toyamah et al., 2010). Principal 2, who works in a medium-sized private school, found allocating 24 teaching hours for certified teachers a dilemma. First, the number of students admitted each academic year was inconsistent, and second, the total number of teachers consisted of certified and non-certified teachers. Therefore, as a principal, his role is central to teacher administrative management in their respective schools.

This section details the roles of TPE key stakeholders: HEI teacher educators, cooperating teachers, and school principals. Each position significantly contributes to TPE and directly impacts the quality of the programme and, eventually, the quality of the in-service teachers. The next section will review the management of TPE, the role of TPE management, and its challenges.

Management in the TPE Programme and its Challenges

TPE management is one of the main stakeholders in TPE, representing the HEI for the MoEC and acting as a manager for the structure of TPE in the HEI. They work with MoEC for the day-to-day activities of the TPE and are responsible for implementing TPE in the HEI.

Role of TPE Management

To understand what TPE management's role covers, TPE Management 4 briefly explained the role she has held for 15 years since the early model of TPE. She described the role of TPE management:

From the formal perspective, we organised a day-to-day TPE programme. The main activity was to ensure that the TPE programme ran well following the guidelines, whether it was the training, preparing the teaching staff, or giving a guarantee of the recruitment of prospective participants according to formal rules, that's formal. And in substance, we were responsible for running the TPE programme; how can we make the professionalism of teachers equal, at least as outlined by the curriculum. (*Interview, TPE management 4*)

In addition to that, considering that TPE is a top-down programme, she further elaborated on their role, which shaped the running of TPE in the institution. Due to her extensive experience managing the TPE, her role in TPE management held significance in ensuring that the programme was effective in shaping a professional teacher, although with some limitations, as she described:

The TPE module was from the Ministry. So, if we talked about the extent to which universities could be given space or flexibility to add on (breadth and

depth) module content, then there was not much that could be done. The TPE was indeed centralised, so the HEIs were more of the 'sub-contractor', and their job was to carry out 'orders' from the central government. Meanwhile, the Ministry has full authority. So, whatever was given by the Ministry, was implemented per the contract. (*Interview, HEI teacher educator 4*)

The TPE management research participants category agreed that the TPE management's role was complex. Their roles include running the day-to-day TPE activity, recruiting HEI teacher educators and cooperating teachers, arranging the students' allocation of facilities and infrastructure, and monitoring evaluation for quality assurance. From the many roles a TPE management holds, according to TPE Management 2, "the most important thing to do was to increase the passing rate from time to time. We did want to have a higher passing rate and, if it was possible 100%" (*Interview, TPE management 2*). From his statement, students' passing rate is a crucial aspect because the performance of HEI in TPE graduates will impact the allocation number of students in the next batch, which eventually corresponds with the economic aspect of the programme.

Challenges in the Management of TPE Programme

Following the description of their role as a TPE management, there are several aspects of challenges, as they noted:

There were 3 aspects. The first was the cooperating teachers, both lecturers and tutors who teach. If they have good teaching competence and, most importantly, enjoy the long process. The second was a class IT team. If we lacked IT team support, it would hinder online learning. This particular session (online) requires strong support from the third part since many students and HEI teacher educators do not have the skills needed to work with LMS. The third was the creativity of TPE management following the technical guidelines, such as curriculum and other services in management aspects. The most important was how to increase student graduation rates for every batch. (*Interview, TPE Management 1*)

The three aspects he mentioned are 1) human resources, 2) technology, and 3) Innovation in management, which was echoed by the TPE management 4 regarding human resources elements. She discussed,

I think the biggest challenge was the teacher educators' innovation in dealing with the student teachers in the TPE programme. As we were all aware, the TPE programme was rigid with a given curriculum; thus, it required the teacher educators to immerse themselves in the school context where the in-service teachers teach. In my observation, this attitude was still lacking in our teacher educators. I still felt that they were teaching how to teach to these teachers, but they were detached from the context. We want them to care more about these teachers' teaching context. (*Interview, TPE Management 4*)

She noticed that HEI teacher educators played a very important role in all stages of TPE, requiring a great deal of commitment to the programme. From her explanation, she flagged the issue of feeling ‘detached’ from the programme, which resonated with the previous discussion on the HEI teacher educator role in the TPE programme. Many of the research participants from the HEI teacher educator category considered their role as the coordinator of the department assigned to them. Apart from their responsibility, they were no longer involved in other aspects of TPE. What she raised, however, was more than the teaching responsibilities. From her perspective, she raised a concern about understanding HEI teacher educators in the context of school teaching. As a teacher educator in a higher education institution context was extremely different from the secondary level education, she expected HEI teacher educators to have more understanding of the teaching context of the in-service teachers, which further supports the literature on culturally responsive teaching and what requires to become culturally responsive in the classroom (Gay, 2018; Sancho et al., 2024; Smolcic, 2011).

The second biggest challenge previously touched on in other sections is the resources, be it the human resources, the facilities, the infrastructure, and the supporting elements to run the programme. To run 3 to 4 batches a year with each as many as 1000 people per cohort requires a significant effort for grouping, scheduling, room allocation, transport and accommodation and school placement. TPE management 2 stated, “The teacher educators were a huge problem when, for example, we had 1000 TPE participants came in one batch. That means we needed qualified teacher educators for these classes” (*Interview, TPE Management 2*), which showed that it was not only about the number of teacher educators which become an issue but to have qualified ones to teach in TPE were the problem.

The most interesting statement from the TPE management on their challenges was on the funding aspect of the TPE, especially for the in-service one, which TPE management 2 remarked:

The funding for the in-service TPE is under the central and the local government. Most of the time, the provincial government was a bit more problematic. The payment was mostly late. Meanwhile, we have to pay everyone involved in running the programme. It was difficult since the funding delay would greatly influence the running of the programme, such as the situation with the cooperating teachers during the school placement stage. When the payment was delayed, and we needed to pay these teachers, we were in a difficult situation since we would place students in the school for the next batch. To avoid as much as possible this kind of situation, we made a contract and

agreement with the local government that we would suspend the (professional teaching) certificate until the payment was made. We tried to avoid that situation as much as possible, but if necessary, we will take that measure. (*Interview, TPE Management 2*)

Unlike the pre-service TPE, in which students paid their tuition directly under the HEI's management, the in-service TPE was under the subsidy of the central government and local government funding. The HEI signed a contract to run the programme, which the central and regional governments will pay. When the payment was delayed for some reason, the situation impacted the programme's running. This was also related to the previous statement from TPE management 4, which stated that due to funding sources, the HEIs which run TPE were tied with the contract and had less flexibility in management and innovation.

Educational Values and Beliefs that Influence TPE Programme Implementation

The educational values and beliefs influencing the TPE in Indonesia were deeply rooted in the nation's cultural, social, and economic context. From the TPE guidelines (Kemdikbud, 2021 Chapter 3), the definition of a professional teacher is:

Professional teachers who are devoted to God Almighty and have noble morals who master the teaching material, have Indonesian character and personality, inspire and become role models, have a charming appearance, are dignified, firm, sincere, and are disciplined, can educate, teach, guide, direct, train, assess and evaluate students in accordance with the demands of the latest and future developments in information and communication technology.

To achieve this goal, the TPE guideline sets eight graduate achievement standards, one of which explains the importance of creating a professional teacher who has teacher characteristics and leadership skills. For that purpose, educational value and belief about becoming a good teacher were embedded in one of the modules they learned during the pedagogy session in the online independent learning stage, as mentioned by In-service Teacher 2:

There was a module on the professional character of teachers during an online session. It was a reading only and was discussed during the workshop session. This topic was part of the written exam (UP), so it was about the character and attitude of being a teacher. (*Interview, In-service Teacher 2*)

Furthermore, to translate the TPE guideline on professional teacher standards into action, TPE participants were assigned to the HEI dormitory facilities to accommodate the character development training and embed the education value and belief as the goal. For

additional information, this practice where teachers were assigned to stay in the dorm during the TPE was before the COVID time, as emphasised in Chapter 2 context of the study that the TPE programme under study was during 2018-2020 before the COVID restriction. From his experience, TPE management explained the setup for the in-service teachers' partaking workshop and school placement stage to stay in the dorm:

This idea of staying in the dormitories was to reinforce character development as teachers. For example, they would be involved in scouting activities on Sundays. Overall, staying in the dormitory, they are expected to maintain the ethics of being a teacher, such as no shorts or casual clothes outside of TPE sessions. Well, at least that is the ideal of the TPE regulation at first. (*Interview, TPE Management 4*)

The in-service teachers were put in the dorm to instil this character building of a good teacher. As mentioned by Principal 1 on her expectation of a professional teacher:

The character building of a teacher is an essential characteristic of a professional teacher. As a teacher, (one) must be competent, disciplined, punctual, have a good mastery of the content subject, and have other pedagogical, technical, and professional abilities (in teaching). (*Interview, Principal 1*)

During their stay in the dorm, the TPE management ran activities such as scouting as referred by the TPE management 4, teacher study group sessions and other activities to build a sense of collaboration, all to achieve the objectives of shaping a good character teacher with Indonesian values and beliefs as stated in the Law. As how the teacher's disposition is part of the TPE programme, according to one of the HEI teacher educators, there was an assessment of the teacher's character as she remarked:

There was an assessment related to the attitude and character of the teacher. It was executed in the process and at the end. In the school placement stage, there was an attitude assessment (by mentor teacher) and the Performance Test (UKIN). (*Interview, HEI teacher educator 1*)

This was similar to another HEI teacher educator experience: "I remember there was peer assessment or self-assessment on how to assess colleagues in terms of attitude and interaction...but we don't know whether the score is reliable or not" (*Interview, HEI teacher educator 3*). As for teachers, in-service teacher 9 stated, "I remember something similar about assessing teacher's attitude" (*Interview, In-service Teacher 9*), although she was not sure what and how it was measured.

Some key aspects of Indonesian education values and beliefs, among others, are the philosophical basis of *Pancasila* and the *Bhineka Tunggal Ika* or Unity in Diversity as a national identity (Suryadarma & Jones, 2013). The philosophical foundation of *Pancasila*

is an embodiment of five foundational guiding principles of education: 1) Belief in one God, 2) Just and civilised humanity, 3) The unity of Indonesia, 4) Democracy led by the wisdom of deliberation among representatives, and 5) Social justice for all Indonesian people. The Unity and diversity of Indonesia is a motto of uniting its diverse cultural, ethnic, and religious landscape. Therefore, the Indonesian education system emphasises the importance of national unity while respecting diversity. The TPE strongly integrates this value into the curriculum (Kemendikbud, 2020c; Kemenristekdikti, 2018). The curriculum of the TPE programme includes teacher disposition and ethical values embedded in the classroom activities as mentioned in the TPE guidelines. Strong emphasis was on character education, instilling moral and ethical values, and fostering virtues such as respect, responsibility, honesty, and tolerance. The programme aimed to shape teachers with the character which was described as '*memesona*' or a professional teacher with a disposition of leadership, inspiring, and strong professional and pedagogical competence (Kemendikbud, 2021).

Another interesting aspect was the TPE participants' cultural and linguistic backgrounds, which influenced or hindered their performance in the TPE. From the cooperating teacher 1's perspective that brought up this issue shows that the cultural barrier is a problem in the TPE classroom. She discussed:

In my opinion, as cooperating teachers, the challenge for us was when we had students from other parts of the country, such as the eastern part of Indonesia. We experienced difficulties dealing with these students, including their sociocultural background. I was sorry to say this, but they were very different, and what we had usually did not relate to their real teaching context. I would suggest that these teachers from the eastern part of Indonesia have their teaching practicum in their respective regions to be more relevant. (*Interview, Cooperating teacher 1*)

As mentioned in the other section, TPE participants were from across Indonesia to take the programme in the appointed HEI location; since Indonesia is a multi-diverse country, linguistic and cultural diversity are common occurrences; for instance, teachers from Papua island could be appointed to do their TPE in one of the HEIs in East Java. However, unexpectedly, this diversity was one of the contributing factors to the possibly ineffective TPE programme, although it was in contrast with the belief and values of *Pancasila* and unity and diversity as the core principles of TPE. From the cooperating teacher's perspective, for example, the concern was understandable since the student teacher was involved closely with students; the delivery of the lesson should be effective to make the learning happen.

As for the in-service teachers, the diversity issues mentioned by other research participants, such as HEI teacher educators and Cooperating teachers, were not apparent in the data. On the contrary, the in-service teacher was particularly fascinated with the classroom dynamics and diversity during the workshop session and school placement, which some of the in-service teachers stated:

I met teachers from Papua or other eastern parts of Indonesia, sharing knowledge on how they taught back in their region. It was enlightening to know the challenges of teaching in their context, and they were still very motivated. It was nice building a network, which we could not do comfortably in the online phase. (*Interview, In-service teacher 9*)

Referring to the TPE guidelines and laws regulating the programme, shaping teacher dispositions following Indonesian education values and beliefs was strongly emphasised through the curriculum, classroom action, or assessment. It was also supported by the literature on how crucial professional disposition was for teachers and in teacher education programmes in general (Lang et al., 2024; Stephens, 2019; Wadlington & Wadlington, 2011) This data showed mixed results regarding how these beliefs and values are held in the programme. Nevertheless, the key stakeholders of the TPE have a strong sense of the paramount importance of beliefs and values in the programme.

Unexpected Findings

From the data analysis, the researcher found that aspects of the TPE unexpectedly contributed to shaping the programme and its outcome. The unexpected findings in this section are non-technical aspects of TPE; nevertheless, it is crucial to pay attention to them for an impactful programme.

Personal

The research participants highlighted the issue of academic misconduct regarding TPE. Many TPE participants, especially in-service teachers, openly discussed the issues because they participated in the conduct or were aware of the phenomenon. The academic misconduct revolved around plagiarism during the school placement while working on their online learning. As shared by In-service Teacher 1, the following resonated with the previous discussion on online independent learning drawbacks:

We could not be sure of honesty and transparency since there was no HEI teacher educator monitoring feedback during this stage, especially when the test items were multiple-choice. Some of my fellows worked using two devices, one for doing the exam and the other to check the resources on the internet for the answer. (*Interview, In-service Teacher 1*)

The previous discussion mentioned how the HEI teacher educators were pessimistic about the effectiveness of online learning since the chances of academic dishonesty were high; considering they were all mostly on mute during the online stage and they worked independently on the task in multiple-choice in their own time, which rationalises the following situation:

Since we all had a similar situation, let us say that the TPE participants in my group, 'helped' each other by doing the work. It was not something I was not proud of. Since most of us struggled with the content module, we relied on each other on the online test. It lessens the burden at some point. (*Interview, In-service Teacher 2*)

Although it was surprising that academic misconduct was a norm among the in-service teachers, it was more surprising that it was due to circumstances that enabled the conduct to happen.

Referring back to the discussion of educational beliefs and values, the objective of shaping professional teachers was to instil high morals and ethics. However, the findings of this data showed that the external motivation to pass the assessment in the TPE was more dominant than the internal motivation to improve one's quality (Ashadi & Rice, 2016; De Vries et al., 2014; McMillan et al., 2016).

Institutional

One of the complex issues in TPE in general is the teacher recruitment pathways, which caused several problems, including the prolonged waiting list of in-service teachers in TPE. The issue was not only about recruiting teachers with no teaching certification but also about the fact that the recruited teachers were teaching subjects that were different from their educational background. Extensively in this matter, one of the TPE management shared:

Yes, it (teacher recruitment with no professional teaching certificate) has to stop and it should be the government's mandate to stop the incoming in-service teachers. It's the government's calling to decide on this situation to stop the school from employing uncertified teachers. And to improve the quality of teachers, in my opinion, schools should employ those who are certified and have undergone pre-service TPE. This change required all elements to be aware of the situation: the TI, the school, the school leader, the local government, and the central government. As long as there was no further announcement about any changes in the in-service teachers' scheme, this programme will still run. And as long as the central or local government does not set strict rules in the (teacher) recruitment process, we will keep seeing this complicated situation about teacher management. Those teachers under the contract system will also want

to participate in the TPE eventually. I would suggest the government cut this system and set a strict rule that the new teacher recruitment is those who already hold a professional certificate. That way, it will not raise an issue with the government later. (*Interview, TPE Management 2*)

Chapter 2, Context of the Study, briefly discussed this teacher recruitment matter. In this study's context, 1.5 million in-service teachers were still uncertified, even after almost two decades of TPE implementation for teacher certification programmes. This is due to recruiting in-service teachers without considering aspects per the MoEC guidelines for teacher recruitment. As explained in Chapter 2, the pathways of the teacher profession in Indonesia, to some extent, complicate the situation of the in-service TPE programme.

Summary of the Findings

This chapter presents the multiple dimensions of the TPE: microsystem, mesosystem, exosystems, macrosystem, and chronosystem. The data analysis shows that each dimension contributes to the TPE programme's effectiveness in improving teachers' competencies and how the dynamics have shaped it today. The table highlights the key findings corresponding to the research questions as a guiding principle.

Table 12 Summary of key findings

No	Research Questions	Key Findings
1	How do teachers perceive the Teacher Professional Education programme's effectiveness in improving their competencies? Does it support their professional practice? If so, how?	<ul style="list-style-type: none"> a. Online self-independent learning <ul style="list-style-type: none"> ● Infrastructure and technology-related matters ● Teaching and learning in self-directed learning require learners' readiness b. Workshop and Seminar Session <ul style="list-style-type: none"> ● Teaching and learning in workshop sessions were considered effective and enriching for classroom action. c. School Placement <ul style="list-style-type: none"> ● Activity in school placement aims to enrich in-service teachers' learning experience, although subjectivity in school placement is unavoidable. ● Challenges in school placement include the in-service teachers' prior knowledge and background and the placement situation during the pandemic d. Evaluation and Assessment

No	Research Questions	Key Findings
		<ul style="list-style-type: none"> ● High-risk and high-cost assessment ● Anxiety and other issues with assessment e. Impact of the TPE Programme <ul style="list-style-type: none"> ● Personal enrichment and teacher change ● Improving collegiality and collaboration
2	How do the cooperating teacher and principal HEI teacher educators view the TPE programme's design and practice to support teachers' learning?	a. Roles of TPE HEI teacher educators b. Roles of cooperating Teachers c. Roles of the school principal
3	From the TPE management perspective, what challenges and obstacles inevitably develop as policies and practices are implemented?	<ul style="list-style-type: none"> ● Role of TPE Management ● Challenges in the Management of TPE
4	As a complex teacher-professional education system in Indonesia, how do educational values and beliefs influence the implementation of the TPE programme?	Educational Values and Beliefs that Influence TPE Programme Implementation <ul style="list-style-type: none"> ● Pancasila ● Bhineka Tunggal Ika or Unity in Diversity ● '<i>Memesona</i>' or a professional teacher disposition,

Unexpected findings from this research on the personal and institutional levels explained that implementing TPE to improve teachers' competencies is dynamic and multifaceted. On a personal level, the findings showed that academic misconduct is apparent in the action. On the institutional level, the complex issues of teacher recruitment are problematic, and the issue of 'schooling but not learning' has been a long predicament to overcome. The following chapter is a Discussion Chapter that presents a discussion of the findings and correlates with the literature review to build sound arguments for the research.

Chapter 6 DISCUSSION of RESEARCH FINDINGS

Introduction

This chapter connects the research findings with the critical literature pertinent to the research question. This chapter starts with a discussion of the research findings from the previous chapters to answer the overarching research question and fulfil the purposes of the study, i.e., to investigate the TPE programme's effectiveness from the perspective of the primary vital stakeholders and, more specifically, to examine how they engaged and shaped the programme to improve teachers' competencies. Using the theoretical framework underpinning and following the study's findings, this discussion chapter will evaluate the effectiveness of the TPE in enhancing teachers' professional and pedagogical competencies from the point of view of in-service teachers, HEI teacher educators, cooperating teachers, school principals, and TPE management.

This chapter is structured to align with the key findings, i.e., online pedagogy, professional and pedagogical knowledge through classroom practice and peer teaching, school placement, assessment, equity and impact in teacher education programmes, and the complex context of TPE in Indonesia, along with the issue of isomorphic mimicry. The critical implications of TPE and teacher change are presented after the discussion.

Online Independent Learning

The data analysis highlights the fact that each stage of TPE plays a pivotal role in the in-service teachers' learning and change. In particular, online independent learning was designed to deliver content-subject and pedagogical knowledge to improve teachers' pedagogical and professional competencies using the Technological Pedagogical Content Knowledge (TPACK) approach. As stated in the guidebook of 2018 TPE, the online learning stage was utilised to initiate a new model incorporating three learning cycles: online learning, face-to-face workshop sessions, and school placement. As stated in the 2018 TPE guideline, "the in-depth analysis of the content subject-specific is done online based on several factors, such as teachers' responsibilities when teaching in schools and the overall capabilities of the HEIs. Consequently, online learning deepens professional and pedagogical mastery" (Kemenristekdikti, 2018, p. 17) Since then, the integration of digital technologies in teaching and learning has been firmly embedded in the in-service TPE programme.

The use of digital technologies in education has increased over the past two decades, and it is inevitable (Benitt et al., 2019; Ghavifekr et al., 2014). Although there has been a strong emphasis on incorporating online pedagogy for teacher education and professional development, not much has changed (Archambault et al., 2022). Therefore, considering the rapid growth of digital learning, future teachers must have adequate skills to teach learners to live as digital natives in the 21st century, as Lauwers supports (2019, p. 46), “It is essential that initial teacher training and professional in-service training for teachers equip teachers with knowledge and skills to use the potential of the new technologies to meet the expectation of and stimulate digital-born learners”. For this reason, Indonesia embedded ICT in TPE for in-service teachers, which aims to respond to classroom teaching and learning challenges. Considering that the in-service teachers are mostly senior teachers, this action is paramount to upgrading teachers’ skills to keep up with the rapid technological changes and students’ needs. In the in-service TPE, online independent learning is crucial to re-training teachers’ content subject and pedagogy mastery before the face-to-face workshop session.

The use of ICT in TPE has been integrated into the programme and evolved, mirroring its growing presence in the broader educational landscape (Kemendikbudristek, 2022c). Despite the longstanding implementation of ICT in teacher education programmes, the response was varied. From this research findings, the use of ICT in TPE received mixed reviews, mainly relating to how the TPE participants are struggling to acquire the skills due to several reasons, such as the age gap, knowledge of relevant operating technology, and the accessibility of technology itself for teachers. Furthermore, anxiety about using ICT in the classroom during TPE was apparent, too. For instance, teachers’ low digital literacy and resistance to change eventually impacted their professional practice and students’ abilities (Hafner, 2019; Keengwe & Onchwari, 2020; The World Bank, 2020c; Yarrow et al., 2022). In addition to this challenge, a report by the World Bank (2020a, p. 52) on Indonesian technology in education readiness highlights that “good quality digital infrastructure remains a major challenge in Indonesia.” Consequently, the quality of internet connection, especially in some regions in Indonesia, is mainly poor, contributing to the low ICT competencies of Indonesian teachers in general, “the low level of digital literacy among teachers and inertia in adopting digital technology is one of the main obstacles to growth. This has created a lack of qualified teachers who are willing to embrace new digital technology.” (The World Bank, 2020a, p. 44)

From Chapter 5, it is evident that the blended learning model of TPE is necessary considering the context constraint, for instance, the geographical distance and the teachers leave of absence. Some participants considered online learning to be quite effective in reducing the time they were absent from their respective schools. For others, self-independent learning was practical in their own time and pace. Notwithstanding these benefits, some obstacles in online learning were apparent from their statements. Two critical issues raised by the research participants included, first, the technology infrastructure and connectivity, which influence the accessibility or equity and quality of the online learning stage, and second, the online learning pedagogy for both the HEI teacher educators and in-service teachers. These issues will be discussed in the following sections of this chapter.

Accessibility and Equity of Online Learning

Online delivery encompasses synchronous and asynchronous modes of engagement, evaluation tools, and web-based course materials (Singh & Thurman, 2019). The findings of this study highlight a crucial challenge in online self-regulated learning; to put simply, not all teachers understand how to operate a computer and access its primary function. Furthermore, many in-service teachers were not familiar with the LMS platform used in the TPE online independent learning stage. As mentioned in the findings, there was no induction process before online learning, which made it more challenging. From this context, it can be inferred that the TPE programme expected the in-service teachers to have basic knowledge of using technology in learning before starting the TPE. This means the challenges of online learning come from the technology infrastructure and, most importantly, from teachers' digital literacy competence. As explained in the findings, many in-service teachers cannot access LMS because of their basic knowledge and technology mastery, so it was a challenge during the online sessions. The problem of equity and access was further exacerbated by poor technology infrastructure in the vast geographical diversity of Indonesia.

According to the OECD's report on equity in education (2018, p. 13), "equity in education means that schools and education systems provide equal learning opportunities to all students. Equity does not mean that all students obtain equal education outcomes, but rather that differences in students' outcomes are unrelated to their background or to economic and social circumstances over which students have no control." Equity in this regard refers to three domains: physical resources, human resources, and social resources

(Tate & Warschauer, 2022). Firstly, the physical resources are related to the availability of hardware technology sufficient to support online learning, such as laptops with adequate specs, smartphones, and, most importantly, quality internet connectivity that ensures stable connection. Secondly, the human resources necessary for digital literacy or the skills and knowledge for online learning require one to manipulate online technology and skills for self-regulated learning, including time management, focus, and interest in learning online. Thirdly, the social resources involve competent people or communities that support effective online learning.

It might well be argued that online learning, a fundamental pillar of the TPE, can help to bridge the geographical and demographic distance of teachers in Indonesia who partake in the TPE programme. Online learning can also help bridge the distance gap in geography, at least at the initial stage of learning. However, the contextual issues and challenges with online learning situation were not without challenges, as noted in the following observation from one of the HEI teacher educators:

Some of the challenges presented by in-service teachers were: first, they did not master IT even during the online (phase). Second, internet connection was weak in many areas of Indonesia. Some said they had to climb to higher ground to get a good internet signal. In some regions such as Maluku and Nusa Tenggara, for example, the obstacle was not only in the ability of teachers to use technology but also in the presence of technology as in hardware (such as operating computers) and the infrastructure (as in unstable the internet connection). (*Interview, HEI teacher educator 1*)

These findings are consistent with a report on the digital future of teacher education in Indonesia that highlights that “access to the internet and technology was the largest constraint to participation” (Yarrow et al., 2022, p. 14). This is because connectivity during online learning is either inadequate quality or unavailable. HEI teacher educator 6 stated during the interview, “the online session’s challenge was mainly related to the internet connection, which goes for both the teacher educator and the TPE participants”. Considering the poor technology infrastructure in certain remote regions in Indonesia, online learning carries a considerable bandwidth and is almost impossible to undertake. Furthermore, remarks from the in-service teachers also found that participants mostly require assistance in technical support during the online independent learning stage. The findings from this research support the urgency to upgrade digital infrastructure and internet connectivity to improve online learning.

Digital literacy and self-regulated learning (SRL) shape online learning. It necessitates learners to have good digital literacy skills that enhance their readiness,

motivating them throughout the online learning process. In the TPE context, in-service teachers TPE participants in this study are first-time users of online learning platforms, which most likely applies to most TPE participants in general. Since the LMS is primarily used in higher education levels, in-service teachers from the secondary school level are not familiar with the online platform. Self-regulated learning is a core requirement of the TPE, giving TPE participants more flexibility and autonomy in their learning, such as timing and pacing. However, self-regulated learning also demands more personal responsibility regarding time management, motivation, and engagement during online learning (Carter et al., 2020; Wei & Chou, 2020). Thus, learning readiness for online learning is also an essential factor that must be considered an important component of the effectiveness of online learning (Rafique et al., 2021; Reyes-Millán et al., 2023). According to Warner et al. (1998), one key aspect of keeping students motivated is providing an engaging learning experience. In this research, TPE participants highlight their struggle during the online learning due to familiarising themselves with the LMS and navigating their work with it. They also remarked on the importance of feedback from their tasks and assessments, which they rarely get.

The 2018-2020 in-service TPE provided a more significant degree of novelty for in-service teachers' professional education regarding the newness of online independent learning, which was never introduced in the previous models of TPE. However, as the in-service teachers stated, based on their experience in different batches of TPE, induction was non-existent before the online learning commenced. Consequently, TPE participants needed to accustom themselves to the online learning platform while managing the online module. A different approach to learning, such as online learning, should not hinder learning effectiveness as long as teaching presence and learning presence are visible (Hayes et al., 2015; Shea et al., 2022). Interactive activity can still work effectively in online learning if the support system is well-designed to help learners adapt to the learning context.

Online Pedagogy for Key Stakeholders in the TPE

The findings in this research indicate that the in-service teachers and HEI educators have different perspectives regarding online self-regulated learning. Since most in-service teachers were first-time learners in online learning, their struggle in operating the hardware of technology and manipulating the use of LMS in online learning was apparent from their responses to the interview questions. The majority of the TPE participants stated that they

must learn how to navigate using the LMS in learning at the same time they learn the module presented in the online session:

At that time, I was the batch senior with others (participants) younger than me. I thought I was the only one having problems navigating online learning using LMS. It is new for me. Moreover, it was not only me. Most of my colleagues in my batch were lost in this LMS thing, but nobody dared to ask. Since no one had initiated an inquiry, we decided to learn this learning technology independently. (*Interview, In-service Teacher 4*)

Since there was no induction before the online session began, the TPE participants stated that they relied on each other during the online learning, including during the session where the HEI teacher educator role was missing, which was providing feedback. As stated by one of the in-service teachers:

Learning activities in the online phase have not been practical. We never get feedback when teacher educators have an assignment on a topic or problem. Now, in this TPE online phase, there is no feedback from the teacher educator on the assignments or tests. The feedback usually was from our colleagues in the discussion forum. So, peer tutors work well in this phase. (*Interview, In-service Teacher 9*)

Since the TPE online stage was designed to be self-regulated or facilitate independent learning, the roles of HEI teacher educators in this session were also ambiguous, exacerbated by the asynchronous online learning model hindering active engagement during classroom activity and assessment. As the HEI teacher educator 2 reflected on the TPE during that batch,” The online session is a self-study session. So, the in-service teacher reads the material, does the assignment online and sends it to the teacher educator. Then they will get feedback on their work” (*Interview, HEI teacher educator 2*). For some of the HEI teacher educators, their online activity has reduced their teaching to assessment sessions, and they were circled in providing feedback (Fletcher & Bullock, 2015). The findings show that these views conflict with each other. The in-service teachers believe individual feedback is crucial for their learning; meanwhile, for the HEI teacher educators, feedback is relatively general, as online learning was designed as independent learning. In short, HEI teacher educators and in-service teachers need to understand online learning pedagogy.

The five lenses in research and practice in online learning introduced by Greenhow et al. (2022) highlight the significance of engagement and pedagogy, among other ‘lenses’, to view the complexities of online learning. The engagement lens focuses on learner engagement; according to Martin and Borup (2022, p. 164), “Online learner engagement

is the productive cognitive, affective, and behavioural energy that a learner exerts interacting with others and learning materials and through learning activities and experiences in online learning environments.” It looks at the interaction of cognitive, affective, and behavioural engagement with others and with content materials during online learning. A student’s conduct and mindset demonstrate involvement and activity is referred to as ‘learning presence’, a term proposed as an additional Community of Inquiry (CoI) element that covers cognitive, social, and teaching presence in online learning (Garrison et al., 2000). According to Hayes et al. (2015), more attention should be paid to learners’ behaviours and attitudes that engage them in individual self-regulated and collaborative online activities. Shea et al. (2022) also supported this idea to incorporate learning presence in the discourse of the CoI framework. As learner discourse in online learning is crucial to knowing its effectiveness, a measure of the quality of learner engagement should be the future research of online learning. Archambault et al. (2022) make an important observation that programmes designed to train teachers, both teacher preparation and in-service professional development programmes, for online learning settings have fallen short. In summary, Martin and Borup (2022, p. 174) emphasise the urgent need to “provide online instructors with professional development on how to engage learners,” this highlights the need to provide skills which means the importance of providing skills for online pedagogy for facilitators and teacher educators for future preparation. This point is borne out in the direct experience of the participants in this research.

Although teaching with technology has been prominent for the past two decades at all levels of education, many educators have limited knowledge to connect content knowledge and the relevant pedagogy that integrates technology in teaching and learning. The TPACK model was introduced over two decades ago (Mishra & Koehler, 2006). It refers to integrating technology into pedagogy to teach content knowledge. With the development of online technology and its associated tools, online learning and pedagogy have become increasingly relevant. Many research attempts to identify the instructional approach that yields the most effectiveness in an online learning setting (Devi & McGarry, 2013; Fletcher & Bullock, 2015; Gorman & Hall, 2023; Steele et al., 2019). Archambault et al. (2022) introduce an online pedagogy framework based on learner-centeredness, constructivism, and contextual learning. Considering the inevitable circumstances of the current education context that position learning as central, especially in Indonesian teacher education programmes, it is high time to include online pedagogy as an integral part of the

pedagogy module in the teacher education programme. The experience of one of the in-service teachers recorded in this research remarked:

My TPE programme was in 2019, and I went through 3 stages, starting from independent online learning, the workshop and school placement, which is very different from TPE 2020, which is all online. So, my input is that the 3-stage model is more effective. So, the online session using the LMS was beneficial when I later taught during this pandemic. (*Interview, In-service Teacher 6*)

For the graduates of TPE with an online learning component, it was evident that the digital literacy skills they gained from their TPE experience were beneficial in their professional practice. This highlights the need to pay serious and sustained attention to integrating online pedagogy into teacher education and professional development.

Workshop Session and Quality of Teaching in TPE

In blended learning, a face-to-face session is a significant component that enables learners to interact with the instructor and their peers in a real classroom context. The blended learning model, including in the teacher education programme, has been widely adopted in the education sector (Dziuban et al., 2018). From the findings of this study, the research participants highlight their learning experience during the workshop session as impactful on their professional practice and practicality in their classroom. Interestingly, they viewed that the face-to-face meeting not only provided them coverage of the module from their online learning with classroom discussion and interaction with their teachers and colleagues from all across the country but also exposed them to learning that they found inspirational and eventually enhanced their self-efficacy belief. These findings support the international literature that there is a correlation between quality PD and self-efficacy beliefs (Desimone, 2009; Desimone & Pak, 2017; Yoon & Goddard, 2023).

Quality of Teaching in the Workshop Session of the TPE Programme

At the TPE, the face-to-face workshop was held to provide a learning experience for the TPE participants after the online self-regulated learning stage. The workshop focused on designing lesson plans, material development, teaching media creation, peer-teaching, and microteaching. The workshop was initiated with a module discussion and continued with the designing lesson plan. From the data, the TPE participants highlighted their workshop session stage as enriching and considered that the session allowed them to receive feedback for their performance, expose them to other teachers' teaching styles, promote collaboration and build networks with teachers from other schools and regions.

They considered that the quality of teaching at the workshop session contributed to their enhanced learning experience. The research participants weighed the experience of interacting with other teachers from different school settings or regions and meeting the experts who delivered effective instruction during the programme. This influenced their perspective of effectiveness in the TPE (Yoon & Goddard, 2023). Within the international literature, there is an ongoing debate on whether offline or online learning is more effective (Alqurashi, 2019; Pei & Wu, 2019; Xu & Jaggars, 2014), and this debate tends to focus on the students' satisfaction with their learning and whether there was a gap in students' performance in face-to-face (FTF) or online learning.

In this research, in-service teachers perceived both FTF and online learning as having advantages and disadvantages that influence their professional practice, and they expressed both satisfaction and dissatisfaction with what they experienced during those stages of learning. From the data in the Findings chapter, it was apparent that TPE participants expressed their struggle with online learning due to several issues in technology, their learning readiness, and the level of feedback, among other things. However, they also admitted that online learning provided them with learning autonomy, which was positive from their perspective. At the same time, in-service teachers conveyed positive attitudes towards effective classroom practice during the workshop, such as peer teaching and lesson planning. However, they also noted that they expected more classroom discussion on the module they had online, but due to limited time, it was not deeply explored. Based on the data from both stages, TPE participants value face-to-face workshops better than online learning, which supports the literature that students perceive face-to-face learning as more effective in knowledge gain (Landrum et al., 2021; Platt et al., 2014). This preference aligns with previous studies' findings that the quality of interaction and communication is highly valued; thus, a face-to-face TPE workshop session is considered more effective. In addition, based on these studies, the level of feedback provided during face-to-face interaction is more satisfying than during online learning, which also supports the findings of the online learning TPE (Fish & Snodgrass, 2015; Horspool & Lange, 2012).

Pedagogical Content Knowledge (PCK) in the TPE Programme

The knowledge base for teachers in teacher education programmes is content subject mastery and pedagogical knowledge. Teachers should have the competencies to deliver the content topic and persuade students how the subject relates to the actual

implementation in their lives. Part of the TPE stages during the workshop session was the peer teaching activity, in which students implement what they learned during the online learning stage to the actual lesson plan and implemented during the microteaching session. During the microteaching, in-service teachers put the theory into practice in the actual teaching context. To do well, teachers need to master content knowledge (CK) and deliver the lesson meaningfully by applying general pedagogical knowledge (PK) so that students can enjoy learning (König et al., 2017). This skill requires the pedagogical knowledge that enables teachers to have good classroom management, facilitate students' active learning, and create learner-centred teaching and learning. In other words, this is pedagogical content knowledge (PCK), described by Shulman (1987, p. 8), "It represents the blending of content and pedagogy into an understanding of how particular topics, problems, or issues are organised, represented and adapted to the diverse interest and abilities of learners, and presented for instruction." The main classroom activity during the TPE workshop session was a classroom discussion of subject-specific knowledge and how to implement the content in the lesson plans, which were later performed in the microteaching session. This ability is crucial for the in-service TPE participants before the actual teaching practice in the school placement stage.

Based on the teacher competence assessment report by the government (Sirait, 2016; The World Bank, 2018a), Indonesian teachers' performance in content subject mastery is relatively low. According to the current study on the Indonesian education system claim, "A key constraint to improving student learning outcomes is the quality of teachers. According to multiple sources, many Indonesian teachers lack the subject knowledge and academic capacity to support student learning at the highest level" (Yarrow et al., 2022, p. 7). A vital aim of the TPE is to improve teachers' content subject knowledge and pedagogical competence by having three integrated stages of learning that expose teachers to multi-dimension of learning and connect the theoretical knowledge into practice. The workshop session seeks to achieve this aim by reinforcing the knowledge of effective lesson planning, applying problem-solving activities using CAR, and, most importantly, engaging the TPE participants to practice hands-on teaching through microteaching under the observation of the HEI teacher educator and the cooperating teachers. In other words, the workshop session trained the in-service teachers to exercise their PCK. Mishra and Koehler (2006) state that PCK involves proficiently utilising instructional techniques with a suitable conceptual framework to tackle learner challenges and misconceptions while promoting meaningful comprehension. Most of the participants acknowledged that the

workshop session had been practical in giving necessary exposure to implementing their knowledge of theory into practice, as one of them remarked:

The workshop session was helpful because I can relate the theory we learned during the online session to the practical implementation of the theory in classroom learning. So, I can tell that when I work on designing a lesson on a particular topic, I can decide on the learning objectives, the instruments needed, the approach to deliver the topic, and the assessment needed to measure students' learning. (*Interview, In-service Teacher 1*)

For in-service TPE participants, the workshop session is more relevant for them to improve their classroom practice, which is also supported by cooperating teacher 1, “when teachers do not know how to teach, it does not mean they do not know the theory, but it is more that they cannot apply their theory of learning to the actual teaching context” (*Interview, Cooperating teacher 1*). The ultimate objectives of TPE are to improve content subject mastery and pedagogical competence. Therefore, PCK was embedded in TPE to train teachers to master what they teach and skilfully develop strategies to engage the students in the lesson.

School Placement Experience from the Stakeholders' Perspective

HEI partners with schools to arrange a school placement activity for in-service teacher participants. According to Gorman and Furlong (2023), there are three models of HEI-school partnership in teacher education literature: complementary, collaborative, and HEI-led; the most common is the latter, the HEI-led model. In this model, the HEI “takes responsibility for the overall planning and defining of approaches to school placement learning assessment” (2023, p. 3). This model emphasises the dominant role of HEI and the recipients' role of schools, creating an imbalance in the HEI-school partnership. This context is apparent mainly in the interaction between the HEI teacher educators and the cooperating teachers in the supervision visit during school placement, placing the HEI teacher educators in a superior position to their teaching counterparts. This imbalance is exemplified in the experience of a research participant's description of the school placement. TPE management 4 elaborated on the HEI teacher educators and cooperating teachers' interaction during the school placement as an unequal power dynamic since the HEI teacher educators used to be their lecturers. Hence, the cooperating teachers are relying on the HEI teacher educator's guidance for the direction of the school placement activity. In short, cooperating teachers contribute significantly to the teacher preparation programme during the school placement. Their active role influences in-service teachers'

growth and professional development. Despite their significant role, there is a striking imbalance in the dynamics between the HEI teacher educators and the cooperating teachers during the school placement (Clarke et al., 2014).

Cooperating Teachers and In-service Teacher Interaction

The role of cooperating teachers is central in school placement, which requires certain quality and mentoring skills that enable them to communicate effectively, build trust, and provide guidance and feedback as a crucial part of shaping teachers' attitudes (Mitchell et al., 2023). International body literature on the role of cooperating teachers in school placement shows that effective and sufficient mentoring impacts the performance of student teachers as well as identity formation (Izadinia, 2014; Rajuan et al., 2007; Thompson & Schademan, 2019); therefore, it is crucial to provide the necessary training for cooperating teachers in doing effective mentoring (Betlem et al., 2019; Clarke et al., 2014). In the TPE programme's new model for in-service teachers, specific requirements cooperating teachers should fulfil, such as having a license as a cooperating teacher, alongside being a senior teacher who already has a professional teaching certificate and passing the selection of becoming a cooperating teacher held by the MoEC. In the current arrangement of the TPE, the MoEC set up training for cooperating teachers for those who are shortlisted to take part in the professional development for cooperating teachers, the candidates of which are under the recommendation of the HEI school partners. In this training, the MoEC encouraged agency and ownership in their mentoring activity, which is far different from the old mentoring arrangement in the previous school placement. Traditionally, the head of the school assigned teachers to become cooperating teachers for the incoming in-service teachers to do their placement without any prior knowledge or clarity of their roles and responsibilities, and they received this appointment as part of their workload. In other words, the appointed cooperating teachers do not have a voice in this matter since the school principals and the HEIs handle the assignments.

The findings of this study on TPE cooperating teachers on school placement activity showed that although many of the appointed cooperating teachers accepted their extra role, some others also pointed out the challenges of managing their main teaching responsibilities, other school work commitments, and mentoring the incoming TPE participants, which in some schools will be all year round. In this situation, most cooperating teachers are assigned to the role without having the knowledge or power to

exercise their power or willing to do the role of cooperating teachers, as Mitchell et al. (2023, p. 11) elaborate on the ‘moral madness’ between policy and practice, in which cooperating teachers are conflicting between duty and goodwill, “... there was an overwhelming sense of the role being overlooked in the placement process.” With the extra duties, most teachers have to juggle their roles in the school, which emphasises the need to have training for the cooperating teacher to sharpen the skills of mentoring as their main responsibility, with the assumption that not all good teachers are good mentors (Baum & Korth, 2013; Gareis & Grant, 2014).

The in-service teachers also experienced a pressing and stressful situation during the school placement. The school placement can be challenging for TPE participants due to time constraints, student behaviour, classroom realities, and academic demands. From the findings chapter, many research participants expressed their school placement experience as stressful and high-pressure. TPE participants were overworked with workloads such as preparing for teaching practicum, classroom observation, writing reports, conducting CAR and partaking in day-to-day activities at school. Therefore, time is a crucial aspect of school placement for both in-service teachers doing their placement and the cooperating teachers. For this matter, TPE participants and cooperating teachers’ dynamics are essential to support a positive school placement experience (Izadinia, 2016; Portman & Rass, 2019). Acknowledging this importance, the current policy in TPE requires both HEI teacher educators and cooperating teachers to show agency in their roles. The MoEC set up a system where only eligible candidates for the respective roles are shortlisted; for instance, apart from being nominated by the school principal and HEI, cooperating teachers need to be aware of the expectations of their role to be elected. In addition, to support the HEI-school partnership in this programme, the MoEC also provided professional development for mentoring the mentor to build their skills and improve their effectiveness in mentoring during the school placement (Betlem et al., 2019).

HEI-School Partnership

The findings of this research on the TPE HEI-school partnership show concern about the mutual benefits gained over the collaboration for the school partnership for all parties: the HEI teacher educators, the schools, and the cooperating teachers. Reports on the research from several countries show that HEI-school partnerships are challenged by securing an agreement for school placement between the school and the HEI perspective

(Hall et al., 2018; Kertesz & Downing, 2016). This was also an issue in this research, alongside the issue of duration and shared ownership of school placement.

School placement in TPE for in-service teachers has been embedded in the curriculum since the 2018 model; however, other teacher education programmes, such as TPE for pre-service and initial teacher education programmes, increase the number of schools that need to be involved in this activity. In other words, the frequency of school placement activity held in the same school is high, which might disrupt the school's academic schedule at some point. For this reason, securing a place for school placement is not an easy feat. Since the MoEC guideline only mentioned that the school placement activity is carried out in schools, the data showed that some batches of TPE in-service teacher participants had their school placement in their respective schools.

Developing and sustaining partnerships in teacher education programmes are challenging, as they require participants to develop and collaborate (Gorman & Furlong, 2023). Studies on school partnerships flag two important takeaways (Betlem et al., 2019; Mitchell et al., 2023): firstly, understanding the role and responsibilities of all parties involved, such as the HEI teacher educators who supervise and the cooperating teachers for their mentoring role, and secondly, having a deeper understanding of what accounts for partnership and having an attitude of ownership towards it. As it is emphasised by Hall et al. (2018, p. 205), “the partnership enacted must be genuinely meaningful to and ‘owned’ by both parties in the partnership”.

The issues of supervisory quality also contribute to the challenges in sustaining the partnership in school placement, such as between the HEI teacher educators and cooperating teachers or student teachers and cooperating teachers (Beck & Kosnik, 2002; Thompson & Schademan, 2019), and the HEI and school management relationship (Zeichner, 2009). As revealed in the findings of this study, TPE management 3 stated, “There was this unequal power struggle in the dynamic. In this situation, the cooperating teachers mostly relied on the lecturer for guidance and mentoring during the TPE (school placement). They had less of a role in shaping the student teacher of the TPE programme” (*Interview, TPE management 3*). With the current system of more involvement and professional development of cooperating teachers, it was expected that the quality of supervisory will be improved, “With the changes, we expect the dynamic between cooperating teachers and HEI teacher educators to be equal and open, which both contribute to shaping the professionalism of student teachers in the TPE programme” (*Interview, TPE management 3*). In conclusion, it will clarify each party's role in the HEI-

school partnership and provide a mutual understanding of what partnership should support a positive school placement experience.

Assessment and Accountability in TPE

One of the most crucial aspects of TPE is the final assessment, the UP and UKIN. According to Richmond et al. (2019, p. 86), “Assessment is complex and serves many different purposes”, which generally appraises their performance and abilities and offers feedback to help them advance their practice. Performance assessment, for instance, is conducted to ensure that a teacher’s professional development goal is met, such as during the licensing or certification process (OECD, 2013). The most common teacher assessment for measuring performance is the paper and pencil test that assesses basic academic skills and content knowledge, which, according to Darling-Hammond (2010, p. 2), are poor predictors of teaching effectiveness in the classroom, “The key problem is that current measures for evaluating teachers are not often linked to their capacity to teach.”

Assessment in the TPE is called UKMPPG (*Uji Kompetensi Mahasiswa Pendidikan Profesi Guru*) or teacher professional education student competency test. The test attempts to assess TPE participant's competencies at the end of the programme through two types of assessment: the content subject examination and the teaching performance assessment. The main purpose of the assessment is to measure whether the candidate can ‘teach’ in the classroom with the performance assessment and, in general, appraise the TPE participants’ learning gains after completing the programme. Thus, the assessment aims to know whether the process has effectively achieved the learning objectives by knowing the outcomes of the student’s performance using the test. The UKMPPG itself received mixed responses from the stakeholders due to the high failure rate and the test coverage content. Some of the remarks question whether the UKMPPG can accurately capture teachers’ quality and their teaching quality. Considering that UKMPPG is an essential part of the TPE, and assessment issues in teacher education programmes have received critical attention (Brantlinger et al., 2020; Richmond et al., 2019), this section evaluates the practice of assessment and its impact on the TPE.

High-stake and High-cost Assessment

Assessment is considered a critical activity in ensuring the quality of education (Barnes & Cross, 2021), particularly high-stakes performance-based assessments, such as

the Literacy and Numeracy Test for Initial Teacher Education (LANTITE) in Australia and UKMPPG in Indonesia. Both assessments are part of the teacher reform agenda in the respective country and are a high-stakes assessment programme that aims to ensure teachers' quality. Assessment is considered high-stakes when it bears consequences on individuals or institutions, such as promotion, accreditation, or measure of accountability (Feuer et al., 2013). When the test result is used as a basis of critical decision-making, for instance, admission, performance and payment, the test is classified as a high-stake one (Ashadi & Rice, 2016; Worrell et al., 2014).

At the final stage of the TPE, the participants undergo a final examination called UKMPPG to measure their subject-specific content mastery through multiple-choice tests and teaching performance exams (Kemendikbudristek, 2021). Although the passing rate of UKMPPG is relatively high, in the data collected in this research, participants stated that many of them need to redo their content subject exams for a second or a third time. The government-funded their first exam, and retaking it incurs costs they must bear personally. Given that once teachers pass the exam, they will be professionally certified, which results in gaining access to the financial incentive, the UKMPPG is undoubtedly a high-stakes and high-cost assessment. Some of the research participants stated that after they failed the exam for the first or second time, they put more effort into this UKMPPG until they eventually passed. They emphasise that the exam is worth the effort since they need to do it only once and will receive an allowance for the rest of their career. For these reasons, the face-to-face workshop's teaching and learning activities shifted to grinding sessions. Consequently, in-service teachers' motivation and attitudes towards the training and classroom activity focus primarily to the test.

Considering that UKMPPG serves as a gatekeeping mechanism for the teachers' accountability after a long training process, the government attempts to design a test that can accurately measure teachers' competence. The situation, however, contradicts the objectives of the assessment itself. The TPE participants focused no longer on improving their teaching skills and content subject mastery. Instead, they put more effort into passing the exam by studying past exam papers. Moreover, as mentioned in Chapter 5 findings, some of them resort to academic misconduct, which supports the previous study findings on teacher certification and high-stakes exams in Indonesia. These studies claim that the high-stakes testing, in one way or another, leads test-takers to conduct academic dishonesty during the process (Ashadi & Rice, 2016; Kusumawardhani, 2017; The World Bank, 2018b), which also happened to the Indonesian high-stakes student exam, as

Berkhout et al. stated. (2020, p. 2), “Cheating at national exams in Indonesia has been a persistent problem. Reported cheating ranged from students copying each other’s answers to teachers and principals providing answer keys to students before or on the exam day.” This situation is no different in other contexts of high-stakes assessment such as UKMPPG; like a vicious cycle, this practice is hard to break.

TPE Assessment and Anxiety

The data presented in the findings highlights the fact that during the TPE programme, the pressure of high-stakes exams results in anxiety for participants. The in-service TPE participants and other stakeholders, such as the HEI teacher educators, cooperating teachers and TPE management, experienced the pressure of this examination. They were all concerned about the exam's passing rate, as according to one of the TPE management, a high passing rate indicates the quality of the TPE training and consequently influences the HEI’s performance, which eventually affects the report for the MoEC. A good performance appraisal of TPE means receiving more students in the next intake of TPE at the HEI.

Test anxiety is described as “a distressed state experienced when a person perceives an evaluative situation as threatening: they might anticipate failure or feel threatened by the situation when their behaviour or performance could be perceived as poor” (Crişan et al., 2014, p. 667), in particular when the test is a high-stakes examination, such as a teacher credential candidate examination (Shimave et al., 2020). In many countries, such as Australia, the US, and Indonesia, a wide array of research shows that high-stakes exam test anxiety plays a part in the performance of teacher candidates and motivation in their learning (Ashadi & Rice, 2016; Barnes & Cross, 2021; Hardacre et al., 2021). The pressure from this situation resulted in several other issues, such as academic misconduct and intense ‘grind’ sessions as coping mechanisms for pre-exam anxiety.

From the findings, TPE participants reported that test anxiety triggered tension during the workshop classroom activity and impacted their learning. Many TPE participants attempted to cope with test anxiety by turning the workshop session into a grind session, even though the TPE management had set a one-week schedule of enrichment sessions before the UP exam. As one of the TPE management admitted, grind sessions are unavoidable since HEIs also need to ensure a high passing rate. This high anxiety was even more severe for more senior in-service teachers, as the findings showed they vomited or fainted during the exam. Although test anxiety, to some extent, differs

from each individual, it would be beneficial to identify the factors that predict test anxiety to understand the roots of the problem better (Hardacre et al., 2021), as Shimave et al. (2020) suggested that educational stakeholders should continuously review the causes of exam anxiety and understand the factors influencing pre-exam anxiety for better academic performance.

Equity in Teacher Education Programme

The issue of equity in the TPE was a strong feature of the findings; in the context of this research, inequity was apparent in gaps in digital literacy, diversity of culture and linguistics and TPE participants' knowledge gaps. Cooperating teachers, TPE management and HEI teacher educators who were involved directly with the TPE highlighted these issues extensively. They suggested that these should be addressed within the TPE. In Chapter 5, cooperating teachers elaborate on the issue of equity by stating that involving TPE participants during school placement is challenging, especially for those from the eastern part of Java, due to the differences in the teaching context they had in their respective school and the school where they did their placement.

Given Indonesia's diverse context, aspects such as geography, cultural backgrounds and in-service teachers quality play a significant role in teacher education programmes (Chang, et al., 2014; Revina, 2022). From the data, TPE stakeholders, such as HEI teacher educators and Cooperating teachers, question the programme's robustness and how the graduates' quality can be upheld within such a diverse context. A key finding of this study shows the discrepancy between the western and eastern parts of Indonesia in terms of infrastructure and development and its subsequent contribution to the challenges in Indonesian education. This study builds on a previous study (Beatty et al., 2018; Suryadarma & Jones, 2013; Toyamah et al., 2010) on Indonesian education, highlighting the discrepancy between rural and urban areas and the consequences for teacher quality and teaching.

The in-service TPE is a programme the government legally mandates to certify all the current in-service teachers. Given the mandated nature of the programme, the findings from this research highlight the fact that the issue of equity should receive greater attention from the government authorities. If students and teachers are to thrive, we need to create equality in teacher education, keeping in mind the diverse context of Indonesia. We need to design a systematic structure that guarantees social justice for all by focusing on the “

selection process, pedagogies, curriculum, and epistemic access” (Burke & Whitty, 2018, p. 281), and lessen the gap in teacher quality entering the programme (Revina, 2022).

Impact of the TPE Programme on Professional Practice and Teacher Change

The literature review chapter outlined the accountability of teacher education programmes to ensure their effectiveness (Cochran-Smith et al., 2018; Darling-Hammond, 2020; Ehren & Baxter, 2021). However, it is challenging to measure the effectiveness of a programme solely without considering the influence of factors that support or impede teachers from making changes. Current research suggests that teachers' effectiveness greatly improves when they can link theory and practice to allow them to comprehend the learners' needs and learning process. Smith and Gillespie (2007) claim that there are factors that affect teachers' implementation of what they learned from their training, and further, they narrowed it down to the microsystem domain of teachers:

- 1) Individual (teacher) factors include teacher motivation for professional development, teacher concern, teacher self-efficacy, teacher cognitive styles, teacher reflectiveness, teacher formal education, and years of experience.
- 2) School, programme, and system factors include leadership, coherence between professional development topics and school reform, collegiality within the school, and teachers' working conditions.

This aligns with the research findings highlighting the personal and collegial impact of teachers' microsystem domain and how this domain drives change in teachers' beliefs and attitudes. In addition, TPE stakeholders are fully aware that change does not happen solely from a short period of training in pedagogical and professional content knowledge, particularly when external factors such as school leadership, the school environment and other support systems are not fully in line with the idea of innovation and change. Even after in-service teacher TPE participants completed their TPE and are fully certified as professional teachers, their competency exams held periodically for all in-service teachers are unlikely to increase significantly (Kusumawardhani, 2017), or they will miraculously change their classroom practice. External factors also influence changes in teacher beliefs and attitudes and the improvement in the quality of teaching, as one of the in-service teachers remarked:

From my perspective, not everything I learn or what I get at TPE training can be applied directly at school because many support systems, either from management, human resources, or infrastructure, are not working appropriately. There are so many obstacles, even today. (*Interview, Teacher 4*)

The findings from this research, particularly from the school principals' interviews, highlight the fact that TPE training has a significant impact on in-service teachers and that change *does* happen in their professional practice. However, as also reiterated in the findings chapter, the change was short-lived; having been certified as a professional teacher, the teaching workload, working conditions, and other responsibilities reduced the enthusiasm of these teachers for change, and their effort to change eventually diminished, which is similar to the washout syndrome or burnout effect. The burnout effect, as explained by Saloviita and Pakarinen (2021, p. 1), “develops gradually when work becomes unpleasant, unfulfilling, and unrewarding”, which is commonly experienced by teachers (Kim et al., 2017; Özer & Beycioglu, 2010). A study by Sansom (2020, p. 1) shows that “the change process for experienced teachers is both more complex, more varied and less certain,” and the study suggests that we need to pay attention to the teachers’ experience and their diverse teaching context to expect as sustained change in belief and professional practice. In summary, as it applied to in-service teachers TPE participants, recognising that change in teachers is a gradual and complex process for teachers is important; it is also crucial to note that constant support, feedback, reflection, and pressure are necessary for improvement or change processes to happen (Guskey, 2002; Sellars, 2012).

Isomorphic Mimicry and Education Policy Related to the TPE

In the previous Chapter 2, Context of Study, has highlighted the success of increasing student enrolment over the past two decades (Beatty et al., 2018; The World Bank, 2018a) and the national increase in budget education (by 20% annually) (The World Bank, 2013) invested by the Indonesian government to improve the quality of education by focusing on the quality of the teachers. In addition, Jalal et al. (2009, p. 17) reported that the shifting focus to improve the quality of teachers was driven by the global phenomenon of an education reform agenda:

Around the world, there has been an increasing shift away from concern with access to concern with quality in the educational system of developing countries. If Indonesia is to keep up with global trends in this regard, it must actively campaign to improve the quality of its teachers. The poor performance of Indonesian students is attributed to the general inadequacies of its teachers.

As mentioned in the rationale of the study, the Teacher Law marked the first step of the government’s attempt to improve the quality of teachers by developing teacher

competency standards, implementing teacher certification/licensing, and elevating teachers' status as professionals by providing financial incentives based on their qualifications and professional skills. Although it was seen as an ambitious initiative, the Teacher Law 2005 served as a landmark of the teacher reform agenda in Indonesia, which is tied closely to the TPE as part of teacher certification.

As stated in the introduction, the TPE programme has been implemented for more than a decade; however, it is questionable as to whether the aspiration to improve the quality of teachers has been achieved (Afkar et al., 2018; Barjum, 2022; Rosser et al., 2022). TPE was seen as a top-down approach programme and a one-size-fits-all model. While the TPE has undoubtedly gone through changes, which is illustrated in the programme timeline in Chapter 2, the Context of The Study, international bodies continue to report that Indonesia's students' performance still falls behind compared to the other countries in the Southeast-Asia regions (Singapore, Vietnam, Malaysia and Thailand) in literacy, numeracy and science (Akmal, 2018; Beatty et al., 2018, 2019). These reports cited teachers' poor performance as the central issue in the students' relatively poor performance, but other issues, such as inadequate education policies and system governance exacerbated this.

The international donor's evaluation of Indonesia's education performance claims that the teacher certification programme did not demonstrate any significant impact on the teachers' competencies, let alone students' performance (Chang et al., 2014; INOVASI, 2023; The World Bank, 2013). Throughout the implementation of teacher reform since 2005, the TPE has evolved to improve teachers' competence. Chapter 2 of this research illustrated the evolution of the TPE to meet the needs of education change and how these changes brought significant improvement in the design and practice. It was during this evolution of the TPE when 'the transport of best practice' took place, which was inspired by what is called 'international best practice' (Allen et al., 2018; Jalal et al., 2009) or policy borrowing. For the Indonesian education context, the policy borrowing was much discussed regarding the programme design, curriculum or assessment (Andrews et al., 2017; Puad & Ashton, 2023; Usman & Kurniasih, 2019), or what is known as 'isomorphic mimicry', defined by Pritchett et al. (2013, p. 2) as "adopting the camouflage of organisational forms that are deemed successful elsewhere in hiding their actual dysfunction", a trend in education that is seen globally (Sahlberg et al., 2017). As a result of this isomorphic mimicry phenomenon, the TPE was gradually evolving with the current implementation set the programme with a credit-bearing system, recognising the RPL,

adopting online learning, and implementing high-stakes assessment, regardless of the diverse context of the Indonesian education landscape, teachers' educational background and equity in education, which was also presented in the previous section in this chapter, and most importantly emerged as a crucial finding of this study.

It was difficult to pinpoint certain countries of Indonesian policy borrowing; nevertheless, it was apparent that it was driven by international organisations such as the OECD and the World Bank and the development of education in other regions through the international student's performance indicator, such as PISA, PIRLS and TIMSS, which also a global trend. The need for quick fixes is adopted without considering the differences in the local context, which results in confusion and mismatches in local needs (Sahlberg, 2019; Steiner-Khamsi, 2016). Yan and Brown (2021) state that changes require a paradigm shift and a gradual implementation that considers the local context, culture, and societal context, which does not take place in Indonesia's context of teacher reform.

In summary, the Indonesian TPE programme was strongly influenced by isomorphic mimicry, which is evident and significantly impacts decision-making and TPE-related policy. The findings in this research show that the evolution of policy documents on TPE enacted over the years and the changing implementation of TPE is the government's effort to adapt to global education trends to improve the quality of teachers and teacher education programme.

The Complexity of Teacher Professional Education Programme in Indonesia.

The domains in ecological system theory presented in this study operate as complex systems that are interrelated as a whole rather than as segmented and independent entities. The programme is shaped by the conceptualisation of effectiveness as understood by key stakeholders: in-service teachers, cooperating teachers, HEI teacher educators, school principals, and TPE management. It is also the case that within each domain is a complex system in which the dynamics are not only within and between the individuals but also the systems and the environments that influence the programme's effectiveness.

The study findings bring forth the interaction of dynamic relationships of the key stakeholders in varying degrees and intensity during the TPE that impacts the in-service TPE participants' learning, which supports the argument about the interconnectedness within the domain that linkage between a domain that affects the individual intermediate environment (Bronfenbrenner, 1979). Although the voice of the in-service teachers is dominant in the microsystem, the perspectives of other key stakeholders are also

prominent because the stakeholders are interdependent and interrelated in the complex system; thus, the knowledge was shared within the system (Davis & Sumara, 2006; Opfer & Pedder, 2011).

Recognising the complexity of TPE, this study's data analysis utilised the six stages of reflexive thematic analysis (RTA), detailed in Chapter 4 research methodology, and processed the data as a whole dataset instead of a separate domain to answer the research questions. The findings and the analysis of the findings highlight the complex nature of TPE. Moreover, the theoretical frameworks underpinning this study work to answer the research questions, which shows that there is no simplifying in answering the research questions.

From the data, it was evident that the TPE programme's complex context contributed to the in-service teachers' learning experience which profoundly impacted their professional practice. Although there were both positive and negative aspects of the TPE implementation acknowledged by all TPE stakeholders in this study, it was also admitted that the complexity of the programme was part of the improvement of teachers' professional education programme in Indonesia.

Summary of the Discussion

This chapter analyses the research findings and links them to the key literature to make sound arguments for this study's overarching research question: To investigate the TPE programme's effectiveness in improving teachers' competencies from the key stakeholders' perspectives. The five domains of ecological system theory used as the conceptual framework in this study was elaborated on by presenting the TPE programme elements and how the research participants' perception of the effectiveness influenced their professional practice.

Other crucial elements of the TPE from the research findings were put forward: equity and accessibility, high-stakes assessment and test anxiety, and the programme's impact on teacher change. Finally, this chapter encapsulates the research's key findings, with the international body of literature recognising Indonesia's intricate TPE structure, reflecting the programme's complex nature. The following chapter presents a succinct conclusion of this research study, a limitation of this research, its implications, and a recommendation for future study.

Chapter 7 CONCLUSION and RECOMMENDATION

Introduction

This final chapter concludes the study. This section comprises four aspects: the key findings and summary of the research, the limitations of the study, and the research recommendations, which include recommendations for practice, policy, and further research. This chapter elaborates on how this research answers the research questions and achieves the aims of the research, as well as how this research fills the gaps by relating it to the existing theory.

Summary of the Research

This study set out to explore the perspective of key stakeholders of the TPE in Indonesia, a long-decade top-down policy to improve the quality of teachers. In particular, this study focuses on the in-service TPE by investigating the implementation to shed light on what is considered effective and it proposes recommendations for improving the programme in the future. This study unravelled the TPE's complex nature, in which each key stakeholder influences the implementation and affects the outcomes of the programme. Chapter 2, the Context of The Study, provides detailed background and changes that happened over time that shaped the TPE today. Chapter 5 and Chapter 6 of this study show that TPE is non-linear, dynamic, and multifaceted. The theoretical framework underpinning this study illustrated how the complex context in the microsystem domain influences teachers' learning and their professional practice. In addition, the dynamic interaction in other domains also plays significant roles that create the interrelated and interdependent relationship that support the complexity theory that changes are influenced by multiple factors instead of one cause, and the new behaviour or properties emerge in unpredictable ways (Davis & Sumara, 2008; Mason, 2008a).

The ecological system theory, as the theoretical framework of this study, mapped out the teachers' development through TPE and how in-service TPE influences the teachers' change. The multiple domains of ecological system theory show the dynamic and complexity of TPE. First, the microsystem domain contains the aspects that impact the teachers directly, such as teacher learning readiness, motivation, basic knowledge of technology, anxiety, and interaction among stakeholders of TPE. Next, the mesosystem is the connection among the elements in the teachers' microsystem dimension, such as the

interaction of HEI teacher educators and the cooperating teachers during the school placement or the TPE management role in managing HEI-school partnerships. The ecological system theory emphasises that the more robust connection between the elements in the microsystem will positively impact the child's development (Bronfenbrenner, 1979, 1995), which in this context is the in-service teachers during the TPE. Third, the exosystem domain is a wider structure that indirectly interacts with in-service teachers; nevertheless, the elements in the exosystem have a strong connection with the microsystem, for instance: the MoEC and TPE management are working closely with the HEI teacher educators on the TPE curriculum and implementation throughout the programme that shaped the teachers' learning experiences. The macrosystem domain covers the Indonesian education values and beliefs embedded in the TPE and plays a foundation of policy related to TPE. Finally, the chronosystem addresses the TPE evolution over time which naturally shows the chronological timeline of the programme implementation for the past two decades. This includes the new proposed bill on the national education system which may impact the in-service TPE trajectory and its relation to the teacher certification programme in Indonesia (Kemendikbudristek, 2022a). On the other hand, the complexity theory as part of the theoretical framework of this study does not directly relate to this study's outcome; however, it offers a paradigm to comprehend the complex nature of TPE as a teacher education programme. Davis and Sumara (2006) emphasise several necessary qualities for a phenomenon to be classified as complex, with specific examples but not limited to teacher-learner relationship and community involvement in education, which put TPE and its complex nature of the implementation to meet these criteria.

This study uses a predominantly qualitative approach with a single case study design. The data collection was done through in-depth semi-structured interviews with 25 research participants from five categories. The limited access to accurate classroom observation was due to COVID-19 restrictions, which led to the changing of policy in the in-service TPE during the pandemic and post-pandemic. The qualitative data analysis approach employed six stages of reflexive thematic analysis (RTA) (Braun & Clarke, 2022) using NVIVO software as an analytical tool. The six stages of RTA elaborated on in Chapter 4 Research Methodology provided a clear explanation of the action to ensure academic integrity and trustworthiness. The data collection, data management, data analysis, and the audit trail of NVIVO were documented in detail to provide an accurate step-by-step process and accountability for the research. As a primary researcher, the transcription,

translation, and proofreading process from interview data was done by the researcher and recorded meticulously (McMullin, 2023). For reliability purposes, the result was presented to the interviewees. All the data in this research, including the plain language statement, research consent form, and ethical approval, is available in the appendices.

The synthesis of the findings showed emerging themes from the analysis of the data, which were later constructed to answer the research questions. Each theme and sub-themes was elaborated and supported with excerpts of research participants' in-depth interviews on their thoughts and perspectives from different angles of their position towards the research questions. The main findings were presented following the main themes. First, the perspectives on the effectiveness of the TPE in improving teachers' competencies elaborated on each stage of the programme, such as the online independent learning, face-to-face workshop, the school placement, and the final assessment. It was also detailed the impact of the TPE, not only emphasising the personal aspects but also the collegial impact at the school level. Second, the findings were also corroborated the other key stakeholders' views on the design and practice of TPE from their roles as HEI teacher educators, cooperating teachers, and school principals, who were closely involved in the TPE. To respond to the third research question, the findings provided evidence of TPE management's role in shaping the programmes and the challenges. The final section of the findings supported the influence of educational values and beliefs firmly embedded in TPE implementation and how the evolution of TPE over time impacted teachers' learning.

The discussion chapter ties together the findings and engages with the critical literature to answer the research questions. As the overarching research question was to investigate the TPE programme's effectiveness in improving teachers' competencies, the discussion chapter presented the crucial aspects of the findings that strongly influence the in-service teachers' learning and improving their competencies, such as the accessibility of online independent learning and its effectiveness in delivering the online module in relation to in-service teachers and HEI teacher educators' readiness in online pedagogy. This section also examined the dynamics of HEI-school partnership for teachers' learning experience in the school placement stage of TPE. Furthermore, this study section critiqued the assessment and accountability of TPE on account of its high-stake and high-cost nature. The crucial point in this discussion chapter highlighted the issue of equity in the TPE that unraveled the gaps in the many aspects that may be overlooked due to the nature of top-down policy as well as the one-size-fits-all regulation, which disregarded the digital divide, generational divide, cultural and linguistic barrier, and diversities in the vast landscape of

Indonesia's geography. The final section of this chapter drew on the key findings on the phenomenon of isomorphic mimicry in Indonesian education policy and practice. It emphasised the complexity of TPE as a gatekeeping mechanism to ensure the quality of the Indonesian teachers that are embedded in the teacher certification programme.

To re-iterate, the Research Questions of this study are as follows:

- a. How do teachers perceive the Teacher Professional Education programme? Does it support their professional practice? If so, how?
- b. How do the cooperating teachers, school principals, and HEI teacher educators view the TPE programme's design and practice to support teachers' learning?
- c. From the TPE management perspective, what challenges and obstacles do they encounter when overseeing the programme?
- d. As a complex teacher-professional education system in Indonesia, how do educational values and beliefs influence the implementation of the TPE programme?

Summary of the Key Findings Related to the Research Questions

Up to this point, this study concludes several crucial points:

- a. The in-service teachers consider the TPE training effective in improving their professional and pedagogical competencies. However, some aspects are deemed ineffective, such as the digital divide and equity issues among other things.
- b. Each key stakeholder plays a significant role in shaping the TPE to achieve the objectives, such as the role of teachers' respective schools and their authorities upon completion of the training and the paramount importance of the HEI-School partnership for the teacher learning experience.
- c. The influence of education policy in TPE, in various degrees and aspects, inevitably influences the accountability of the TPE programme.
- d. It must be acknowledged that the complexity of the TPE in Indonesia requires an in-depth understanding of the nation's education system and political and economic context, which influence teacher education policy and practice to improve teachers' quality.

In other words, many aspects determine the change in teachers' values, beliefs, attitudes, competencies, and professional practice. The TPE itself is highly complex; therefore, the interaction of policy, people, place, and time influences the programme's implementation and impacts teachers' learning, which eventually influences teachers' professional and pedagogical mastery and professional practice.

The study's overarching research question was to investigate the TPE programme's effectiveness from the key stakeholders' perspectives. How are they engaged and shaped the programme to improve teachers' competencies? The following summarises the key findings related to the subset research questions.

RQ 1: How do teachers perceive the Teacher Professional Education programme towards effectiveness in improving their competencies? Does it support their professional practice? If so, how?

This study aimed to explore the teachers' perceptions, beliefs, and attitudes toward the effectiveness of the TPE programme and how it influenced their professional practice. The result presented in Figure 23 indicates that the structure of the TPE programme significantly impacts teachers' professional practice. The microsystem of the programme included a hybrid model and learning design, and the evaluation provides learning experiences that improve their pedagogical and professional competencies. From the in-service teachers perspectives, each stage contributes to their professional development, although several drawbacks are also mentioned as part of their journey. In the discussion chapter, the accessibility of technology, as well as readiness in online pedagogy, highlighted the online independent learning stage (Archambault et al., 2022; Wei & Chou, 2020; Yarrow et al., 2022).

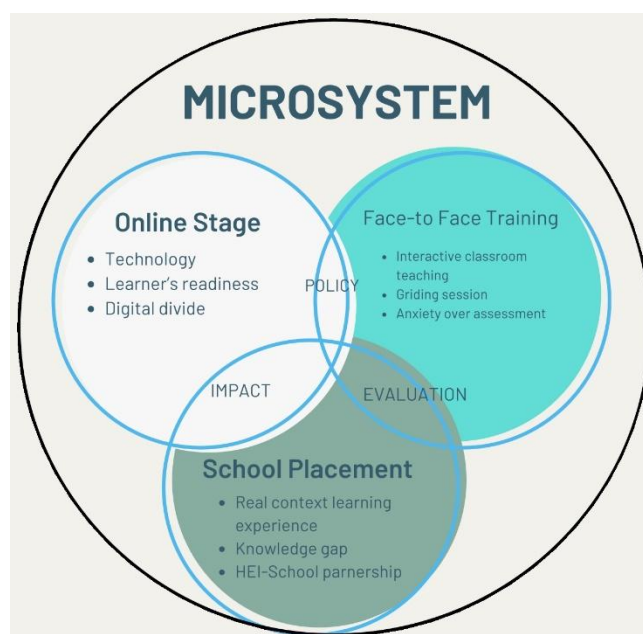


Figure 23. The interrelatedness of TPE stages in the Microsystem domain

In addition, the findings and discussion in response to the first research question fill the research gaps of knowledge on the anxiety in the final assessment that influences teachers' attitudes towards learning in TPE. The anxiety issue in the TPE programme

received less attention from the MoEC, which managed the programme at the national level. This test anxiety also affected teachers' failure in the final evaluation and their shift of focus on grinding test items rather than learning the content mastery to improve their knowledge of the subject, which is alarming (Natriello, 2009). This issue was not very much on the surface of the discussion, which undermines the paramount importance of this situation; thus, there should be more focus on addressing the issue of anxiety in the TPE programme. Considering that 'teaching to the test' impacts motivation and drive in partaking in professional development and improving the quality of teaching, this study relates to the existing literature on managing to teach effectively and avoiding falling into the practice of teaching to the test (Zakharov & Carnoy, 2021), and finding solutions how to overcome exam anxiety (Shimave et al., 2020).

This section also raises issues of equity in teacher education programme, from cultural and linguistic diversity to social justice that strongly emerged in the findings, which relates to the existing international debate on the issue of equity and social justice in teacher education (Cochran-Smith, 2020; Cochran-Smith & Keefe, 2022; Purdy et al., 2023). The findings of this research may fill the contextual research gaps on equity and social justice in the context of teacher professional education in Indonesia, as well as respond to the research question on how equity in the TPE programme influenced the effectiveness of the programme which eventually impacted on the quality of programme and the in-service teachers' learning experience.

In response to the second research question which focuses on the mesosystem of the Ecological system theory, Figure 24 illustrates the dynamics of key stakeholders in the TPE, which include cooperating teachers, school principals, and HEI teacher educators, with other elements of TPE, such as curriculum and monitoring and evaluation system.

RQ 2: How do the cooperating teachers, school principals, and HEI teacher educators' views on the TPE programme's design and practice support teachers' learning?

The study aimed to explore the roles and perspectives of HEI teacher educators, cooperating teachers, and school principals, as well as what factors support or impede teacher learning in the TPE Programme. The findings found that their respective role closely influenced the in-service teachers' learning, such as school leadership, mentoring, and teacher monitoring and assessment, which significantly contributed to the quality of TPE implementation

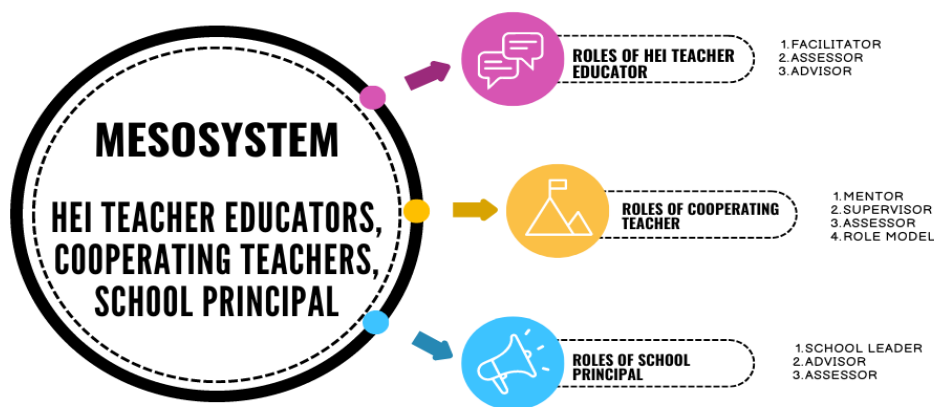


Figure 24. The interaction of TPE key stakeholders in the Mesosystem domain

These research participants provided rich data on how TPE significantly improved in-service teachers' professional practice, as shared in the findings. For instance, the data from the school principals highlighted their crucial role from the beginning of the TPE to the post-programme and returning to teaching at their respective schools. As the school authorities, advisors, and assessors' roles, the school principals were involved in the crucial aspects of TPE. From the data, the school principals extensively elaborated on how significant the changes of in-service teachers were upon obtaining the professional teaching certificate. The perspectives of HEI teacher educators and cooperating teachers were also essential and it was extensively explained in Chapter 5, Research Findings Chapter.

In response to *RQ 3: From the TPE management perspective, what challenges and obstacles inevitably develop as policies and practices are implemented?* This question aimed to evaluate the TPE from the perspective of TPE management and how the policy and practice intertwine and shape the quality of Indonesia's professional teacher education programme today. From the overall result and discussion, it can be concluded that policy in education and policy in TPE immensely influence the implementation of the TPE. This exosystem focuses on TPE management when policy and practice are intertwined, their role and challenges in managing the TPE. The figure 25 shows that the policy in TPE is a

central element in the management of the TPE. In addition, it is extensively discussed in Chapter 6 on the issue of isomorphism in many aspects of the Indonesian education programme which international foundations, such as the World Bank and RISE, suggested revisiting the education policy related to teachers for a better impact on the quality of teachers and consequently on students' performance (Bima et al., 2018; Chang, et al., 2014; Yusrina et al., 2023). The evolution and transition of policy in Indonesian education, specifically the TPE-related policy, was recorded in the Chronosystem timeline presented in Chapter 2, Context of The Study. An exosystem dimension of Ecological system theory refers to elements surrounding the teachers in the TPE, which they are not actively involved with, nevertheless significantly affecting teacher's development, in this context their competencies, in four aspects: personal, professional, pedagogical, and social.

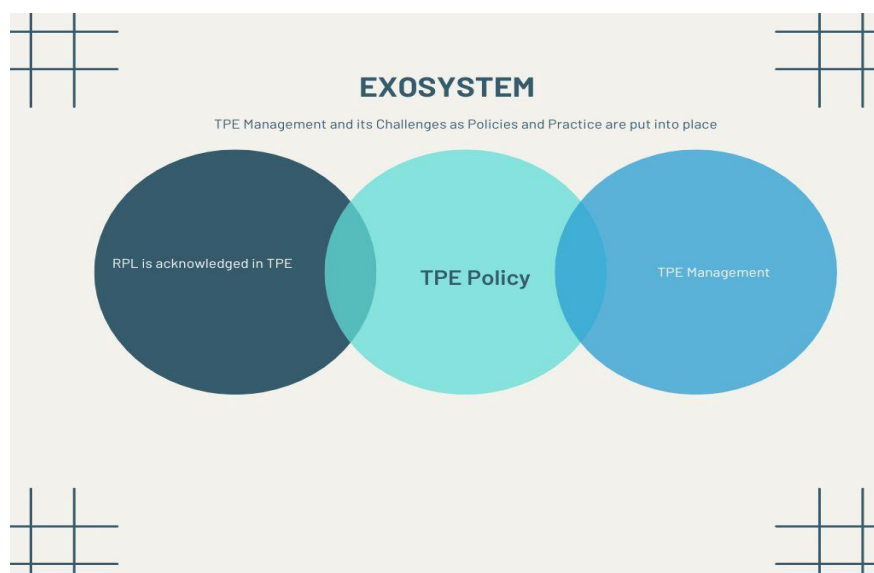


Figure 25. TPE management and TPE challenges in relation to policy

The data showed the TPE management's crucial role in managing the TPE programme at the HEI level. In general, they represented the HEI to be held responsible for running the TPE, such as the technology issues, allocating facilities and infrastructure, and managing the human resources to accommodate each stage of TPE. As noted in the data, the frequent change of TPE policy was part of the challenges of TPE management. Thus, their role in exosystem domain is pivotal in the TPE programme's effective implementation.

The final research question of this study is to understand the educational values and beliefs that influence the implementation of the TPE. RQ 4: *As Indonesia's complex teacher-professional education system, how do educational values and beliefs influence*

the TPE programme's implementation? The results showed that the broader values and beliefs in the Indonesian education system were deeply rooted in the TPE's vision of an effective programme that shaped good quality teachers. These characteristics and broad cultural components, such as the education system, cultural system, and economic influences, considerably impacted in-service teachers in the TPE. The research participants elaborated on the findings on how cultural and subcultural consciousness came into play during the school placement activity, although the values and beliefs of Indonesia held a high regard for unity in diversity principles. Figure 26, related to the Macrosystem, signifies the intertwined connection between the national education values and beliefs with the TPE's objectives in shaping teachers' disposition. The TPE programme focuses on improving teachers' professional and pedagogical competence and their personal and social competencies. This is stipulated in the policy documents related to education policy in general and the TPE in specific (Kemendikbudristek, 2022c; PPRI, 2008). The international literature on teachers' beliefs and attitudes has been widely researched; therefore, this study's findings and discussion can fill in the research gaps on the awareness of cultural capital in teacher education programme.

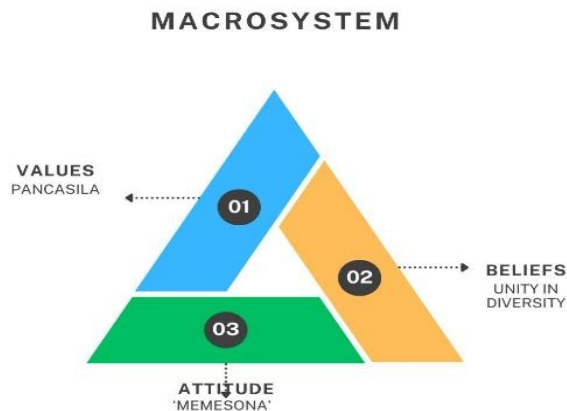


Figure 26. The Foundation of TPE in the macrosystem domain

In summary, to understand the TPE as a complex and non-linear relation, Figure 27 displays the multidimensions of the TPE in Bronfenbrenner's Ecological System Theory with the influence of a complex context of the national education system, political and economic influence, and the issues of isomorphic mimicry which create the complexity of professional teacher education programme in Indonesia.

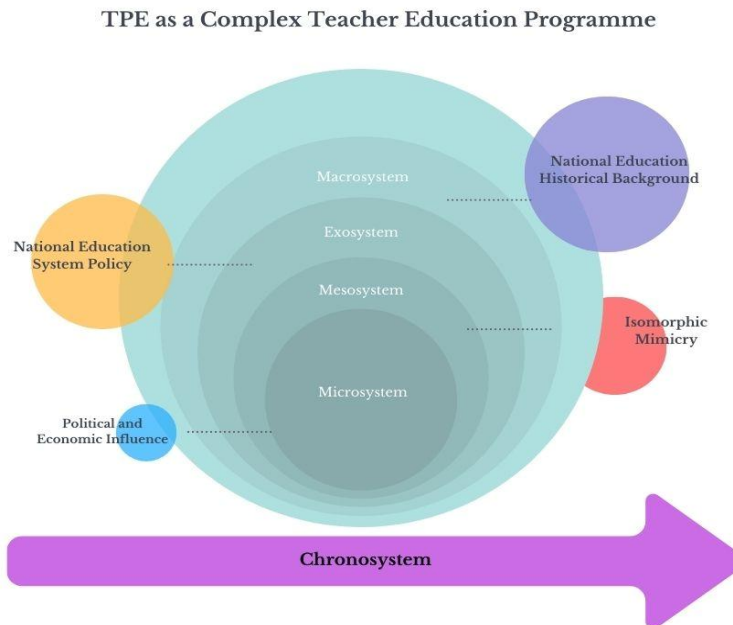


Figure 27. TPE as a complex system of teacher education in Bronfenbrenner's Ecological System Theory

Limitations of the Study

The TPE programme is a national-scale professional education programme for in-service and pre-service teachers as part of the teacher certification programme. To understand how TPE impacted teachers' competencies, as defined in Chapter 1, the Introduction Chapter, this study focused on the in-service teachers in the TPE. Considering this group has completed the training and is now fully certified teachers, this study aimed to investigate how the TPE's effectiveness influences their professional practice. Through the perspectives of the key stakeholders of the programme, the study explored what and how the training shaped the teachers' professional and pedagogical competencies. This study has provided stakeholders' perspectives from multiple domains, and the result has demonstrated that each domain of the training programme critically influences teachers' learning to improve their teaching competencies and impact their professional practice. Nevertheless, the study comes with limitations.

Sampling Issues

This research employed a single-site case study, and therefore, the findings could not be generalised to the whole population or the national scale scope due to the nature of the TPE as a large-scale programme. This study, however, provided insight into the TPE from the key stakeholders perspective, filling in the knowledge gap by providing an in-depth analysis of the voice of the key stakeholders regarding TPE effectiveness and its impact on their professional practice and what hindered their learning. The key findings of this research can serve as an example for other institutions mandated to run the TPE as a best practice or lesson learned. Utilising a qualitative research approach, this study has certain limitations on sampling; nevertheless, its in-depth interview uncovered aspects of the TPE that can enrich the discourse of teacher professional education programmes.

Reflexivity and Positionality

The researcher is part of the institution that was researched. Consequently, the reflexive point of view showed the researcher's positionality in this study. In other words, the researcher in this study is an in-betweeners (Milligan, 2014) has, to some extent, prior exposure to the programme running in the HEI. That said, the data obtained was verified and member-checked by participants, and the RTA process was carefully adhered to ensure trustworthiness. Some ways to ensure trustworthiness during the data collection stage are 1) qualitative convenient sampling of data collection until it reached data saturation (see NVivo audit trail), 2) verified the data obtained with the research participants and gained their approval for further steps in data analysis, and 3) Implemented analytical practice by linking personal reflexivity throughout the RTA process. Since the data collected is in the native language of the research participants, the researcher made certain that the data transcription and data translation to English were conducted in several stages, from the verbatim transcription to verbatim translation, and finally, proofreading to conform to English sentence structure and contextual sense. The researcher first-hand conducted the whole process to ensure trustworthiness. To own the reflexivity practice in the study, the original language script was verified several times for the data processing. The research participant then consulted the final translated interview script before the next data analysis stage.

Time and Situational Constraints

The data collection activity was conducted during COVID-19, which caused certain limitations and restrictions regarding time and situational context. The researcher returned to Indonesia with limited time for data collection. With mobility restrictions during the period, it was a challenge to personally meet and have in-depth face-to-face interviews, let alone in a group.

Recommendations

This section proposes several recommendations based on this study's findings and discussion. The recommendations are presented in three categories: practice, policy, and future research.

Recommendation for Practice

Improving teacher professional education in Indonesia requires a comprehensive approach that addresses various aspects of the education system. The following are several recommendations from the research participants' perspectives to enhance the quality and effectiveness of teacher professional education:

On Alternative Assessment

Assessment in the TPE was a significant part of the programme. For many reasons, the assessment and examination of TPE received mixed responses from all stakeholders. From the teachers' perspectives, assessment and examination in TPE training caused a high anxiety issue. The fear of failing the exam, although with an opportunity to retake, takes up a debate on the process alongside the content of the exam and, most importantly, what the exam entails. As a high-stakes examination with significant consequences on their status as professional teachers, the TPE stakeholders share their views and recommendations on exploring alternative assessments. The data showed a high demand to include processes for continuous assessment that contribute to their final performance score. They believe that the final exam that shot one-time performance is high risk; thus, having their score included in the final assessment during the process should help to reduce the high anxiety of taking the UKMPPG exam. In sum, the recommendation for the assessment would be to have multiple tools and methods of assessment to capture the teacher's skills and knowledge, such as observation, self-assessment, or students' feedback, among others, instead of a single shot of a one-day performance.

On Effectiveness of the TPE Programme

The data obtained underlined the difficulty of assessing the efficacy of teacher education programmes and the variety of elements that must be considered in each conversation. It was argued that a teacher education programme is a collection of practices and experiences rather than a single construct (König et al., 2023; Mayer et al., 2017; Rowan et al., 2015); thus, the programme's effectiveness is a non-linear measure of observable classroom processes and student learning outcomes. Recommendations on improving the effectiveness of the TPE programme from the stakeholders' perspectives varied, such as on duration and scheduling, the content of pedagogy and professional modules that align with their level of teaching, and the technology integration even before the online TPE session began. Additionally, the TPE management insists on flexibility that gives more room for innovation and improvement, such as the IT management to support learning.

On Improving In-service teacher's TPE Learning Experience

To improve the TPE learning experience, the research participants suggest several ideas that can be implemented for future reference, such as the reflective activity, using the journal, or other means of providing feedback. On a specific note of school placement, to improve the experience of TPE training, it is suggested that the IN-ON model be implemented so that teachers have the chance to connect the theory into practice and vice versa. The IN-ON model emphasises the opportunity for in-service teachers to perform actual teaching at school, and after gaining knowledge from the field, they can bring the problems they encounter in their teaching back to the HEI and further discuss them with their HEI teacher educators.

On Module and Content of TPE Training

The previous section elaborates extensively on the stakeholder's perspective on a module that needs to relate to the teachers' context. From the data, the fact that the module was very general and unrelated to their level of teaching was considered a drawback of the programme. The in-service teachers, in particular, assume that what they learned in the TPE was inapplicable to their teaching, and their participation was mainly to obtain a professional teaching certificate. Therefore, the recommendation on the suitability of the module and TPE training content to the teaching level was of the utmost necessity to improve its effectiveness.

On Other Aspects in the TPE module

In addition, there was a strong suggestion to embed the content of morale and character aspects in the curriculum. With teaching certification and financial gain as a reward, teaching tends to be a job instead of a passion. The TPE programme attempts to instil the concept of '*mendidik*', or educate, as more than '*mengajar*' or teach, since to educate needs to involve more educator roles who nurture the students' character and morality instead of the teacher's role of delivering the content subject-specific knowledge.

Implementing these recommendations requires collaboration among government bodies, educational institutions, communities, and other education stakeholders. Continuous feedback and evaluation mechanisms should be established to monitor the effectiveness of these initiatives and make necessary adjustments to improve professional teacher education in Indonesia.

Recommendation for Policy

The chronosystem domain of this study showed the concept of time and how the evolution of the programme, which included the policy underlying the implementation of the programme, changed over the past two decades. The fact that the recently proposed bill (Kemendikbudristek, 2022a) about the national education system touches on the issue of teacher education programmes as a gatekeeping quality improvement for teachers, indicating that there will be changes in the future policy and implementation of the TPE. Therefore, based on the findings of this study, policy recommendations will be as follows:

On Teacher Recruitment

Teacher quality is fundamental to quality learning and student outcomes (Darling-Hammond, 2021; Hollins, 2011). Based on reports from international bodies such as RISE Indonesia and the World Bank, Indonesia struggles to recruit good-quality teachers. Furthermore, the report stated three factors that influence the complex situation of teacher recruitment issues in Indonesia, among others, are institutional, political economy, and social dynamics in the recruitment process (Huang et al., 2020; The World Bank, 2013). Regarding the TPE, the teacher recruitment aspect was an interesting element as a by-product of the programme. Considering there were two schemes of TPE training, pre-service and in-service teachers, school principals were conflicted on whether to employ fresh graduates with no professional teaching certificate or professionally certified

teachers. It would be beneficial to reinforce the recruitment and teacher registration policy, not only in public schools but also in private schools. In addition, it is recommended that the government strengthen the teacher recruitment mechanism to recruit effective teachers (Bima et al., 2023).

On the Teacher Certification Programme

TPE was embedded with a teacher certification programme. The findings of this study show the duality of motivation in partaking in the programme; nevertheless, many in-service teachers stated that the motivation to obtain the professional teachers' certificate and increase their salary were the primary motivation or probably the only driving force to do the training. Teachers' mindsets that partaking in TPE meant financial gain distracted them from the objectives of TPE in the first place, which was to re-train the in-service teachers and improve the quality of teaching. As highlighted in the findings, changing teachers' mindsets about TPE would significantly change teacher beliefs and attitudes. Therefore, there should be a policy emphasising that TPE as a licensing mechanism is the main requirement to become a teacher and it should be separated from the current mechanism, that TPE is a way to obtain financial incentives through teacher certification.

On What is After TPE

Recommendations on what is after the TPE hold a strong proposition among stakeholders. Research on the recent performance of teachers after being professionally certified gained attention on conducting a sustainability upgrading programme or continuous development activity (Rarasati & Pramana, 2023; Revina, 2020; Revina et al., 2020; RISE, 2020). The research participants in this study pointed out that weak monitoring and evaluation after obtaining the professional teaching certificate was one major issue in maintaining the quality of teachers. Many of the in-service teachers themselves felt that the government's monitoring system for certified teachers was weak compared to professional certification in other sectors, such as a license in medical practice, which could be revoked when the holder fails to perform well in their field. Policy recommendations for this issue would be to ensure an effective monitoring system for these certified teachers and establish a robust mechanism for professional learning to keep up with education changes.

Recommendation for Future Research

Given the limitation of the study, future research could work around the area mentioned as follows:

On Sampling Issues

The conceptual framework in this study informed the research on the domains of teacher development in the professional education programme. The research participants involved are the key stakeholders, and in the study, they represent different categories in different domains. In-service teachers in the microsystem domain, for example, are the main actors of the TPE that give insight into how the training is effective by looking at the programme's impact on the teacher's professional practice and, eventually, students' performance. The other stakeholders, namely HEI teacher educators, cooperating teachers, school principals, and TPE management, represent other domains in this study. Future research could further reach out to other stakeholders, such as policymakers, education experts, or NGOs, to uncover other aspects that shaped the programme regarding the TPE's political, economic, and demographical elements. Considering that the study employs a qualitative research approach with in-depth semi-structured interviews to investigate the effectiveness of the TPE, further research in this field could utilise other approaches to explore the broader scope of this national-level study.

On Time and Situational Constraint

Due to the constraint on mobility and accessibility to data collection due to COVID-19 restrictions, which impacted the transition of the policy of the TPE, future research could utilise a research team and employ multiple case studies by involving other stakeholders, such as policymakers at the MoEC and Directorate of Teacher Professional Education. With more flexible fieldwork and data collection time, the result will provide multiple angles of perspective from the other aspects. For future research in this field, having a more flexible time to involve more research participants from different categories for more diverse input. In addition, future research can utilise different data collection techniques that involve site visits and classroom observation techniques, which is plausible to be conducted in the present context.

Contribution to Knowledge

In the last decade, the focus on teachers' reform in Indonesia has been widely studied by prominent researchers, practitioners, and international bodies that mainly discuss the teacher certification programme and its significant impact on the improvement of students' performance in international assessment and less attention on the process of professional teacher education programme mechanism embedded with the teacher certification programme itself. This study serves as the 'voice' of the key stakeholders of the TPE, which provides insights into TPE implementation and how it shaped teachers' professional practice. This study's findings illustrate examples of in-service teacher education programmes and showcase the issues and challenges that provide a deep understanding for international audiences.

Secondly, there is an ongoing debate on the ideal duration for effective teacher education; will a shorter or longer duration of teacher professional education be better? This study's findings contribute to discussing the in-service teacher context of professional teacher education and its challenges on duration, which strongly emerged in the data.

In addition, this study demonstrates the contextual difference in the education landscape in Indonesia's vast geography. The TPE was established to respond to the global education trend on teaching and teacher quality and the accountability of teacher education programmes. This study's findings show a strong influence of policy borrowing that could enrich the dialogue on whether policy borrowing supports or impedes the advancement of education quality in Indonesia.

This study's findings were novel, and the discussions of the key findings were potentially crucial for the education and development sector as a whole. They would help it be more responsive to the diversity and local context of the TPE participants in general, for instance, the digital divide and equity in the context of teacher education in Indonesia.

Concluding Remarks

This study set out to develop an understanding of the teacher education programme for in-service teachers, which is inseparable from the teacher professional certification programme, from the perspectives of the key stakeholders, using the lens of Bronfenbrenner's Ecological Systems Theory and Complexity Theory. Through the five dimensions guided by the conceptual framework, the study looks into the effectiveness of TPE and how the professional education programme improves teachers' competencies.

Case study research design and in-depth semi-structured interviews for data collection method were employed in this study.

The result indicates that each stage of the TPE contributes to teachers' effective learning. The in-service teachers' competence was shaped by other elements in the microsystem domain, such as technological knowledge and skills, school support, and teachers' educational beliefs and values. In addition, the other domains of ecological system theory also greatly influence the teachers' knowledge attainments. The concept of time in a chronosystem, which highlights the evolution of policy change and its impact on the programme, eventually affects teachers' learning experience. These learning experiences will positively shape teachers' competencies.

The whole research journey of investigating key stakeholders' perspectives towards the TPE programme was rewarding personally and professionally. Looking back at my professional career as a middle school teacher and then as an academic in higher education, teaching and teacher education have always been my passion. This research will provide insight into TPE implementation to improve teachers' quality and recommendations for future improvement. Considering the TPE programme is a gatekeeping professional teacher education programme in Indonesia, I hope this study contributes to the improvement of the programme and informs the policy for better teacher education quality in Indonesia.

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List of Appendices

Appendix A Ethics Approval

Ollscoil Chathair Bhaile Átha Cliath
Dublin City University



Silfia Asning Tias
School of Policy and Practice

Dr. Elaine McDonald
School of Policy and Practice

Dr. Alan Gorman
School of Policy and Practice

13th May 2021

REC Reference: DCUREC/2021/090

Proposal Title: Teacher Reform in Indonesian Context: Perspectives Towards Effectiveness of Teacher Professional Education to Improve Teacher's Competences

Applicant(s): Silfia Asning Tias, Dr. Elaine McDonald, Dr. Alan Gorman


Dear Colleagues,

This research proposal qualifies under our Notification Procedure, as a low risk social research project. Therefore, the DCU Research Ethics Committee approves this project.

Materials used to recruit participants should state that ethical approval for this project has been obtained from the Dublin City University Research Ethics Committee.

Should substantial modifications to the research protocol be required at a later stage, a further amendment submission should be made to the REC.

Yours sincerely,

A handwritten signature in cursive script, reading 'Geraldine Scanlon'.

Dr Geraldine Scanlon
Chairperson
DCU Research Ethics Committee



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Appendix B Plain Language Statement

Sample of Plain Language Statement for In-service Teachers_English Version



Plain Language Statement-Teacher Survey

Research Project : Teacher Reform in Indonesian Context: Perspectives Towards Effectiveness of Teacher Professional Education to Improve Teacher's Competences.

Research Team : Silfia Asning Tias, M.TESOL silfia.tias2@mail.dcu.ie
Dr Elaine McDonald elaine.mcdonald@dcu.ie
[Dr Alan Gorman](mailto:alan.gorman@dcu.ie) alan.gorman@dcu.ie

School : Policy and Practice, Institute of Education, Dublin City University

Overview of this Research Study:

This study investigates *the Teacher Professional Education (TPE) Program's effectiveness from the main actors and the key stakeholders' perspectives in Indonesian context*. How they are engaged and shaped the program to improve teachers' competencies. This research aims to close the gap in revealing the teacher's voice of Teacher Professional Education to improve teacher's quality in particular the TPE program implementation in the future. This research study aims to provide policy recommendation to the government in regards to design and practice of TPE program.

Details of what involvement in the Research Study will require:

You are invited to partake in completing a questionnaire survey. The survey itself will take around 20 minutes. It will focus on the value and beliefs of teachers that influence the professional practice. The survey as well will look into the perspective towards the design and practice of TPE program and how it met the needs of professional development as well as shaped learning.

Potential risks to participants from involvement in the Research Study (if greater than that encountered in everyday life)

The survey will be completed online and made anonymous. It will uphold confidentiality, thus there is no personal identification required during the survey. In any stage of the research survey, you are given all the right to withdraw by exiting the windows tab.

Benefits (direct or indirect) to participation from involvement in Research Study

The study seeks to understand the TPE program and its impact on teacher's professional practice from multilayers perspective of stakeholders in the field. The research aims to evaluate the program's effectiveness and what could be improved as well as policy recommendation towards the betterment of the program in the future. For in-service teachers, it will be indirect benefits from the study. Nevertheless, for the teacher educator and the management, this study will provide input on the program's running both in classroom level and institutional level. This study's main contribution would be on the recommendation of future implementation of teacher professional education program in both institutional level or central government as for policy recommendation.

Advice as to arrangement to be made to protect confidentiality of data, including that confidentiality of information provided is subject to legal limitation.

The principal investigator will mainly have access to the data collected. Abiding the data protection regulation, anonymity and confidentiality will be upheld through the research process. It is emphasized that, at any time and stage, you may withdraw your participation. All the data obtained from this research will securely be kept and ensure anonymity and confidentiality.

Concerning the anonymity and confidentiality, under certain circumstances, it will not be always guaranteed. *"Confidentiality of information can only be protected within the limitations of the law - i.e., it is possible for data to be subject to subpoena, freedom of information claim or mandated reporting by some professions"*.

Advice as to whether or not data is to be destroyed after a minimum period

The data will be retained for five years after the thesis submission and the final publication. The data will be destroyed permanently after the purpose achieved and the time period mentioned.

Statement that involvement in the Research Study is voluntary

This study is fully on voluntarily basis. The research participants can withdraw any participation before, during or after the data collection. After data transcription, the participants will have the opportunity to confirm on their responses and made any changes when necessary. If in any case, withdrawal is necessary, the researcher will ensure that the data collected will be disposed in accordance to the regulation

If participants have concerns about this study and wish to contact an independent person, please contact:

The Secretary, Dublin City University Research Ethics Committee, c/o Research and Innovation Support, Dublin City University, Dublin 9. Tel 01-7008000, e-mail rec@dcu.ie

Sample of Plain Language Statement for In-service Teachers_Indonesian Version



Plain Language Statement-Wawancara Guru

Proyek Penelitian : Reformasi Guru dalam Konteks Indonesia: Perspektif Terhadap Efektivitas Pendidikan Profesi Guru dalam Meningkatkan Kompetensi Guru.

Kelompok Penelitian :

Silfia Asning Tias, M.TESOL

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Institusi

: Policy and Practice, Institute of Education, Dublin City University

Gambaran Umum Studi Penelitian ini:

Studi ini mengkaji efektivitas Program Pendidikan Profesi Guru (PPG) dari perspektif aktor utama dan pemangku kepentingan utama dalam konteks Indonesia. Bagaimana mereka terlibat dan membentuk program untuk meningkatkan kompetensi guru. Penelitian ini bertujuan untuk menutup kesenjangan dalam mengungkapkan suara guru Pendidikan Profesi Guru untuk meningkatkan kualitas guru khususnya pelaksanaan program PPG di masa mendatang. Kajian penelitian ini bertujuan untuk memberikan rekomendasi kebijakan kepada pemerintah terkait desain dan praktik program PPG.

Rincian keterlibatan apa yang dibutuhkan dalam Studi Penelitian:

Anda diundang untuk mengambil bagian dalam wawancara. Wawancara akan dilakukan satu lawan satu dan akan memakan waktu sekitar 50-60 menit. Ini adalah pertanyaan terbuka yang akan mengeksplorasi perspektif guru sebagai target audiens utama program PPG. Pertanyaan wawancara sendiri akan disesuaikan dengan kategori peserta untuk mendapatkan pemahaman mendalam tentang konteks setiap dimensi program PPG.

Potensi risiko bagi peserta dari keterlibatan dalam Studi Penelitian (jika lebih besar dari yang ditemui dalam kehidupan sehari-hari):

Tingkat risiko yang dinyatakan dan tingkat tinjauan yang sesuai adalah minimal untuk semua kategori peserta. Formulir persetujuan dan perlindungan data akan memastikan bahwa peserta penelitian merasa nyaman selama proses berlangsung. Wawancara akan dilakukan dalam bentuk apa pun yang paling nyaman bagi peserta penelitian, baik secara offline maupun online. Adapun wawancara online, akan mematuhi Zoom dan perlindungan Data: Panduan untuk staf DCU. Oleh karena itu, untuk meminimalkan risiko, semua atribut pribadi akan dibuat anonim dan dijamin kerahasiaannya. Tidak ada potensi risiko signifikan yang diantisipasi karena melihat pendidikan yang tidak kontroversial terkait dengan pengalaman peserta terlibat dalam program pendidikan guru. Semua data yang dikumpulkan dalam penelitian ini akan disimpan dalam lima tahun hingga publikasi terakhir dan dimusnahkan mengikuti pedoman GDPR.

Manfaat (langsung atau tidak langsung) untuk partisipasi dari keterlibatan dalam Studi Penelitian

Studi ini berupaya memahami program PPG dan dampaknya terhadap praktik profesional guru dari berbagai perspektif pemangku kepentingan di lapangan. Penelitian ini bertujuan untuk mengevaluasi efektivitas program dan apa yang dapat ditingkatkan serta rekomendasi kebijakan untuk perbaikan program di masa mendatang. Untuk guru in-service, itu akan menjadi manfaat tidak langsung dari penelitian ini. Secara khusus, bagi guru bagaimana penelitian ini dapat mengungkapkan praktik efektif PPG yang mempengaruhi pengajaran di kelas. Namun demikian, bagi guru pendidik dan manajemen, kajian ini akan memberikan masukan terhadap berjalannya program baik di tingkat kelas maupun di tingkat institusi. Kontribusi utama studi ini adalah pada rekomendasi pelaksanaan program pendidikan profesi guru di masa depan baik di tingkat institusi maupun pemerintah pusat sebagai rekomendasi kebijakan

Saran mengenai pengaturan yang harus dibuat untuk melindungi kerahasiaan data, termasuk bahwa kerahasiaan informasi yang diberikan tunduk pada batasan hukum.

Selama sesi wawancara, Anda akan diberikan serangkaian pertanyaan wawancara terbuka yang memungkinkan Anda untuk mengeksplorasi perspektif dan praktik Anda terkait dengan pengalaman pelatihan pendidikan profesional guru Anda. Apa yang Anda anggap efektif dan apa yang dapat ditingkatkan. Wawancara ini akan direkam secara audio. Setiap saat dan tahap, Anda dapat menarik partisipasi Anda. Semua data yang diperoleh dari penelitian ini akan disimpan dengan aman dan dijamin anonimitas dan kerahasiaannya.

Mengenai anonimitas dan kerahasiaan, dalam keadaan tertentu, itu tidak akan selalu dijamin. "Kerahasiaan informasi hanya dapat dilindungi dalam batasan hukum - yaitu, data dapat dikenakan panggilan pengadilan, klaim kebebasan informasi atau pelaporan yang diamanatkan oleh beberapa profesi".

Saran tentang apakah data akan dihancurkan setelah periode minimum

Data tersebut akan disimpan selama lima tahun setelah pengajuan tesis dan publikasi akhir. Data akan dimusnahkan secara permanen setelah tujuan tercapai dan jangka waktu yang disebutkan

Pernyataan bahwa keterlibatan dalam Studi Penelitian bersifat sukarela

Studi ini sepenuhnya atas dasar sukarela. Partisipan penelitian dapat menarik kembali partisipasinya sebelum, selama atau setelah pengumpulan data. Setelah transkripsi data, peserta akan memiliki kesempatan untuk mengkonfirmasi tanggapan mereka dan membuat perubahan jika diperlukan. Jika bagaimanapun, penarikan diperlukan, peneliti akan memastikan bahwa data yang dikumpulkan akan dibuang sesuai dengan peraturan

Jika peserta memiliki kekhawatiran tentang penelitian ini dan ingin menghubungi orang independen, silakan hubungi:

Sekretaris, Komite Etika Penelitian Universitas Kota Dublin, c/o Dukungan Penelitian dan Inovasi, Universitas Kota Dublin, Dublin 9. Telp 01-7008000, email rec@dcu.ie

Appendix C Consent Form for Participants

Sample of Informed Consent Form for In-service Teachers_English Version



Informed Consent Form

Research Title: Teacher Reform in Indonesian Context: Perspectives Towards Effectiveness of Teacher Professional Education to Improve Teacher's Competences.

Purpose of the study:

This study will examine the effectiveness of the TPE program to improve teacher's competencies from stakeholders' perspectives.

I, the undersigned, have read and understood the Information Sheet provided by the researcher. I am fully aware that the involvement in this study is voluntarily basis. I have been allowed to ask questions about the study. I understand that taking part in the study will include being interviewed and audio recorded. I have been given adequate time to consider my decision, and I agree to participate in the study. I understand that my details will not be revealed to people outside of the project. I understand that my words may be quoted in publication, reports and other research outputs, protecting my anonymity and confidentiality. I agree to assign the copyright I hold in any material related to the project to Primary Investigator. I understand that I can withdraw at any time and any stage of research. I consent to the use of my data for future studies within the purpose of the dissertation and scientific publication and the data will be retained for five years after final publication.

Confirmation of particular requirements as highlighted in the Plain Language Statement

I agree to involved in the interview session and questionnaire as required in the research. I understand that I will be in 50-60 minutes for an interview session. Hereby, I declare that:

Participant – please complete the following (Circle Yes or No for each question)

I have read the Plain Language Statement (or had it read to me)	Yes/No
I understand the information provided	Yes/No
I understand the information provided in relation to data protection	Yes/No
I have had an opportunity to ask questions and discuss this study	Yes/No
I have received satisfactory answers to all my questions	Yes/No
I am aware that my interview will be audiotaped	Yes/No

Signature:

I have read and understood the information in this form. My questions and concerns have been answered by the researchers, and I have a copy of this consent form. Therefore, I consent to take part in this research project

Participants Signature: _____

Name in Block Capitals: _____

Witness: _____

Date: _____

Sample of Informed Consent Form for In-service Teachers_Indonesian Version



Informed Consent Form

Judul Penelitian:

Reformasi Guru dalam Konteks Indonesia: Perspektif Terhadap Efektivitas Pendidikan Profesi Guru dalam Meningkatkan Kompetensi Guru.

Tujuan studi:

Studi ini akan mengkaji efektivitas program TPE untuk meningkatkan kompetensi guru dari perspektif pemangku kepentingan

Saya yang bertanda tangan di bawah ini telah membaca dan memahami *Plain Language Statement* yang diberikan oleh peneliti. Saya menyadari sepenuhnya bahwa keterlibatan dalam penelitian ini adalah atas dasar sukarela. Saya telah diizinkan untuk mengajukan pertanyaan tentang penelitian ini. Saya mengerti bahwa mengambil bagian dalam penelitian ini akan mencakup wawancara dan rekaman audio. Saya telah diberikan waktu yang cukup untuk mempertimbangkan keputusan saya, dan saya setuju untuk berpartisipasi dalam penelitian ini. Saya mengerti bahwa detail saya tidak akan diungkapkan kepada orang-orang di luar proyek. Saya mengerti bahwa kata-kata saya mungkin dikutip dalam publikasi, laporan dan hasil penelitian lainnya, melindungi anonimitas dan kerahasiaan saya. Saya setuju untuk memberikan hak cipta yang saya pegang dalam materi apa pun yang terkait dengan proyek kepada Penyelidik Utama. Saya mengerti bahwa saya dapat mengundurkan diri setiap saat dan setiap tahap penelitian. Saya menyetujui penggunaan data saya untuk studi masa depan dalam tujuan disertasi dan publikasi ilmiah dan data akan disimpan selama lima tahun setelah publikasi akhir.

Konfirmasi terkait dengan persyaratan tertentu seperti yang tertuang dalam *Plain Language Statement*

Saya setuju untuk terlibat dalam sesi wawancara dan kuesioner sebagaimana diperlukan dalam penelitian. Saya mengerti bahwa saya akan berada dalam 50-60 menit untuk sesi wawancara. Dengan ini, saya menyatakan bahwa:

Peserta – harap lengkapi yang berikut ini (Lingkari Ya atau Tidak untuk setiap pertanyaan)

Saya telah membaca Pernyataan Bahasa Biasa (atau membacakannya untuk saya)	Ya/Tidak
Saya memahami informasi yang diberikan	Ya/Tidak
Saya memahami informasi yang diberikan terkait dengan perlindungan data	Ya/Tidak
Saya memiliki kesempatan untuk bertanya dan mendiskusikan penelitian ini	Ya/Tidak
Saya telah menerima jawaban yang memuaskan untuk semua pertanyaan saya	Ya/Tidak
Saya mengetahui bahwa wawancara saya akan direkam	Ya/Tidak

Tanda tangan:

Saya telah membaca dan memahami informasi dalam formulir ini. Pertanyaan dan kekhawatiran saya telah dijawab oleh para peneliti, dan saya memiliki salinan formulir persetujuan ini. Oleh karena itu, saya setuju untuk mengambil bagian dalam proyek penelitian ini.

Tanda tangan peserta penelitian	:	_____
Nama dalam huruf kapital	:	_____
Saksi	:	_____
Tanggal	:	_____

Appendix D Codebook – Phase 2

Teacher Professional Education

Codes\\Interviews\\Phase 2-Systematic Data Coding
RTA Phase 2

Name	Description	Files	References
Academic Misconduct	Anything related to perspectives that show academic misconduct in TPE training	11	16
Anxiety in TPE training	Anything related to the anxiety of TPE training, including TPE exams	11	25
Assessment in TPE	Anything related to assessment happened during TPE training	10	16
Assessment unexpected response	Anything related to how TPE is assessed	11	19
Process Assessment in the TPE Programme	Anything related to the importance of process assessment in TPE training	16	52
Redo-ing TPE exam	Anything related to the situation where teacher have to redo their TPE exam when they fail	11	26
TPE Exams	Anything related to types of TPE exams to obtain a professional teaching certificate	7	17
Cognitive Exam (UP)	Anything related to cognitive Exam in which teachers do written exams or called UP	10	24
Performance Exam (UKIN)	Anything related to performance exam or UKIN	12	33
Certified VS Uncertified Teachers	Anything related to comments on certified VS uncertified teachers	3	21
Challenges in the Management of TPE Training	Anything related to challenges faced in managing the TPE training	2	9
Class Management Issues	Anything they encounter as class management issues during TPE training	2	2
Classroom Action Research (CAR)	Anything related to classroom action research class or session during TPE	11	28
Collegiality and Collaboration	Anything related to Teachers working in a team	15	44

Name	Description	Files	References
CPD after TPE	Anything related to the sustainability programme upon completion of TPE	6	19
Designing assessments for teaching	Anything related to sessions in which teachers learn about designing assessments for teaching	2	2
Designing lesson plan	Anything related to sessions where teachers learn about designing lesson plans or syllabi	11	24
Disruptive in students' learning	Anything related to situations when teachers are away for TPE training	7	13
Dissemination programme	Anything related to Teachers disseminates their knowledge after TPE training	2	4
Does Not Sit Right for me	Anything related to Emotion regarding newly recruited teachers who take the Pre-service TPE programme to get ahead with teacher certification and how things related to TPE do not sit right with them	14	44
Easy to manage	Anything related to Issues of teacher recruitment, as it is easier to manage fresh graduates with no certification degree	2	3
Effective learning activity	Anything related to what the teacher considered an effective learning activity during the TPE programme	4	13
Effective tools of technology	Anything related to effective tools of technology they used during TPE training	3	6
Feeling Overwhelmed	Anything related to the teacher's feeling about the learning activity during TPE training, either a positive or negative response	13	42
Government Led	Anything related to the management of TPE at the Government level	2	2
Government Policy on Teacher	Anything related to government policy that requires teachers to be certified to teach at school	7	16
Hard to Measure	Anything related to assessment during TPE that is hard to measure	0	0
High Stake Exam	Anything related to exams in TPE, which comprises UP and UKIN, which is a stake exam since it decides their pass and fails and they are obtaining the professional certificate	4	7

Name	Description	Files	References
Honesty in teaching and learning	Anything related to honesty during TPE training activity or exam	4	6
Impact on Professional Practice	Anything related to the Impact of TPE training on professional practice for certified teacher	21	84
Improvement in awareness of teacher's responsibilities	Anything related to improvement in awareness of teachers in their duties after being certified	6	11
Inclusive school	Anything related to Ideas of inclusive school	2	2
Independent learning	Anything related to situations in which student have to study on their own	15	36
Neglection	Anything related to teacher's feeling or view that they are being neglected during the TPE training	1	2
Ineffective learning activities	Anything related to learning activities that they consider ineffective	5	10
Inefficient in teaching	Anything related to teacher's perspective on their teaching and learning activity which they consider inefficient	2	2
Information on selection	Anything related to Information on nomination in TPE training to the school and scheduling	6	15
Irrelevant to teaching context	Anything related to any activity during TPE training that teacher consider irrelevant to their teaching context	6	27
Issues with recruiting certified teachers	Anything related to Issues with recruiting certified teacher	2	8
Issues with time allocation	Anything related to time allocation and the problem related to time during TPE training	16	36
Management of TPE training	Anything related to the management aspect and policy of TPE training	6	20
Misalignment with the level of teaching	Anything related to misalignment of content subject or grouping in TPE training	6	10
Mixed-ability Classes	Anything related to mixed ability classes that happen in TPE training due to mixed level of teachers in the same group or class	7	11
Modules in TPE	Anything related to perspectives in modules in the TPE training	15	52

Name	Description	Files	References
Monitoring and evaluation	Anything related to Recommendation on monitoring and evaluation upon completion of TPE or being a certified teacher	11	26
Monotonous teaching and learning	Anything related to classroom activity that they considered monotonous learning	5	11
Not an easy answer	Anything related to responses on recruitment of certified vs non-certified teachers	3	3
Online learning	Anything related to the perspective of online learning	14	69
Asynchronous	Anything related to online independent learning where the method is asynchronous	13	25
Effectiveness of Online Learning	Anything related to the effectiveness having online learning for independent study	5	8
Issues with Technology	Anything related to the issue of technology both in infrastructure, network, or the ability of teachers in technology itself	6	13
IT Team	Anything related to the role of the IT team in supporting TPE training	1	2
Untimely response	Anything related to the disadvantages of asynchronous learning activity	3	3
Other responsibilities at school	Anything related to other duties at their school during the TPE training	10	13
Partnership mein TPE	Programme Anything related to the partnership between local government, central government, and Teaching institute to host this batch of students to do Integrated TPE programme	1	9
Pedagogical Competence	Anything related to sessions which focus on pedagogical knowledge and competence	12	29
Peer teaching activity	Anything related to classroom activity in TPE training that involve peer teaching	13	22
Personal Enrichment	Anything related to TPE training activity that teacher consider as personal enrichment	4	5
PLPG Model	Anything related to a model of teaching certification in which teachers join a two-week training programme held from 2010-2017	11	45

Name	Description	Files	References
Policy in establishing study programme in TPE	Anything related to the policy set by the government for establishing study programmes in TPE training	1	8
Policy in TPE	Anything related to policy in the TPE programme	6	53
Portfolio Model	Anything related to a model of teaching certification in which teachers collected their portfolio back in 2006-2010	4	10
Pre-service TPE training programme	Anything related to the Pre-service TPE training programme	5	15
Professional Competence	Anything related to the session at TPE that focuses on content knowledge mastery	15	28
Professional Development activity	Anything related to Teachers' involvement in PD activity	12	21
Professional Engagement Community	Anything related to the role of teachers in professional engagement in the community	6	20
Providing Feedback	Anything related to providing feedback on teachers' work during TPE training	9	24
Public VS Private School	Anything related to School policy in Public vs. private School	6	15
Recognition Prior Learning	Anything related to how RPL works in the TPE framework	7	13
Recommendation & Expectation	Anything related to recommendations and expectations for improvement of TPE training	24	94
Reflective Activity	Anything related to reflective session after each session in TPE training	2	4
Relevant to professional practice	Anything related to how TPE training activity is relevant to their classroom activity or to teachers in general	11	23
Reliance on technology	Anything related to how TPE relies heavily on Technology	6	10
Reward and Punishment Evaluation System	There is a need to employ a reward and punishment evaluation system to maintain the quality of teachers	2	11
Role of cooperating teacher	Anything related to the role of mentor teacher during TPE training, in specific during school placement	11	46

Name	Description	Files	References
Requirement as a cooperating teacher	Anything related to the requirement for teachers to be a cooperating teacher in the TPE training programme	1	1
Teacher's cultural and linguistic background	Anything related to challenges in TPE in relation to a teacher's cultural and linguistic background	3	7
Role of TPE Management	Anything related to the role of TPE management in managing day-to-day TPE training	3	15
Role of HEI Teacher Educator	Anything related to the role of the TPE HEI teacher educator	19	96
Requirement to teach in TPE training	Anything related to requirements for teacher educators to teach in the TPE training	8	25
Teacher Educator expertise	Anything related to the teacher's perspective on teacher-educator expertise	6	17
Sarcasm	Anything related to the teacher's perspective on TPE training that incline to sarcasm	3	10
Scheduling	Anything related to the school's attempt to manage the schedule when teachers are away for TPE training	7	15
School Belief	Anything related to the school's perspectives on certification and competence	2	5
School Culture	Anything related to Team Teaching as part of the school culture	10	23
School Placement	Anything related to the school placement and their experience during that phase of TPE training	17	84
Academic Activity	Anything related to academic activity during the school placement	5	6
Observation activity during the school placement	Anything related to observation in the classroom during the school placement	6	9
Teaching activity in school placement		11	20

Name	Description	Files	References
Duration in School Placement	Anything related to the duration or time teachers spent in school placement during TPE training	1	1
Infectivity in school placement	Anything related to ineffective activity in the school placement stage	3	7
Learning Video during School Placement	Anything related to learning videos during the school placement	5	13
Non-academic activity	Anything related to Involvement in non-academic activity	6	10
School placement during a pandemic	Anything related to the school placement stage during the pandemic	2	5
School's Expectation	Anything related to the school's expectation toward certified teachers	4	9
School's Role	Anything related to the school's role in maintaining or improving the quality of teachers	2	20
School's Support	Anything related to the school support in regards to TPE in terms of permit, managing schedule and technology aspects as well as mentoring	5	17
Scope too broad	Anything related to the curriculum or scope of the subject covered in TPE training	10	25
Self-Motivation	Anything related to teacher self-motivation during TPE training	8	8
Self-taught	Anything related to the teacher's activity on independent learning or online session	2	3
Stages of Learning	Anything related to stages of learning during the TPE training	8	17
Learning Stages in TPE	Anything related to Stages of learning in TPE 2018-2019	3	3
Strict rule of attendance	Anything related to TPE rules on mandatory attendance	6	8
Substitute Teacher	Anything related to A need for Substitute Teachers while teachers are away for TPE training	4	7
Supervised learning	Anything related to the teacher's perspective of what is considered supervised learning	0	0

Name	Description	Files	References
Teacher Certification Programme	Anything related to Teaching certification is about obtaining a license or certificate as a professional teacher	13	42
Teacher Change	Anything related to teacher's change after TPE training	5	9
Teacher Education Background	Anything related to Teachers from teaching and non-teaching education background	13	31
Teacher Pedagogical Competence	Anything related to the impact of TPE on Teacher's pedagogical competence	15	42
Teacher Professional Competence	Anything related to the impact of TPE on Teacher's Professional Competence	13	50
Teacher professionalism and Disposition	Anything related to the Teacher's character and professionalism	17	47
Teacher Recruitment	Anything related to School policy on teacher recruitment	6	18
Teacher's Age and Work Experience	Anything related to teacher's age and work experience which influence their competence	12	15
Teacher's Motivation	Anything related to teacher's motivation in partaking TPE programme	12	28
Teacher's Quality Matter	Anything related to Teacher quality matters more than teaching qualification	2	7
Teacher's Workload	Anything related to the Teacher's workload in general, including teaching preparation, administrative work, and other responsibilities	14	29
Teaching Diverse Learners.	Anything related to a teacher's ability to teach culturally, linguistically, and socio-economically diverse learners.	3	7
A teaching certificate does not equal teaching competence	Anything related to the statement that a teaching certificate does not necessarily equal teacher competence	3	6
Teaching Institute Led	Anything related to the management of TPE at the Teaching Institute level	2	4
Teaching Qualification	Anything related to Teaching qualifications for recruitment	3	6
Test-based learning	Anything related to test-based learning during TPE training	9	15

Name	Description	Files	References
Drilling Techniques	Anything related to technique or method applied in class during TPE training	4	5
The problem in Indonesian education	Anything related to Problems in Indonesian education is not only teachers and the school system but also students and their social situation	11	58
TI and school partnership	Anything related to TI and school partnership for school placement	6	9
TPACK	Anything related to how TPACK was incorporated into the TPE training specifically during online independent learning	4	5
TPE Model and Curriculum	Anything related to The TPE model in 2018-2020	19	69
Pedagogy module		4	10
Religious and Moral in TPE module	Anything related to a need to include religious and moral modules in the TPE curriculum	3	6
TPE programme evaluation	Anything related to the evaluation of the TPE programme both by the internal and external parties involved in the TPE training	4	21
TPE programme requirements	Anything related to Requirements to get shortlisted in the TPE Training programme	10	14
Training for Trainers	Anything related to training for trainers in the TPE programme, which includes both teacher educators and mentor teachers	2	3
Undirected lesson	Anything related to the teacher's perspective on undirected learning during the online independent learning stage	2	2
Unexpected Finding	Anything related to the unexpected finding	14	39
Unsupervised learning	Anything related to the teacher's perspective on unsupervised learning during the online independent learning stage	1	1
Weakness of the programme	Anything related to what is considered a weakness or drawback of TPE training	12	34
Workshop Session	Anything related to perspectives on workshop sessions in the TPE training	16	61

Name	Description	Files	References
Challenges during a workshop session	Anything related to challenges the teachers encounter during workshop sessions in TPE training	3	5
Class activity in the Workshop session	Anything related to class activity in the workshop session	8	13
Model of the workshop session	Anything related to the model implemented in the workshop TPE training	1	1
Time allotment during a workshop session	Anything related to time allotment during the workshop session	4	4

Appendix E Codebook – Phase 3

Teacher Professional Education

Codes\\Interviews\\Phase 3-Generating Initial Themes
RTA Phase 3

Name	Description	Files	References
Academic Misconduct	Anything related to perspectives that show academic misconduct in TPE training	11	22
Honesty in teaching and learning	Anything related to honesty during TPE training activity or exam	4	6
Does Not Sit Right for me	Anything related to Emotion regarding newly recruited teachers who take the Pre-service TPE programme to get ahead with teacher certification and how things related to TPE do not sit right with them	16	63
Not an easy answer	Anything related to responses on recruitment of certified vs non-certified teachers	3	3
Sarcasm	Anything related to the teacher's perspective on TPE training that inclines to sarcasm	3	10
A teaching certificate does not equal teaching competence	Anything related to the statement that a teaching certificate does not necessarily equal teacher competence	3	6
Feeling Overwhelmed	Anything related to the teacher's feeling about the learning activity during TPE training, either a positive or negative response	13	42
Government Policy on Teacher	Anything related to government policy that requires teachers to be certified in order to teach at school	9	31
Public VS Private School	Anything related to School policy in Public vs. private School	6	15
Impact on Professional Practice	Anything related to the Impact of TPE training on professional practice for certified teacher	24	225
Dissemination programme	Anything related to Teachers disseminates their knowledge after TPE training	2	4
Improvement in awareness of	Anything related to improvement in awareness of teachers in their duties after being certified	6	11

Name	Description	Files	References
teacher's responsibilities			
Personal Enrichment	Anything related to TPE training activity that teacher consider as personal enrichment	4	5
Professional Engagement Community	Anything related to The role of teachers in professional engagement in the community	6	20
Teacher Change	Anything related to teacher's change after TPE training	5	9
Teacher Pedagogical Competence	Anything related to the impact of TPE on Teacher's pedagogical competence	15	42
Teacher Professional Competence	Anything related to the impact of TPE on Teacher's Professional Competence	13	50
Management of TPE training	Anything related to the management aspect and policy of TPE training	22	242
Challenges in the Management of TPE Training	Anything related to challenges faced in managing the TPE training	2	9
Government Led	Anything related to the management of TPE at the Government level	2	2
Role of Cooperating Teachers	Anything related to the role of Cooperating Teachers during TPE training, in specific during school placement	12	54
Requirement as a Cooperating Teachers	Anything related to the requirement for teachers to be Cooperating Teachers in the TPE training programme	1	1
Teacher's cultural and linguistic background	Anything related to challenges in TPE in relation to a teacher's cultural and linguistic background	3	7
Role of TPE Management	Anything related to the role of TPE management in managing day-to-day TPE training	3	15
Role of TPE HEI Teacher Educator	Anything related to the role of the TPE HEI teacher educator	20	138
Requirement to teach in TPE training	Anything related to requirements for HEI teacher educators to teach in the TPE training	8	25

Name	Description	Files	References
Teacher Educator expertise	Anything related to the teacher's perspective on teacher-educator expertise	6	17
Teaching Institute Led	Anything related to the management of TPE at the Teaching Institute level	2	4
Policy in TPE	Anything related to policy in the TPE programme	6	70
Partnership Programme in TPE	Anything related to the partnership between local government, central government, and Teaching institute to host this batch of students to do Integrated TPE programme	1	9
Policy in establishing study programme in TPE	Anything related to the policy set by the government for establishing study programmes in TPE training	1	8
Previous Model of Professional Teacher Education Training	Anything related to previous model of Professional Teacher education Training	13	70
PLPG Model	Anything related to a model of teaching certification in which teachers join a two-week training programme held from 2010-2017	11	45
Portfolio Model	Anything related to a model of teaching certification in which teachers collected their portfolio back in 2006-2010	4	10
Pre-service TPE training programme	Anything related to the Pre-service TPE training programme	5	15
Recommendation & Expectation	Anything related to recommendations and expectation for improvement of TPE training	24	94
School's Role	Anything related to the school's role in maintaining or improving the quality of teachers	11	76
Inclusive school	Anything related to Ideas of inclusive school	2	2
School Belief	Anything related to the school's perspectives on certification and competence	2	5
School Culture	Anything related to Team Teaching as part of the school culture	10	23
School's Expectation	Anything related to the school's expectation toward certified teachers	4	9

Name	Description	Files	References
School's Support	Anything related to the school support in regards to TPE in terms of permit, managing schedule and technology aspects as well as mentoring	5	17
Teacher Certification Programme	Anything related to Teaching certification is about obtaining a license or certificate as a professional teacher	16	79
Monitoring and evaluation	Anything related to Recommendation on monitoring and evaluation upon completion of TPE or being a certified teacher	11	26
Reward and Punishment Evaluation System	There is a need to employ a reward and punishment evaluation system to maintain the quality of teachers	2	11
Teacher professionalism and Disposition	Anything related to the Teacher's character and professionalism	23	153
Collegiality and Collaboration	Anything related to Teachers working in a team	15	44
Professional Development activity	Anything related to Teachers' involvement in PD activity	12	40
CPD after TPE	Anything related to the sustainability programme upon completion of TPE	6	19
Teacher's Age and Work Experience	Anything related to teacher's age and work experience which influence their competence	12	15
Teaching Diverse Learners.	Anything related to a teacher's ability to teach culturally, linguistically, and socio-economically diverse learners.	3	7
Teacher Recruitment	Anything related to School policy on teacher recruitment	6	54
Certified VS Uncertified Teachers	Anything related to comments on certified VS uncertified teachers	3	21
Easy to manage	Anything related to Issues of teacher recruitment, as it is easier to manage fresh graduates with no certification degree	2	3
Issues with recruiting certified teachers	Anything related to Issues with recruiting certified teacher	2	8
Teacher's Quality Matter	Anything related to Teacher quality matters more than teaching qualification	2	7

Name	Description	Files	References
Teacher's Education Background	Anything related to Teachers from teaching and non-teaching education background	13	37
Teaching Qualification	Anything related to Teaching qualifications for recruitment	3	6
Teacher's Motivation	Anything related to teacher's motivation in partaking TPE programme	15	36
Self-Motivation	Anything related to teacher self-motivation during TPE training	8	8
Teacher's Workload	Anything related to the Teacher's workload in general, including teaching preparation, administrative work, and other responsibilities	15	42
Other responsibilities at school	Anything related to other duties at their school during the TPE training	10	13
The problem in Indonesian education	Anything related to Problems in Indonesian education is not only teachers and the school system, but also students and their social situation	11	58
TPE implementation	Anything related to TPE implementation	25	1041
Anxiety in TPE training	Anything related to the anxiety of TPE training, including TPE exams	11	25
Assessment in TPE	Anything related to assessment happened during TPE training	21	137
Assessment unexpected response	Anything related to how TPE is assessed	11	19
High Stake Exam	Anything related to exams in TPE, which comprises UP and UKIN, which is a stake exam since it decides their pass and fails and they are obtaining the professional certificate	4	7
Process Assessment in the TPE Programme	Anything related to the importance of process assessment in TPE training	16	52
Redo-ing TPE exam	Anything related to the situation where teacher have to redo their TPE exam when they fail	11	26

Name	Description	Files	References
TPE Exams	Anything related to types of TPE exams to obtain a professional teaching certificate	7	17
Cognitive Exam (UP)	Anything related to cognitive Exam in which teachers do written exams or called UP	10	24
Performance Exam (UKIN)	Anything related to performance exam or UKIN	12	33
Information on selection	Anything related to Information on nomination in TPE training to the school and scheduling	6	15
Modules in TPE	Anything related to perspectives in modules in the TPE training	16	77
Scope too broad	Anything related to the curriculum or scope of the subject covered in TPE training	10	25
Online learning	Anything related to the perspective of online learning	18	174
Asynchronous	Anything related to online independent learning where the method is asynchronous	13	25
Effectiveness of Online Learning	Anything related to the effectiveness having online learning for independent study	5	8
Independent learning	Anything related to situations in which student have to study on their own	15	36
Neglection	Anything related to teacher's feeling or view that they are being neglected during the TPE training	1	2
Ineffective learning activities	Anything related to learning activities that they consider ineffective	5	10
Issues with Technology	Anything related to the issue of technology both in infrastructure, network, or the ability of teachers in technology itself	6	13
IT Team	Anything related to the role of the IT team in supporting TPE training	1	2
TPACK	Anything related to how TPACK was incorporated into the TPE training	4	5

Name	Description	Files	References
	specifically during online independent learning		
Undirected lesson	Anything related to the teacher's perspective on undirected learning during the online independent learning stage	2	2
Unsupervised learning	Anything related to the teacher's perspective on unsupervised learning during the online independent learning stage	1	1
Untimely response	Anything related to the disadvantages of asynchronous learning activity	3	3
Recognition Prior Learning	Anything related to how RPL works in the TPE framework	7	13
Reliance on technology	Anything related to how TPE relies heavily on Technology	6	16
Effective tools of technology	Anything related to effective tools of technology they used during TPE training	3	6
Scheduling	Anything related to the school's attempt to manage the schedule when teachers are away for TPE training	12	35
Disruptive in students' learning	Anything related to situations when teachers are away for TPE training	7	13
Substitute Teacher	Anything related to a need for substitute teachers while teachers are away for TPE training	4	7
School Placement	Anything related to the school placement and their experience during that phase of TPE training	17	126
Academic Activity	Anything related to academic activity during the school placement	5	6
Observation activity during the school placement	Anything related to observation in the classroom during the school placement	6	9
Teaching activity in school placement		11	20
Duration in School Placement	Anything related to the duration or time teachers spent in school placement during TPE training	1	1

Name	Description	Files	References
Infectivity in school placement	Anything related to ineffective activity in school placement stage	3	7
Learning Video during School Placement	Anything related to learning videos during the school placement	5	13
Non-academic activity	Anything related to Involvement in non-academic activity	6	10
School placement during the pandemic	Anything related to the school placement stage during the pandemic	2	5
Self-taught	Anything related to the teacher's activity on independent learning or online session	2	3
Stages of Learning	Anything related to stages of learning during the TPE training	11	20
Learning Stages in TPE	Anything related to Stages of learning in TPE 2018-2019	3	3
Strict rule of attendance	Anything related to TPE rules on mandatory attendance	6	8
TI and school partnership	Anything related to TI and school partnership for school placement	6	9
TPE Model and Curriculum	Anything related to The TPE model in 2018-2020	22	108
Pedagogy module		4	10
Relevant to professional practice	Anything related to how TPE training activity is relevant to their classroom activity or as teachers in general	11	23
Religious and moral in the TPE module	Anything related to a need to include religious and moral modules in the TPE curriculum	3	6
TPE programme evaluation	Anything related to the evaluation of the TPE programme both by the internal and external parties involved in the TPE	4	21
TPE programme requirements	Anything related to Requirements to get shortlisted in the TPE programme	10	14
Training for Trainers	Anything related to training for trainers in the TPE programme, which includes both teacher educators and mentor teachers	2	3
Workshop Session	Anything related to perspectives on workshop sessions in the TPE training	22	236

Name	Description	Files	References
Challenges during a workshop session	Anything related to challenges the teachers encounter during workshop sessions in TPE training	3	5
Class activity in the Workshop session	Anything related to class activity in the workshop session	8	13
Class Management Issues	Anything they encounter as class management issues during TPE training	2	2
Classroom Action Research (CAR)	Anything related to classroom action research class or session during TPE	11	28
Designing assessments for teaching	Anything related to sessions in which teachers learn about designing assessments for teaching	2	2
Designing lesson plan	Anything related to sessions where teachers learn about designing lesson plans or syllabi	11	24
Effective learning activity	Anything related to what the teacher considered an effective learning activity during the TPE programme	4	13
Model of the workshop session	Anything related to the model implemented in the workshop TPE training	1	1
Pedagogical Competence	Anything related to sessions that focus on pedagogical knowledge and competence	12	29
Peer teaching activity	Anything related to classroom activity in TPE training that involve peer teaching	13	22
Professional Competence	Anything related to the session at TPE that focuses on content knowledge mastery	15	28
Reflective Activity	Anything related to reflective session after each session in TPE training	2	4
Time allotment during the workshop session	Anything related to time allotment during the workshop session	4	4
Unexpected Finding	Anything related to the unexpected finding	14	39
Weakness of the TPE programme	Anything related to what is considered weakness or drawbacks of TPE training	19	173

Name	Description	Files	References
Irrelevant to teaching context	Anything related to any activity during TPE training that teacher consider irrelevant to their teaching context	6	27
Issues with time allocation	Anything related to time allocation and the problem related to time during TPE training	16	36
Misalignment with the level of teaching	Anything related to misalignment of content subject or grouping in TPE training	6	10
Mixed-ability Classes	Anything related to mixed ability classes that happen in TPE training due to mixed level of teachers in the same group or class	7	11
Monotonous teaching and learning	Anything related to classroom activity that they considered monotonous learning	5	11
Providing Feedback	Anything related to providing feedback on teachers' work during TPE training	9	24
Test-based learning	Anything related to test-based learning during TPE training	9	20
Drilling Techniques	Anything related to technique or method applied in class during TPE training	4	5

Appendix F Codebook – Phase 4

Teacher Professional Education

Codes\\Interviews\\Phase 4-Developing and Reviewing Themes

RTA phase 4

Name	Description	Files	References
(Cat) Assessment and Examinations	All about the evaluation and examination	22	218
Assessment on Teacher's disposition	All about assessment in TPE to look into teacher's disposition/character	9	13
Cognitive Exam (UP)	Anything related to cognitive Exam in which teacher do written exam or called as UP	10	24
Drilling Method	Anything related to technique or method applied in class during TPE training	6	9
High-Stake Exam	Anything related to exams in TPE which comprises of UP and UKIN, which is high stake exam since it decide their pass and fail and their obtaining the professional certificate	8	11
Pass and Fail in Assessments	Anything related to assessment happened during TPE training	13	26
Performance Exam (UKIN)	Anything related to performance exam or UKIN	12	36
Process Assessment in TPE programme	Anything related to the importance of process assessment in TPE training	18	55
Redo-ing TPE Exam	Anything related to the situation where teacher have to redo their TPE exam when they fail	11	25
Unexpected Responses on Assesment	Anything related to how TPE is assessed	11	19
(Cat) Beliefs and Values	All about the beliefs and values in Indonesian education system	17	67
Complex issues of Indonesian Education	Anything related to Problem in Indonesian education is not only teacher and school system, but also students and its social situation	11	53
Schooling but not learning	All about the phenomena of being at school but not actually learning	2	6

Name	Description	Files	References
Self-Motivation	Anything related to teacher self motivation during TPE training	8	8
(Cat) Impact on Professional Practice	All about the impact of the training programme towards teachers	25	295
Collegiality and Collaboration	Anything related to Teachers working in team	15	42
Dissemination Programme	Anything related to Teachers disseminates their knowledge after TPE	2	5
Improvement on Awareness of Teacher's Responsibilities	Anything related to improvement in awareness of teachers in their responsibilities after being certified	8	15
Inclusive School	Anything related to Ideas of inclusive school	2	2
Pedagogical Competence	Anything related to sessions which focus on pedagogical knowledge and competence	17	47
Personal Enrichment	Anything related to TPE training activity which teachers consider as personal enrichment	11	23
Professional Competence	Anything related to the session at TPE that focuses on content knowledge mastery	18	48
Professional Development Activity	Anything related to Teachers' involvement in PD activity	13	34
Professional Engagement Community	Anything related to The role of teachers in professional engagement in the community	7	21
Relevant with Professional Practice	Anything related to how TPE training activity is relevant with their classroom activity or as teacher in general	11	24
Teacher Change	Anything related to teacher's change after TPE training	14	34
(Cat) Model of Training programme	All about the models of teacher training past initial teacher education programme	19	126
PLPG Model	Anything related to a model of teaching certification in which teachers join a two weeks training programme held in 2010-2017	11	45
Portfolio Model	Anything related to a model of teaching certification in which teachers collected their portfolio back in 2006-2010	4	10

Name	Description	Files	References
TPE in-service model	All about the TPE in-service model	16	50
TPE Pre-service	Anything related to the Pre-service TPE training programme	8	21
(Cat) Modules	All about modules in TPE training	21	159
Curriculum and delivery	All about the curriculum and its delivery in the TPE program	13	33
Irrelevant to Teaching Context	Anything related to any activity during TPE training which teacher consider irrelevant to their teaching context	8	31
Misalignment with Level of Teaching	Anything related to misalignment of content subject or grouping in TPE training	8	14
Pedagogy Module		10	20
Professional Module	All about the professional competence module	10	17
Religious aspects in TPE Module	Anything related to a need to include religious and moral module in the TPE curriculum	3	6
Scope too Broad	Anything related to the curriculum or scope of the subject covered in TPE training	12	31
TPACK	Anything related to how TPACK was incorporated into the TPE training in specifically during online independent learning	6	7
(Cat) Monitoring and Evaluations	All about monitoring and evaluation process during TPE or after	13	45
Monev about the TPE programme	Anything related to Recommendation on monitoring and evaluation upon completion of TPE or being a certified teacher	12	22
Monev after the TPE programme	All about the monev after the TPE programme	8	23
(Cat) Online stage	All about the online stage in TPE training	21	266
Asynchronous	Anything related to online independent learning where the method is asynchronous	14	33
Effective Tools of Technology	Anything related to effective tools of technology they used during TPE training	3	6

Name	Description	Files	References
Effectiveness of Online Learning	Anything related to the effectiveness of having online learning for independent study	8	11
Independent Learning	Anything related to situations in which student have to study on their own	15	46
Ineffective Learning Activities	Anything related to learning activities which they consider ineffective	10	31
Issues with Technology	Anything related to the issue of technology both in infrastructure, network or the ability of teachers in the technology itself	7	17
Monotonous Teaching and Learning	Anything related to classroom activity which they considered monotonous learning	7	13
Other Responsibilities at School	Anything related to other responsibilities at their school during the TPE training	11	14
Providing Feedback	Anything related to providing feedback of teachers' work during TPE training	15	36
Reliance on Technology	Anything related to how TPE rely heavily on Technology	7	12
Stages of Learning	Anything related to stages of learning during the TPE training	11	22
Test-Based Learning	Anything related to test-based learning during TPE training	12	25
(Cat) Policy in Education	All about Educational Policy in Indonesia	15	81
Policy on Professional Education	All about government's policy in teacher professional education	5	18
Policy on Teacher and Recruitment	Anything related to government policy that requires teachers to be certified in order to teach at school	7	22
Policy on Teacher Certification Policy	Anything related to Teaching certification is about obtaining a license or certificate as a professional teacher	12	41
(Cat) Policy regarding TPE	All about policy related to the TPE programme	9	60
Government Led Policy	Anything related to the management of TPE at the Government level	8	32

Name	Description	Files	References
Policy in Establishing Study Programme in TPE	Anything related to the policy set by the government for establishing study programme in TPE training	1	8
TI Led Policy	Anything related to the management of TPE at the Teaching Institute level	5	16
TPE during pandemic	All about the TPE programme during the pandemic	3	4
(Cat) Recommendation	All about recommendations to improve the TPE programme	24	143
Alternative Assessment	All about recommendations on improving the assessment in TPE training	5	9
Effectiveness of the TPE program	All about improving the effectiveness of the TPE programme	9	11
Future of TPE Training	All about recommendations for the future TPE	14	28
Improving Teacher competences	All about recommendations for improving teacher competencies	7	11
Improving Teacher's TPE experience	All about recommendations to improve teacher's TPE experience	14	21
On Module and Content of TPE Training	All about recommendations on the content of TPE training	13	28
On Teacher Recruitment	All about recommendations on teacher recruitment	2	7
Reward and Punishment	There is a need to employ a reward and punishment evaluation system to maintain the quality of teachers	4	13
What's after TPE	All about recommendations on what's next after the TPE programme	5	15
(Cat) School Placement Stage	All about the school placement stage	21	207
Academic Activity during School Placement	Anything related to academic activity during the school placement	6	9
Challenges during School Placement	All about challenges encounters during the school placement activity	13	28

Name	Description	Files	References
Duration of School Placement	Anything related to duration or time teachers spent in school placement during TPE training	6	8
Ineffectivity in School Placement	Anything related to activity ineffective activity in the school placement stage	5	10
Learning Video for School Placement Assessment	Anything related to learning videos during the school placement	5	13
Model of School Placement	All about the model of school placement during the implementation of the TPE programme	6	15
Monev in School Placement	All about the monev activity during school placement activity	6	7
Non-Academic Activity during School Placement	Anything related to Involvement in non-academic activity	7	12
Objectives of School Placement	All about the school's objectives to improve pedagogical competence in the real teaching context	6	10
Observation Activity during the School Placement	Anything related to observation in the classroom during the school placement	9	13
Reflection session during school placement	All about reflection sessions during the school placement	3	5
School Placement During Pandemic	Anything related to the school placement stage during the pandemic	2	6
Subjectivity in school placement	All about having school placement activity in school which are different from the respective school context	2	7
Teacher Work Experience	Anything related to teacher's age and work experience which influence their competence	13	19
Teaching Activity in School Placement		12	21
TI and School Partnership	Anything related to TI and school partnership for school placement	10	24
(Cat) School's context	All about the school's context regarding TPE training	22	211

Name	Description	Files	References
Disruptive in Students' Learning	Anything related to situation when teachers are away for TPE training	12	25
Public VS Private School	Anything related to School policy in Public VS Private School	7	16
School's Belief and Culture	Anything related to Team Teaching as part of school culture	10	28
School's Expectation	Anything related to the school's expectation towards certified teachers	4	9
School's Role	Anything related to school's role in maintaining or improving the quality of teachers	2	20
School's Support	Anything related to The school support in regards to TPE in terms of permit, managing schedule and technology aspect as well as mentoring	5	17
Substitute Teacher	Anything related to A need for Substitute Teacher while teachers are away for TPE training	4	7
Teacher Recruitment	Anything related to School policy on teacher recruitment	7	23
Teacher's Motivation	Anything related to teacher's motivation in partaking TPE programme	12	28
Teacher's Quality Matter	Anything related to Teacher quality matters more than teaching qualification	2	7
Teacher's Workload	Anything related to Teacher's workload in general including teaching preparation, administrative work and other responsibilities	14	31
(Cat) TPE actors	About TPE actors and their roles in TPE	21	126
Issues in time management	All about issues in time management and dealing with other responsibilities	6	7
Requirement as a Mentor Teacher	Anything related to the requirement for teachers to be cooperating teachers in the TPE training programme	3	6
Requirement to Teach in TPE	Anything related to requirements for teacher educators to teach in the TPE training	10	31
Role of Mentor Teacher	Anything related to the role of mentor teacher during TPE training, in specific during school placement	11	41

Name	Description	Files	References
Role of Teacher Educator	Anything related to the role of the TPE teacher educator	13	35
Training for Trainers	Anything related to training for trainers in the TPE program, which includes both teacher educators and mentor teachers	4	6
(Cat) TPE in general	All about the perspectives of TPE participants in general	21	84
Information on participants' selection and nomination	Anything related to Information on nomination in TPE training to the school and scheduling	7	17
Recognition Prior Learning	Anything related to how RPL works in the TPE framework	8	14
Teacher's Profile Background	Anything related to Teachers from teaching and non-teaching education background	13	37
TPE Programme Requirements	Anything related to Requirements of to get shortlisted in the TPE Training programme	11	16
(Cat) TPE Management	All about Management or administrative aspects of TPE training	9	75
Challenges in the Management of TPE training	Anything related to challenges faced in managing the TPE training	8	20
Management of TPE Training	Anything related to the management aspect and policy of TPE training	8	24
Role of the Study Programme	All about the role of study programme in the TPE	5	11
Role of TPE Management	Anything related to the role of TPE management in managing day-to-day TPE training	5	20
(Cat) Unexpected Findings	All about unexpected findings in TPE programme implementation	25	259
Academic Misconduct	Anything related to perspectives that show academic misconduct in TPE training	11	20
Anxiety in TPE training	Anything related to the anxiety of TPE training, including TPE exams	11	25
Certified VS Uncertified Teachers	Anything related to comments on certified VS uncertified teachers	4	34
Does Not Sit Right for me	Anything related to Emotion regarding recruit newly recruited teachers who take the Pre-service TPE programme to get ahead	14	45

Name	Description	Files	References
	with teacher certification and how things related to TPE do not sit right with them		
Easy to Manage	Anything related to Issues of teacher recruitment, as it is easier to manage fresh graduates with no certification degree	2	3
Feeling Overwhelmed	Anything related to the teacher's feeling about the learning activity during TPE training, either a positive or negative response	13	43
Not an Easy Answer	Anything related to responses on recruitment of certified vs non-certified teachers	3	3
Sarcasm	Anything related to the teacher's perspective on TPE training which inclined to sarcasm	4	13
Teacher's Cultural and Linguistic Background	Anything related to challenges in TPE in relation to a teacher's cultural and linguistic background	4	8
The Problem in Indonesian Education	Anything related to Problems in Indonesian education is not only teachers and the school system but also students and their social situation	12	65
(Cat) Weakness of the TPE programme	All about perspectives of weaknesses of the TPE programme	21	98
Issues with Time Allotment	Anything related to time allocation and the problem related to time during TPE training	16	37
Modules and Model	All about the weakness of the programmes in relation to modules and model	14	24
Teacher Educators Aspect	All about weaknesses in managing the human resources in the TPE programme	11	16
Teacher's Low Competences	All about the teacher's low skills	8	21
(Cat) What they perceived about Teacher Competencies	All about teacher competencies	21	137
Teacher Pedagogical Competence	Anything related to the impact of TPE on Teacher's pedagogical competence	15	42
Teacher Professional Competence	Anything related to the impact of TPE on Teacher's Professional Competence	14	51

Name	Description	Files	References
Teacher Professionalism and Disposition	Anything related to the Teacher's character and professionalism	17	44
(Cat) Workshop Sessions	All about workshop session during TPE	23	193
Challenges during Workshop Session	Anything related to challenges the teachers encounter during workshop session in TPE training	8	17
Class Activity in Workshop Session	Anything related to class activity in the workshop session	13	26
Class Management Issues	Anything they encounter as class management issues during TPE training	3	3
Classroom Action Research (CAR)	Anything related to classroom action research class or session during TPE	11	28
Designing Assessment for Teaching	Anything related to session in which teachers learn about designing assessment for teaching	2	2
Designing Lesson Plan	Anything related to sessions where teachers learn about designing lesson plans or syllabi	14	30
Effective Learning Activity	Anything related to what the teacher considered an effective learning activity during the TPE programme	11	28
Mixed-Ability Classes	Anything related to mixed ability classes which happen in TPE training due to mixed levels of teachers in the same group or class	7	12
Peer-Teaching Activity	Anything related to classroom activity in TPE training which involves peer teaching	13	22
Strict Rule of Attendance	Anything related to TPE rules on mandatory attendance	6	8
Teaching Diverse Learners.	Anything related to teacher's ability in teaching culturally, linguistically and socio-economically diverse learners.	3	7
Time Allotment during Workshop Session	Anything related to time allotment during the workshop session	8	10

Appendix G Codebook – Phase 5

Teacher Professional Education

Codes\\Interviews\\Phase 5-Refining, Defining and Naming Themes
RTA Phase 5

Name	Description	Files	References
(Theme) Recommendation	All about recommendations to improve the TPE training programme	24	143
Alternative Assessment	All about recommendations on improving the assessment in TPE training	5	9
Effectiveness of the TPE programme	All about improving the effectiveness of the TPE programme	9	11
Future of TPE Training	All about recommendations for the future TPE	14	28
Improving Teacher competences	All about recommendations for improving teacher competencies	7	11
Improving Teacher's TPE experience	All about recommendations to improve teacher's TPE experience	14	21
On Module and Content of TPE Training	All about recommendations on the content of TPE	13	28
On Teacher Recruitment	All about recommendations for teacher recruitment	2	7
Reward and Punishment	There is a need to employ a reward and punishment evaluation system to maintain the quality of teachers	4	13
What's after TPE	All about recommendations on what's next after the TPE programme	5	15
(Theme) Unexpected Findings	All about unexpected findings in TPE programme implementation	25	259
Academic Misconduct	Anything related to perspectives that show academic misconduct in TPE training	11	20
Anxiety in TPE training	Anything related to the anxiety of TPE training, including TPE exams	11	25
Certified VS Uncertified Teachers	Anything related to comments on certified VS uncertified teachers	4	34
Does Not Sit Right for me	Anything related to Emotion regarding newly recruited teachers who take the Pre-service TPE programme to get ahead with teacher	14	45

Name	Description	Files	References
	certification and how things related to TPE do not sit right with them		
Easy to Manage	Anything related to Issues of teacher recruitment, as it is easier to manage fresh graduates with no certification degree	2	3
Feeling Overwhelmed	Anything related to the teacher's feeling about the learning activity during TPE training, either a positive or negative response	13	43
Not an Easy Answer	Anything related to responses on recruitment of certified vs non-certified teachers	3	3
Sarcasm	Anything related to the teacher's perspective on TPE training that incline to sarcasm	4	13
Teacher's Cultural and Linguistic Background	Anything related to challenges in TPE in relation to a teacher's cultural and linguistic background	4	8
The Problem in Indonesian Education	Anything related to Problems in Indonesian education is not only teachers and the school system but also students and their social situation	12	65
RQ1_Teacher Perspectives on Effectiveness of the Programme	All about teachers' perspectives on the TPE programme's effectiveness in improving their professional practice	25	1316
(RQ1_Theme) Evaluation and Assessment	All about the evaluation and Assessment	22	218
Assessment of Teacher's Disposition	All about assessment in TPE to look into a teacher's disposition/character	9	13
Cognitive Exam (UP)	Anything related to cognitive Exam in which teachers do written exams or called UP	10	24
Drilling Method	Anything related to technique or method applied in class during TPE training	6	9
High-Stake Exam	Anything related to exams in TPE, which comprises UP and UKIN, which is a stake exam since it decides their pass and fails and they are obtaining the professional certificate	8	11
Pass and Fail in Assessments	Anything related to assessment happened during TPE training	13	26
Performance Exam (UKIN)	Anything related to performance exam or UKIN	12	36
Process Assessment in the TPE Programme	Anything related to the importance of process assessment in TPE training	18	55

Name	Description	Files	References
Redo-ing TPE Exam	Anything related to the situation where teacher have to redo their TPE exam when they fail	11	25
Unexpected Responses on Assessment	Anything related to how TPE is assessed	11	19
(RQ1_Theme) Impact on Professional Practice	All about the impact of the training programme on teachers	25	295
Collegiality and Collaboration	Anything related to Teachers working in a team	15	42
Dissemination Programme	Anything related to Teachers disseminates their knowledge after TPE training	2	5
Improvement in Awareness of Teacher's Responsibilities	Anything related to improvement in awareness of teachers in their responsibilities after being certified	8	15
Inclusive School	Anything related to Ideas of inclusive school	2	2
Pedagogical Competence	Anything related to sessions that focus on pedagogical knowledge and competence	17	47
Personal Enrichment	Anything related to TPE training activity that teachers consider as personal enrichment	11	23
Professional Competence	Anything related to the session at TPE that focuses on content knowledge mastery	18	48
Professional Development Activity	Anything related to Teachers' involvement in PD activity	13	34
Professional Engagement Community	Anything related to the role of teachers in professional engagement in the community	7	21
Relevant to Professional Practice	Anything related to how TPE training activity is relevant to their classroom activity or as teachers in general	11	24
Teacher Change	Anything related to teacher's change after TPE training	14	34
(RQ1_Theme) Online stage	All about the online stage in TPE training	21	266
Asynchronous	Anything related to online independent learning where the method is asynchronous	14	33
Effective Tools of Technology	Anything related to effective tools of technology they used during TPE training	3	6
Effectiveness of Online Learning	Anything related to the efficacy of having online learning for independent study	8	11

Name	Description	Files	References
Independent Learning	Anything related to situations in which student have to study on their own	15	46
Ineffective Learning Activities	Anything related to learning activities that they consider ineffective	10	31
Issues with Technology	Anything related to the issue of technology both in infrastructure, network, or the ability of teachers in technology itself	7	17
Monotonous Teaching and Learning	Anything related to classroom activity that they considered monotonous learning	7	13
Other Responsibilities at School	Anything related to other responsibilities at their school during the TPE training	11	14
Providing Feedback	Anything related to providing feedback on teachers' work during TPE training	15	36
Reliance on Technology	Anything related to how TPE relies heavily on Technology	7	12
Stages of Learning	Anything related to stages of learning during the TPE training	11	22
Test-Based Learning	Anything related to test-based learning during TPE training	12	25
(RQ1_Theme) School Placement	All about school placement stage	21	207
Academic Activity during School Placement	Anything related to academic activity during the school placement	6	9
Challenges during School Placement	All about challenges encountered during the school placement activity	13	28
Duration of School Placement	Anything related to the duration or time teachers spent in school placement during TPE training	6	8
Infectivity in School Placement	Anything related to ineffective activity in the school placement stage	5	10
Learning Video for School Placement Assessment	Anything related to learning videos during the school placement	5	13
Model of School Placement	All about the model of school placement during the implementation of the TPE programme	6	15

Name	Description	Files	References
Monev in School Placement	All about the monev activity during school placement activity	6	7
Non-Academic Activity during School Placement	Anything related to Involvement in non-academic activity	7	12
Objectives of School Placement	All about the school's objectives to improve pedagogical competence in a real teaching context	6	10
Observation Activity during the School Placement	Anything related to observation in the classroom during the school placement	9	13
Reflection session during school placement	All about reflection sessions during the school placement	3	5
School Placement During Pandemic	Anything related to the school placement stage during the pandemic	2	6
Subjectivity in School Placement	All about having school placement activities that is different from the respective school context	2	7
Teacher Work Experience	Anything related to teacher's age and work experience which influence their competence	13	19
Teaching Activity in School Placement		12	21
TI and School Partnership	Anything related to TI and school partnership for school placement	10	24
(RQ1_Theme) What Perceived as Teacher Competence	All about teacher competencies	21	137
Teacher Pedagogical Competence	Anything related to the impact of TPE on Teacher's pedagogical competence	15	42
Teacher Professional Competence	Anything related to the impact of TPE on Teacher's Professional Competence	14	51
Teacher Professionalism and Disposition	Anything related to the Teacher's character and professionalism	17	44

Name	Description	Files	References
(RQ1_Theme) Workshop Session	All about workshop sessions during TPE	23	193
Challenges during Workshop Session	Anything related to challenges the teachers encounter during workshop sessions in TPE training	8	17
Class Activity in Workshop Session	Anything related to class activity in the workshop session	13	26
Class Management Issues	Anything they encounter as class management issues during TPE training	3	3
Classroom Action Research (CAR)	Anything related to classroom action research class or session during TPE	11	28
Designing Assessment for Teaching	Anything related to sessions in which teachers learn about designing assessments for teaching	2	2
Designing Lesson Plan	Anything related to sessions where teachers learn about designing lesson plans or syllabi	14	30
Effective Learning Activity	Anything related to what the teacher considered an effective learning activity during the TPE programme	11	28
Mixed-Ability Classes	Anything related to mixed ability classes that happen in TPE training due to mixed level of teachers in the same group or class	7	12
Peer-Teaching Activity	Anything related to classroom activity in TPE training that involves peer teaching	13	22
Strict Rule of Attendance	Anything related to TPE rules on mandatory attendance	6	8
Teaching Diverse Learners.	Anything related to a teacher's ability to teach culturally, linguistically, and socio-economically diverse learners.	3	7
Time Allotment during Workshop Session	Anything related to time allotment during the workshop session	8	10
RQ2_Perspectives of mentor teacher, principal, and teacher educators	All about mentor teacher, principal teacher educator's view on the TPE programme's design and practice to support teacher's learning? (Meso)	25	639
(RQ2_Theme) Module of TPE	All about modules in TPE	21	159

Name	Description	Files	References
Curriculum and delivery	All about the curriculum and its delivery in the TPE training programme	13	33
Irrelevant to Teaching Context	Anything related to any activity during TPE training that teacher consider irrelevant to their teaching context	8	31
Misalignment with Level of Teaching	Anything related to misalignment of content subject or grouping in TPE training	8	14
Pedagogy Module		10	20
Professional Module	All about the professional competence module	10	17
Religious Aspects in the TPE Module	Anything related to a need to include religious and moral modules in the TPE curriculum	3	6
Scope too Broad	Anything related to the curriculum or scope of the subject covered in TPE training	12	31
TPACK	Anything related to how TPACK was incorporated into the TPE training in specifically during online independent learning	6	7
(RQ2_Theme) Monitoring and Evaluation	All about monitoring and evaluation process during TPE or after	13	45
Monev about the TPE programme	Anything related to Recommendation on monitoring and evaluation upon completion of TPE or being a certified teacher	12	22
Monev after the TPE programme	All about the monev after the TPE programme	8	23
(RQ2_Theme) School Context	All about the school's context regarding TPE training	22	211
Disruptive in Students' Learning	Anything related to situations when teachers are away for TPE training	12	25
Public VS Private School	Anything related to School policy in Public vs. private Schools	7	16
School's Belief and Culture	Anything related to Team Teaching as part of the school culture	10	28
School's Expectation	Anything related to the school's expectation toward certified teachers	4	9
School's Role	Anything related to the school's role in maintaining or improving the quality of teachers	2	20

Name	Description	Files	References
School's Support	Anything related to the school support in regards to TPE in terms of permit, managing schedule and technology aspects as well as mentoring	5	17
Substitute Teacher	Anything related to a need for substitute teachers while teachers are away for TPE training	4	7
Teacher Recruitment	Anything related to School policy on teacher recruitment	7	23
Teacher's Motivation	Anything related to teacher's motivation in partaking TPE programme	12	28
Teacher's Quality Matter	Anything related to Teacher quality matters more than teaching qualification	2	7
Teacher's Workload	Anything related to the Teacher's workload in general, including teaching preparation, administrative work and other responsibilities	14	31
(RQ2_Theme) The TPE main actors	About TPE actors and their roles in TPE	21	126
Issues in time management	All about issues in time management and dealing with other responsibilities	6	7
Requirement as a Cooperating Teacher	Anything related to the requirement for teachers to be cooperating teachers in the TPE training programme	3	6
Requirement to Teach in TPE Training	Anything related to requirements for HEI teacher educators to teach in the TPE training	10	31
Role of Mentor Teacher	Anything related to the role of mentor teacher during TPE training, in specific during school placement	11	41
Role of Teacher Educator	Anything related to the role of the TPE teacher educator	13	35
Training for Trainers	Anything related to training for trainers in the TPE programme, which includes both teacher educators and mentor teachers	4	6
(RQ2-Theme) Weaknesses of TPE training	All about perspectives of weaknesses of the TPE programme	21	98
Issues with Time Allotment	Anything related to time allocation and the problem related to time during TPE training	16	37
Modules and Model	All about the weakness of the programmes in relation to modules and model	14	24
Teacher Educators Aspect	All about weaknesses in managing the human resources in the TPE programme	11	16

Name	Description	Files	References
Teacher's Low Competences	All about the teacher's low skills	8	21
RQ3_Perspectives of Management on Challenges and Obstacles in TPE Programme Management	All about TPE management perspectives, what challenges and obstacles inevitably develop as policies and practices are put in place? (Exo)	21	219
(RQ3_Theme) Policy in TPE training	All about policy related to the TPE programme	9	60
Government Led Policy	Anything related to the management of TPE at the Government level	8	32
Policy in Establishing Study Programme in TPE	Anything related to the policy set by the government for establishing study programmes in TPE	1	8
TI Led Policy	Anything related to the management of TPE at the Teaching Institute level	5	16
TPE during pandemic	All about the TPE programme during a pandemic	3	4
(RQ3_Theme) TPE in general	All about the info of TPE in general	21	84
Information on participants' selection and nomination	Anything related to Information on nomination in TPE training to the school and scheduling	7	17
Recognition Prior Learning	Anything related to how RPL works in the TPE framework	8	14
Teacher's Profile Background	Anything related to Teachers from teaching and non-teaching education background	13	37
TPE Programme Requirements	Anything related to Requirements to get shortlisted in the TPE Training programme	11	16
(RQ3_Theme) TPE Management		9	75
Challenges in the Management of TPE	Anything related to challenges faced in managing the TPE	8	20
Management of TPE	Anything related to the management aspect and policy of TPE	8	24
Role of Study Programme	All about the role of study programme in the TPE	5	11

Name	Description	Files	References
Role of TPE Management	Anything related to the role of TPE management in managing day-to-day TPE	5	20
RQ4_Educational values and beliefs that influence the TPE	All about Educational values and beliefs influence the TPE programme's implementation? (Macro, Chrono)	21	274
(RQ4_Theme) Education Beliefs and Values	All about the beliefs and values in the Indonesian education system	17	67
Complex Issues of Indonesian Education	Anything related to problems in Indonesian education is not only teachers and the school system but also students and their social situation	11	53
Schooling but not learning	All about the phenomena of being at school but not actually learning	2	6
Self-Motivation	Anything related to teacher self-motivation during TPE training	8	8
(RQ4_Theme) Education Policy and Practice	All about Educational Policy in Indonesia	15	81
Policy on Professional Education	All about the government's policy in teacher professional education	5	18
Policy on Teacher and Recruitment	Anything related to government policy that requires teachers to be certified in order to teach at school	7	22
Policy on Teacher Certification Policy	Anything related to Teaching certification is about obtaining a license or certificate as a professional teacher	12	41
(RQ4_Theme) Models of Teacher Training Through History	All about the models of teacher training past the initial teacher education programme	19	126
PLPG Model	Anything related to a model of teaching certification in which teachers join a two-week training programme held from 2010-2017	11	45
Portfolio Model	Anything related to a model of teaching certification in which teachers collected their portfolio back in 2006-2010	4	10
TPE in-service model	All about the TPE in-service model	16	50
TPE Pre-service	Anything related to the Pre-service TPE training programme	8	21

Appendix H Collating to Construct Themes – Phase 5

Collating codes to construct themes

Name	Files	References
Assessment and Examinations	22	218
Assessment of teacher's disposition	9	13
Cognitive Exam (UP)	10	24
Drilling Method	6	9
High-Stake Exam	8	11
Pass and Fail in Assessments	13	26
Performance Exam (UKIN)	12	36
Process Assessment in the TPE Programme	18	55
Redo-ing TPE Exam	11	25
Unexpected Responses on Assessment	11	19
Beliefs and Values	17	67
Complex Issues of Indonesian Education	11	53
Schooling but not learning	2	6
Self-Motivation	8	8
Impact on Professional Practice	25	295
Collegiality and Collaboration	15	42
Dissemination Programme	2	5
Improvement in Awareness of Teacher's Responsibilities	8	15
Inclusive School	2	2
Pedagogical Competence	17	47
Personal Enrichment	11	23
Professional Competence	18	48
Professional Development Activity	13	34
Professional Engagement Community	7	21
Relevant to Professional Practice	11	24
Teacher Change	14	34
Model of the Training Programme	19	126
PLPG Model	11	45

Name	Files	References
Portfolio Model	4	10
TPE in-service model	16	50
TPE Pre-service	8	21
Modules	21	159
Curriculum and delivery	13	33
Irrelevant to Teaching Context	8	31
Misalignment with Level of Teaching	8	14
Pedagogy Module	10	20
Professional Module	10	17
Religious Aspects in the TPE Module	3	6
Scope too Broad	12	31
TPACK	6	7
Monitoring and Evaluations	13	45
Monitoring and evaluation of the TPE programme	12	22
Monitoring and evaluation after the TPE programme	8	23
Online stage	21	266
Asynchronous	14	33
Effective Tools of Technology	3	6
Effectiveness of Online Learning	8	11
Independent Learning	15	46
Ineffective Learning Activities	10	31
Issues with Technology	7	17
Monotonous Teaching and Learning	7	13
Other Responsibilities at School	11	14
Providing Feedback	15	36
Reliance on Technology	7	12
Stages of Learning	11	22
Test-Based Learning	12	25
Policy in Education	15	81
Policy on Professional Education	5	18
Policy on Teacher and Recruitment	7	22

Name	Files	References
Policy on Teacher Certification Policy	12	41
Policy regarding TPE training	9	60
Government Led Policy	8	32
Policy in Establishing Study Programme in TPE	1	8
TI Led Policy	5	16
TPE during pandemic	3	4
Recommendation	24	143
On Alternative Assessment	5	9
On the effectiveness of the TPE programme	9	11
On the Future of TPE Training	14	28
On Improving Teacher competences	7	11
On Improving Teacher's TPE Experience	14	21
On Module and Content of TPE Training	13	28
On Teacher Recruitment	2	7
On Reward and Punishment	4	13
On What is after TPE	5	15
School Placement Stage	21	207
Academic Activity during School Placement	6	9
Challenges during School Placement	13	28
Duration of School Placement	6	8
Infectivity in School Placement	5	10
Learning Video for School Placement Assessment	5	13
Model of School Placement	6	15
Monitoring and evaluation in School Placement	6	7
Non-Academic Activity during School Placement	7	12
Objectives of School Placement	6	10
Observation Activity during the School Placement	9	13
Reflection session during school placement	3	5
School Placement During Pandemic	2	6
Subjectivity in School Placement	2	7
Teacher Work Experience	13	19

Name	Files	References
Teaching Activity in School Placement	12	21
TI and School Partnership	10	24
School's context	22	211
Disruptive in Students' Learning	12	25
Public VS Private School	7	16
School's Belief and Culture	10	28
School's Expectation	4	9
School's Role	2	20
School's Support	5	17
Substitute Teacher	4	7
Teacher Recruitment	7	23
Teacher's Motivation	12	28
Teacher's Quality Matter	2	7
Teacher's Workload	14	31
TPE actors	21	126
Issues in time management	6	7
Requirement for Cooperating teachers	3	6
Requirement to Teach in TPE Training	10	31
Role of Cooperating Teachers	11	41
Role of HEI teacher educators	13	35
Training for Trainers	4	6
TPE in general	21	84
Information on participants' selection and nomination	7	17
Recognition Prior Learning	8	14
Teacher's Profile Background	13	37
TPE Programme Requirements	11	16
TPE Management	9	75
Challenges in the Management of TPE Training	8	20
Management of TPE Training	8	24
Role of the Study Programme	5	11
Role of TPE Management	5	20

Name	Files	References
Unexpected Findings	25	259
Academic Misconduct	11	20
Anxiety in TPE training	11	25
Certified VS Uncertified Teachers	4	34
Does Not Sit Right for me	14	45
Easy to Manage	2	3
Feeling Overwhelmed	13	43
Not an Easy Answer	3	3
Sarcasm	4	13
Teacher's Cultural and Linguistic Background	4	8
The Problem in Indonesian Education	12	65
Weakness of the TPE programme	21	98
Issues with Time Allotment	16	37
Modules and Model	14	24
HEI teacher educators' Aspect	11	16
Teacher's Low Competences	8	21
What they perceived about Teacher Competencies	21	137
Teacher Pedagogical Competence	15	42
Teacher Professional Competence	14	51
Teacher Professionalism and Disposition	17	44
Workshop Sessions	23	193
Challenges during Workshop Session	8	17
Class Activity in Workshop Session	13	26
Class Management Issues	3	3
Classroom Action Research (CAR)	11	28
Designing Assessment for Teaching	2	2
Designing Lesson Plan	14	30
Effective Learning Activity	11	28
Mixed-Ability Classes	7	12
Peer-Teaching Activity	13	22
Strict Rule of Attendance	6	8

Name	Files	References
Teaching Diverse Learners.	3	7
Time Allotment during Workshop Session	8	10

Sample of clustering on RQ1

Cluster 1: Online stage	Cluster 2: Workshop Session	Cluster 3: School Placement	Cluster 4: Evaluation and Assessment	Cluster 5: Impact	Cluster 6: What is perceived about Teacher Competence
(ST) Technology	(ST) Teaching and learning	(ST) Activity in SP	(ST) Final Assessment	(ST) Personal Impact	Teacher Pedagogical Competence
Issues with Technology	Class Activity in Workshop Session	Academic Activity during School Placement	Cognitive Exam (UP)	Personal Enrichment	Teacher Professional Competence
Asynchronous	Peer-Teaching Activity	Non-Academic Activity during School Placement	Performance Exam (UKIN)		Teacher Professionalism and Disposition
Reliance on Technology	Designing Assessment for Teaching	Reflection session during school placement	(ST) Non-technical Assessment	Professional Competence	
Effective Tools of Technology	Effective Learning Activity	(ST) Ineffective Activity in SP	Assessment of teacher's disposition	Pedagogical Competence	
(ST) Teaching and Learning	Designing Lesson Plan	Ineffectivity in School Placement	Pass and Fail in Assessments	Improvement in Awareness of Teachers's Responsibilities	
Stages of Learning	Classroom Action Research (CAR)	Subjectivity in School Placement	Process Assessment in the TPE	Relevant to Professional Practice	
Test-Based Learning	(ST) Challenges in Workshop Session	Learning Video for School Placement Assessment	(ST) Issues with Assessment	(ST) Collegial Impact	

Cluster 1: Online stage	Cluster 2: Workshop Session	Cluster 3: School Placement	Cluster 4: Evaluation and Assessment	Cluster 5: Impact	Cluster 6: What is perceived about Teacher Competence
Independent Learning	Challenges during Workshop Session	(ST) Challenges in SP	Drilling Method	Collegiality and Collaboration	
Effectiveness of Online Learning	Class Management Issues	School Placement During Pandemic	High-Stake Exam	Dissemination Programme	
(ST) Ineffectivity in online learning	Mixed-Ability Classes	Challenges during School Placement	Redo-ing TPE Exam	Professional Development Activity	
Monotonous Teaching and Learning	Strict Rule of Attendance	Teacher Work Experience	Unexpected Responses on Assessment	Professional Engagement Community	
Providing Feedback	Time Allotment during	(ST) Policy in SP		Inclusive School	
Other Responsibilities at School	Teaching Diverse Learners.	Objectives of School Placement			
		Observation Activity during the School Placement			
		TI and School Partnership			
		Duration of School Placement			
		Model of School Placement			
		Move in School Placement			

Thematic framework with the excerpt

	Themes/Sub-themes	How does this theme/sub-theme address relate to the overarching research questions?	Examples of data to support this theme/sub-themes	Stage in Research
1	(Theme) Recommendation	It talks about the recommendations and expectations of TPE stakeholders	“Their teaching context was very different, with no electricity, no internet access, and no technology, making it hard for them when they came to our schools. They must utilise and perform those I mentioned in their teaching classroom here. It was hard for them, and it was hard for us as well. So, it was also challenging for the school to let these teachers teach our students. The language barrier, the skills, and many things. I think the government should evaluate that.”	Micro, Meso, Exo, Macro
2	(Theme) Unexpected Findings	All about the unexpected findings, which are more technical and unexpected and highly influence the teaching and learning in the TPE programme	“If it is just a repeated test, I do not think it will be effective...especially in the Indonesian education context, there must be cheating in the process or ‘leaks’ on the exam sheet. I am totally definite about this. Even for the PLPG final exam mock test session, we already had the questions from the very beginning. So, I doubt there will be fairness or any advantage of having a test only.”	Micro, Meso, Exo, Macro
3	Assessment and	It was about assessment and examination in the	“The nature of independent online learning was very much a drilling method; we read the module, did	RQ1, Micro

	Themes/Sub-themes	How does this theme/sub-theme address relate to the overarching research questions?	Examples of data to support this theme/sub-themes	Stage in Research
	Examinations	TPE programme and how that influences teachers' competence.	the test after, and got the score. Moreover, that was all of it for the whole three months and around ten modules."	
4	Impact on Professional Practice	It was about how TPE impacts on teacher's professional practice	"From my observation, there was a difference between certified and uncertified teachers; it can be seen significantly in classroom management, discipline, and their approach to teaching."	RQ1, Micro
5	Online stage	It is all about the online stage in TPE training and how that shaped the training and teacher's competence in pedagogical content knowledge.	"During the workshop, there was no time to discuss the teacher's attitude toward a character that should be acquired. There was a module, but since it was independent learning, there was not much we could learn from it. There was no feedback or further discussion afterwards, so I almost forgot most about it (teacher character module). Some even did not pay much attention to it. The most important thing is passing the assessment."	RQ1, Micro
6	School Placement Stage	All about the school placement stage and its role in shaping teacher's skills in teaching	"We experienced students coming from different backgrounds and regions and, of course, cultures. I would say there was a difference between teachers from Java and	RQ1, Micro

	Themes/Sub-themes	How does this theme/sub-theme address relate to the overarching research questions?	Examples of data to support this theme/sub-themes	Stage in Research
		performance and experiencing the school's context	non-Java. I did not mean to discriminate, but with teachers from other parts of Indonesia, let us say there was a language and cultural barrier from the eastern part of Java. There was also a gap in school culture from their origin. So, teachers from Java have a similar background in the school context, making it easier for them to adjust during their placement. The teachers from eastern Indonesia were struggling during the teaching preparation and delivery."	
7	What they perceived about Teacher Competencies	It is all about what stakeholders perceive about teacher competencies	"That is right. We have to admit that our teachers are weak in content subject matter mastery. One of the reasons I also mentioned was the weak knowledge of our teachers after years of teaching at the same level. Although these teachers held a Bachelor's degree, senior high school teacher competence was higher than junior high school (teachers)."	RQ1, Micro
8	Workshop Sessions	All about the workshop session in TPE training and	"What I found unique in this session was that one HEI teacher educator could have a different	RQ1, Micro

	Themes/Sub-themes	How does this theme/sub-theme address relate to the overarching research questions?	Examples of data to support this theme/sub-themes	Stage in Research
		how it influences teachers' professional practice	opinion from another, and it was so confusing for me and my colleagues (laugh). Sometimes, we tried to find a middle ground during the group discussion. Ultimately, we abide by our Cooperating teachers at school and HEI teacher educators as our supervisors during the school placement. However, the differences among the HEI teacher educators in the agreed template lesson plan amused me."	
9	Modules	All about the modules in online and workshop sessions, which are essential in shaping professional and pedagogical competence	"Therefore, when we returned to our teaching context, all we learned during TPE was not very useful. As for me, I did not think I would or could use it in my classroom, nor could it be applied in my teaching context. I learned that because I needed to for TPE training's sake."	RQ2, Meso
10	Monitoring and Evaluations	All about monitoring and evaluation systems during the TPE training programme and after the training	"Yes, I think so too (it is a trial and error mode). The programme implementation needed to be constantly evaluated. Thus, changes made to the implementation of the TPE training were expected to increase the effectiveness of the programme."	RQ2, Meso

	Themes/Sub-themes	How does this theme/sub-theme address relate to the overarching research questions?	Examples of data to support this theme/sub-themes	Stage in Research
11	School's context	It was about the school's role in the TPE implementation	"For that reason, the school believed that teaching (performance) is a matter of knowledge and skills, not (merely) about the license."	RQ2, Meso, Micro
12	The TPE main actors	It focuses on TPE's main actors, mainly the HEI teacher educators and Cooperating teachers, on their requirements and roles in TPE training	"Coaching for instructors- both HEI teacher educators and cooperating teachers- was conducted regularly. This workshop was conducted online for 7 days. This online workshop was crucial since many aspects of TPE will involve teaching and learning using technology. It was an integral part of the programme; thus, all facilitators should be skilful in using technology. Those facilitators with insufficient skills and quality in this aspect would not pass the test or withdraw from the programme willingly since they do not feel comfortable teaching with technology."	RQ2, Meso
13	Weaknesses of TPE training	It covers the issues of TPE training programme implementation	"To be honest, the modules covered in this training were already good. However, I think all teachers must be overwhelmed. It was too much and too dense, and the modules presented were not necessarily interrelated. Plus, the assignments are a lot."	RQ2, Meso

	Themes/Sub-themes	How does this theme/sub-theme address relate to the overarching research questions?	Examples of data to support this theme/sub-themes	Stage in Research
14	Policy regarding TPE training	It highlights the evolving policy in TPE since the enactment of the teacher's law in 2006	"In my opinion, this given or top-down approach made it difficult to manage the programme. So, anything related to the programme's running must adhere to the guidelines."	RQ3, Exo, Chrono
15	TPE in general	It elaborates the TPE training implementation in general	"The past teacher certification policy recognised prior learning, which started the portfolio model at the beginning of the certification programme. It was assumed that teachers with extensive teaching experiences were better than inexperienced ones. Teaching experience was valued as a recognition of prior learning (RPL). However, it was deemed insufficient in practice, so training was needed. This eventually resulted in 10-12 days of training in Indonesia's next evolution of the TPE programme."	RQ3, Exo
16	TPE Management	It focuses on the TPE management's role in managing the TPE training as well as its challenges	"The challenge (during the TPE programme) for me was time management. Because I have additional tasks (as a head of the department), the timing, in my opinion, was a constraint, so I needed to ask other friends to	RQ3, Exo

	Themes/Sub-themes	How does this theme/sub-theme address relate to the overarching research questions?	Examples of data to support this theme/sub-themes	Stage in Research
			substitute for me sometimes. Moreover, when I asked other colleagues to take over my class, it didn't mean that this substitute friend had the skill to teach the module."	
17	Beliefs and Values	The Beliefs and Values of Education Stakeholder's	"The TPE module was from the Ministry, which paid attention to many aspects of education throughout Indonesia. So, if we talked about the extent to which universities could be given space or flexibility to add on (breadth and depth) module content, then there was not much that could be done. The TPE programme was indeed centralised, so the universities were more of the 'sub-contractor', and their job was to carry out 'orders' from the central government. Meanwhile, the Ministry has full authority. So, whatever was given by the Ministry, it was implemented per the contract."	RQ4, Macro
18	Model of the Training Programme	The topic focuses on the previous model of the TPE programme, which influences the	"Yes, I think so too (it is a trial and error mode). The programme implementation needs to be constantly evaluated. Thus, changes made to the	RQ4, Macro, Chrono

	Themes/Sub-themes	How does this theme/sub-theme address relate to the overarching research questions?	Examples of data to support this theme/sub-themes	Stage in Research
		present policy of TPE training and aims to see the programme's timeline in a chronosystem.	implementation of the TPE training are expected to increase the effectiveness of the programme."	
19	Policy in Education	It highlights the evolving policy in education since the enactment of the Teacher's Law in 2006	"As long as there is no further announcement about any changes in the in-service teachers' scheme, this programme will still run. Moreover, as long as the central or local government does not set strict rules in the (teacher) recruitment process, we will keep seeing this complicated situation about teacher management. Those teachers who are under the contract system will also eventually want to take part in the TPE programme. I would suggest the government cut this system and set a strict rule that the new teacher recruitment is those who already hold a professional certificate. That way, it will not raise an issue with the government later."	RQ4, Macro, Chrono

Appendix I Data Collection Instrument-In-service Teacher

Questions for Semi-Structured Interviews with In-service Teacher_English Version

The interview schedule is organised across the three key areas:

Exploring the TPE programme effectiveness and its impact on teacher's professional practice through in-service teacher perspectives

- a. Teacher's knowledge (Online Stage)
- b. Teacher's Skills (Offline Stage)
- c. Teacher's Skills (Practicum Teaching Stage)

Personal Bio:

1. Name :
2. Institution :
3. Gender :
4. Age :
5. Length of career :
6. How long being certified :

Questions :

No	Prompts	Probe
WARM-UP		
	Tell me about how you are admitted into the programme	Year? Requirement?
	What do you know about the programme before starting the workshop?	How did the knowledge prepare you for attending the workshop?
Teacher's Knowledge– Phase 1 (pedagogical content knowledge)_Online Stage		
	What did you learn in the first phase of the TPE programme, which is delivered online?	Please elaborate on what you learned from pedagogical material and content mastery.
	In your opinion, how does the pedagogical material presented in the workshop suit your needs in the classroom?	How do you integrate the knowledge into your teaching?
	Do you think that the subject content knowledge training that applies the TPACK principle meets your teaching needs?	Do you think it is applicable to your classroom practice?
	What do you think of the delivery of online learning?	Time? Place? Technology used? Reception?
	Do you think that online learning is an effective method of delivery for enrichment?	
	From your personal experience, do you find the knowledge gained relatable with your teaching?	If so, how do you implement that in your classroom?

	How is the teacher educator facilitating learning at this stage?	
	What do you think about the teacher-educator way of facilitating at this stage?	
	How are the learning activities during the online class?	Pair work? Groupwork? Individual activity?
	How is the learning assessed at this stage?	
	Overall, how does enrichment in pedagogical and content knowledge using online methods influence your professional practice?	
Teacher's skills - Phase 2 - (Workshop on designing syllabus, Lesson Plan and Peer-teaching) Offline Stage		
	What did you learn in the face-to-face workshop session?	How do you find it relevant to your professional practice?
	How is learning conducted in this stage?	Time? Place? Delivery? Do you think it is effective?
	How is the teacher educator facilitating learning?	Do you think the teacher educators are competent in their subject and in delivering the session?
	How is learning assessed at this stage?	
	What do you find the most beneficial in your peer-teaching practice during the offline workshop?	
	Overall, in your opinion, how do designing syllabi and peer-teaching effectively influence your professional practice?	
Teacher's Skills - Phase 3_(Teaching Practicum) Offline Stage		
	Describe the teaching practicum model that you experienced.	How does that enrich you as a teacher?
	In your view, how does teaching practicum training correlate with your actual classroom practice?	
	To what extent do you implement the skills you learned from your teaching practicum in your actual practice in the classroom?	Can you tell me more about that?
	Based on your practicum teaching experience, what essential skills are required in your teaching?	
	Teaching has three important stages: planning, instructing, and assessing. After completing the TPE training, what do you think about your teaching skills?	
	Overall, in your opinion, how does practicum teaching effectively influence your professional practice?	
WRAP-UP		
	What do you find effective in your teaching and learning experience during the training?	
	What would you suggest to improve the implementation of the TPE programme?	

Questions for Semi-Structured Interviews with In-service Teacher _Indonesian Version

The interview schedule is organised across the **three** key areas:

Exploring the TPE programme effectiveness and its impact on teacher's professional practice through in-service teacher perspectives

- e. Teacher's knowledge (Online Stage)
- f. Teacher's Skills (Offline Stage)
- g. Teacher's Skills (Practicum Teaching Stage)

Personal Bio:

1. Name :
2. Institution :
3. Gender :
4. Age :
5. Length of career :
6. How long being certified :

Questions :

No	Prompts	Probe
WARM-UP		
1	Ceritakan tentang bagaimana Anda diterima di program ini?	Tahun? Persyaratannya?
2	Apa yang Anda ketahui tentang program PPG Daljab sebelum memulai lokakarya?	Bagaimana pengetahuan tersebut mempersiapkan Anda menghadiri lokakarya?
Teacher's Knowledge– Phase 1 (pedagogical content knowledge)_ Online Stage		
3	Apa yang Anda pelajari di fase pertama program PPG yang disampaikan secara online?	Tolong jelaskan apa yang Anda pelajari dalam materi pedagogis dan penguasaan konten?
4	Menurut Anda, bagaimana materi pedagogik yang disajikan dalam lokakarya sesuai dengan kebutuhan Anda di dalam kelas?	Bagaimana Anda mengintegrasikan pengetahuan dalam pengajaran Anda?
5	Apakah menurut Anda materi pelatihan pengetahuan isi mata pelajaran yang menerapkan prinsip TPACK memenuhi kebutuhan Anda untuk mengajar?	Apakah menurut Anda itu berlaku untuk praktik kelas Anda?
6	Apa pendapat Anda tentang penyampaian pembelajaran online?	Waktu? Tempat? teknologi yang digunakan? penerimaan?
7	Apakah menurut Anda pembelajaran online merupakan metode penyampaian yang efektif untuk pengayaan?	
8	Dari pengalaman pribadi Anda, apakah Anda menemukan pengetahuan yang diperoleh berhubungan dengan pengajaran Anda?	Jika demikian, bagaimana Anda menerapkannya di kelas Anda?

9	Bagaimana pendidik guru memfasilitasi pembelajaran pada tahap ini?	
10	Apa pendapat Anda tentang cara pendidik pendidik memfasilitasi pada tahap ini?	
11	Bagaimana kegiatan belajar selama kelas online?	Bekerja berpasangan? pekerjaan kelompok? Aktivitas individu?
12	Bagaimana pembelajaran dinilai pada tahap ini?	
13	Secara keseluruhan menurut Anda, Bagaimana pengayaan pengetahuan pedagogis dan konten menggunakan metode online memengaruhi praktik profesional Anda?	
Teacher's skills - Phase 2 - (Workshop on designing syllabus, Lesson Plan and Peer-teaching) Offline Stage		
14	Apa yang Anda pelajari dalam lokakarya dalam sesi tatap muka?	Bagaimana Anda menganggapnya relevan dengan praktik profesional Anda?
15	Bagaimana pembelajaran dilakukan pada tahap ini?	Waktu? Tempat? Penyampaian materi? Apakah menurut Anda itu efektif?
16	Bagaimana pendidik guru memfasilitasi pembelajaran?	Apakah menurut Anda pendidik guru kompeten dalam mata pelajaran mereka dan dalam menyampaikan sesi?
17	Bagaimana pembelajaran dinilai pada tahap ini?	
18	Apa yang menurut Anda paling bermanfaat dalam praktik peer- teaching Anda selama lokakarya offline?	
19	Secara keseluruhan, menurut Anda, bagaimana merancang silabus dan peer-teaching secara efektif memengaruhi praktik profesional Anda?	
Teacher's Skills - Phase 3_(Teaching Practicum) Offline Stage		
20	Jelaskan tentang model praktikum mengajar yang Anda alami?	Bagaimana hal itu memperkaya Anda sebagai seorang guru?
21	Menurut Anda, bagaimana pelatihan praktik mengajar berkorelasi dengan praktik kelas Anda yang sebenarnya?	
22	Sejauh mana Anda menerapkan keterampilan yang Anda pelajari dari mengajar praktikum dalam praktik Anda yang sebenarnya di kelas?	Bisa diceritakan lebih lanjut terkait hal tersebut?
23	Berdasarkan pengalaman mengajar praktikum Anda, keterampilan penting apa yang dibutuhkan dalam pengajaran Anda?	
24	Ada tiga tahapan penting dalam mengajar, yaitu perencanaan, pengajaran, dan penilaian. Apa pendapat Anda tentang keterampilan mengajar Anda setelah menyelesaikan pelatihan PPG?	
25	Overall, in your opinion, how practicum teaching effectively influence your professional practice?	

WRAP-UP		
26	Apa yang menurut Anda efektif dalam pengalaman belajar dan mengajar Anda selama pelatihan?	
27	Apa yang akan Anda sarankan untuk meningkatkan pelaksanaan program TPE?	

Appendix J Data Collection Instrument-Cooperating Teacher

Questions for Semi-Structured Interviews with Cooperating Teachers_English Version

The interview schedule is organised across the **Three** key areas:

Exploring the effectiveness of the TPE programme from **Cooperating Teachers'** perspective

- a. Teacher Readiness
- b. Teaching Practicum
- c. Performance Assessment

Personal Bio:

1. Name :
2. Institution :
3. Gender :
4. Age :
5. Length of career :
6. Length of being a Cooperating Teachers' teacher in the TPE Programme :

No	Prompts	Probe
WARM-UP		
	What is the role of Cooperating Teachers in the TPE programme?	
	How have you been selected to be a cooperating teacher for the TPE programme?	Requirements?
TEACHER READINESS TO TEACH		
	What do you think of a teacher's quality in terms of content knowledge and pedagogy mastery?	
	How does TPE training assist teachers in meeting the standard of four competencies of professional teachers?	
	What is the subject content knowledge that teachers should acquire?	Has the knowledge effectively integrated into TPE training?
	What are the pedagogical skills that teachers should have?	Have these skills integrated into TPE training?
	What characteristics of a professional teacher should have?	Has this quality been emphasised in the TPE training? If so, how?
	In your opinion, has the TPE programme effectively improved teacher's competencies?	What impact can this have directly on teachers' abilities?
TEACHING PRACTICUM		
	To what extent can the developing syllabus and lesson plan stage be useful for teachers' professional practice?	Does the lesson plan suit the needs in the classroom?

No	Prompts	Probe
	How can classroom action research skills be practical to improve teachers' competencies?	How does that impact the teacher's classroom?
	For school teaching practicum, have the current model of TPE training effectively improved teachers' teaching skills?	How could it be improved?
PERFORMANCE ASSESSMENT		
	How can the process of practicum teaching be assessed at this stage?	Will the process assessment influence the result?
	What are the strengths and weaknesses of the currently implemented model regarding the TPE final assessment, comprehensive exam, and performance exam?	What could be improved?
WRAP-UP		
	In your opinion, what are the issues of the TPE programme from the perspective of a mentor teacher?	
	In your personal experience as a mentor teacher, what are the main challenges in guiding this student teacher in the TPE programme?	
	What could be improved from the overall implementation of TPE training?	

Questions for Semi-Structured Interviews with Cooperating Teachers_Indonesian
version

Wawancara ini didesign untuk 3 topik utama

Exploring the effectiveness of the TPE programme from **Cooperating Teachers'** perspective

- a. Teacher Readiness (Kesiapan guru)
- b. Teaching Practicum (PPL)
- c. Performance Assessment (Penilaian unjuk kinerja)

Personal Bio:

1. Name :
2. Institution :
3. Gender :
4. Age :
5. Length of career :
6. Length of being a Cooperating Teachers' teacher in the TPE Programme:

No	Prompts	Probe
WARM-UP		
1	Bagaimana peran guru pendamping/ guru pamong pada program PPG?	
2	Bagaimana seleksi untuk menjadi guru pamong pada program PPG	Apa persyaratannya? Apakah ada test secara berkala
TEACHER READINESS TO TEACH		
3	Bagaimana pendapat anda tentang kualitas guru daljab peserta PPG terkait dengan penguasaan materi dan kemampuan pedagogi?	
4	Bagaimana pelatihan PPG membantu guru memenuhi standar empat kompetensi guru profesional?	
5	Apa penguasaan materi utama maple yang perlu dimiliki oleh guru sesuai bidang study yang mereka ampu?	Apakah materi tersebut sudah terintegrasi pada proses PPL disekolah?
6	Apa saja keterampilan pedagogis yang harus dimiliki guru?	Apakah ketrampilan mengajar ini terintegrasi secara efektif dalam kegiatan PPL?
7	Apa sajakah ciri-ciri seorang guru profesional yang harus dimiliki?	Apakah kualitas ini telah ditekankan dalam pelatihan PPG? Jika demikian, bagaimana?
8	Menurut pendapat anda, apakah program PPL PPG ini dapat meningkatkan kemampuan professional guru	Apa dampak langsung yang bis akita liat dari kegiatan PPL ini kepada guru PPG Daljab?
TEACHING PRACTICUM		
9	Sejauh mana tahap pengembangan silabus dan RPP bermanfaat bagi praktik profesional guru?	Apakah RPP sudah sesuai dengan kebutuhan di kelas?

No	Prompts	Probe
10	Bagaimana tahapan penelitian tindakan kelas dapat dilakukan untuk meningkatkan kompetensi guru?	Bagaimana hal itu berdampak pada pembelajaran di kelas?
11	Untuk praktik mengajar di sekolah, apakah model saat ini efektif meningkatkan keterampilan mengajar guru?	Bagaimana untuk meningkatkannya?
PERFORMANCE ASSESSMENT		
12	Bagaimana proses PPL ini dinilai pada tahap ini?	Apakah hasil penilaian PPL ini berpengaruh pada nilai kelulusan siswa?
13	Terkait dengan model assessment PPG saat ini, apa kelebihan dan kekurangan dari model tersebut?	Apa yang bisa ditingkatkan?
WRAP-UP		
14	Menurut anda, apa saja kendala program PPG sebagai guru pendamping?	
15	Dalam pengalaman pribadi Anda sebagai guru mentor, apa tantangan utama dalam membimbing mahasiswa PPG Daljab di program PPL ini?	
16	Apa yang bisa ditingkatkan dari keseluruhan pelaksanaan pelatihan PPG?	

Appendix K Data Collection Instrument-HEI Teacher Educator

Questions for Semi-Structured Interviews with HEI Teacher Educator_English Version

The interview schedule is organised across the **Four** key areas:

Exploring the effectiveness of the TPE programme from HEI teacher educators' perspective

- a. TPE Teaching and Learning Model (Model PPG)
- b. Curriculum
- c. Assessment
- d. Challenges in teaching and learning

Personal Bio:

1. Name :
2. Institution :
3. Gender :
4. Age :
5. Subject of study :
6. Length of career :
7. Length of being an HEI teacher educator in the TPE Programme:

Questions:

No	Prompts	Probe
WARM-UP		
	What are the requirements and qualifications that educators should have to teach in the TPE programme?	
	In your opinion, what are the key responsibilities of teacher educators in the TPE programme?	And how do you fulfill this role?
	What do you think of input or teacher quality in terms of content knowledge and pedagogy mastery in general?	
	In your opinion, what characteristics of a professional teacher should have?	Has this quality been emphasised in the TPE training? If so, how?
TEACHING AND LEARNING MODEL		
	How does TPE training assist teachers in meeting the standard of pedagogy and professional competencies of professional teachers?	
	How do you find the online delivery method for the first phase of the TPE programme?	Is it effective? What could be improved?
	What do you think about the teaching and learning in the face-to-face session?	How do you think it is effective to improve teacher's skills?
	For school teaching practicum, have the current model effectively enhanced teachers' teaching skills?	How could it be improved?

	How does the teaching practicum activity effectively improve a teacher's professional practice?	
CURRICULUM		
	What do you think about the structured curriculum for the TPE programme?	Do you think it meets the needs of teacher to improve their teaching practice?
	What is the subject content knowledge that teachers should acquire?	Has the knowledge effectively integrated into TPE training?
	What are the pedagogical skills that teachers should have?	Have these skills integrated into TPE training?
ASSESSMENT		
	Is there any session or assessment on the teacher's attitude?	How does it asses?
	How have TPE students been assessed during the online and face-to-face sessions outside the final assessment?	How does that contribute to their overall passing grade?
	In regard to the TPE final assessment, what are the strengths and weaknesses of the currently implemented model?	What could be improved?
CHALLENGES IN THE TEACHING AND LEARNING		
	In your opinion, what are the issues you experienced with the TPE Programme?	
	In your personal experience, what are the main challenges in your teaching in the TPE programme?	
WRAP-UP		
	In your opinion, how has the TPE programme effectively improved teachers' competencies?	
	What impact can this training have directly on teachers' abilities?	
	Please provide suggestions or recommendations to improve the TPE programme further	

Questions for Semi-Structured Interviews with HEI Teacher Educators_Indonesian
Version

The interview schedule is organised across the **Four** key areas:

Exploring the effectiveness of the TPE programme from HEI teacher educators' perspective

- a. TPE Teaching and Learning Model (Model PPG)
- b. Curriculum
- c. Assessment
- d. Challenges in teaching and learning

Personal Bio:

1. Name :
2. Institution :
3. Gender :
4. Age :
5. Subject of study :
6. Length of career :
7. Length of being an HEI teacher educator in the TPE Programme:

Questions:

No	Prompts	Probe
WARM-UP		
1	Apa saja persyaratan dan kualifikasi yang harus dimiliki pendidik guru untuk mengajar di program PPG?	
2	Menurut Anda, apa tanggung jawab utama pendidik guru dalam program PPG?	Dan bagaimana memenuhi peran ini?
3	Bagaimana pendapat Anda tentang input atau kualitas guru dalam hal pengetahuan konten dan penguasaan pedagogi secara umum?	
4	Menurut Anda, bagaimanakah ciri-ciri guru profesional yang harus dimiliki?	Apakah kualitas ini telah ditekankan dalam pelatihan PPG? Jika demikian, bagaimana?
TEACHING AND LEARNING MODEL		
5	Bagaimana pelatihan PPG membantu guru memenuhi standar pedagogi dan kompetensi profesional guru?	
6	Bagaimana Anda menemukan penyampaian materi secara online untuk program PPG tahap pertama?	Apakah itu efektif? Apa yang bisa diperbaiki?
7	Bagaimana pendapat Anda tentang proses belajar mengajar pada sesi tatap muka?	Bagaimana menurut Anda sesi tersebut secara efektif dapat meningkatkan kemampuan guru?
8	Untuk praktik mengajar di sekolah, apakah model saat ini dapat meningkatkan keterampilan mengajar guru?	Bagaimana itu bisa ditingkatkan?
9	Bagaimana kegiatan praktikum mengajar disekolah dapat meningkatkan praktik profesional guru?	Management kelas? System disekolah? Assessment pembelajaran?

CURRICULUM		
10	Apa pendapat Anda tentang kurikulum terstruktur untuk program PPG?	Apakah menurut Anda itu memenuhi kebutuhan guru untuk meningkatkan praktik mengajar mereka?
11	apa pengetahuan konten mata pelajaran yang harus diperoleh guru?	Apakah materi tersebut sudah terintegrasi dalam pelatihan PPG?
12	Apa saja keterampilan pedagogis yang harus dimiliki guru?	Apakah keterampilan ini terintegrasi dalam pelatihan PPG?
ASSESSMENT		
13	Apakah ada sesi atau penilaian tentang sikap guru?	Bagaimana assessment tersebut dilaksanakan?
14	Bagaimana penilaian siswa PPG selama sesi online dan tatap muka selain dari penilaian akhir?	Bagaimana hal itu berkontribusi pada nilai kelulusan mereka secara keseluruhan?
15	Mengenai penilaian akhir PPG, menurut Anda, apa kekuatan dan kelemahan model yang diterapkan saat ini?	Apakah yang bisa ditingkatkan selanjutnya?
CHALLENGES IN THE TEACHING AND LEARNING		
16	Menurut anda, apa saja kendala program PPG yang anda alami?	
17	Menurut pengalaman pribadi Anda, apa tantangan utama Anda dalam mengajar di program PPG?	
WRAP-UP		
18	Menurut anda, bagaimana program PPG telah efektif meningkatkan kompetensi guru?	
19	Apa dampak langsung dari pelatihan ini terhadap kemampuan guru?	
20	Mohon saran atau rekomendasi untuk lebih meningkatkan program PPG?	

Appendix L Data Collection Instrument-School Principal

Questions for Semi-Structured Interviews with School Principal_English Version

The interview schedule is organised across the key areas:

Exploring the perspective of the Principal on:

- a. Teacher Education Programme to improve teachers' professional practice
- b. Of graduate teachers as central to one's preparedness for work
 - (1) Collegiality.
 - (2) Design and implementation of curriculum.
 - (3) Professional ethics.
 - (4) Engagement with ongoing professional learning.
 - (5) Assessment and the provision of feedback and reporting on student learning.
 - (6) Classroom management.
 - (7) Professional engagement with parents/careers and the community.
 - (8) Teaching culturally, linguistically, and socio-economically diverse learners.
 - (9) Pedagogy.

Personal Bio:

1. Name :
2. Institution :
3. Gender :
4. Age :
5. Length of career :
6. Length of time being principal:

No	Prompts	Probe
WARM-UP		
1	How many teachers in this school have been certified, or are they still in the process of being certified?	
2	In general, how are the certified and uncertified teacher in terms of their professional practice?	Is there any significant difference?
3	In terms of employment, which is preferable? The ones who have done TPE or fresh graduates?	
4	Besides the purpose of certification, what do you think about the government's Teacher Professional Education programme for in-service teachers?	How does that make a difference before and after the programme?
Personal qualities, characteristics and attributes		
5	In terms of collegiality, how do the graduate teachers manage to work collaboratively with colleagues?	(1)
6	How do you think TPE improves their Pedagogical content knowledge?	(2)
7	What characteristics should a professional teacher have?	Considering your teacher, do you think they have fulfilled these characteristics? (3)

8	Tell me about the school culture for teacher professional development.	How are the teachers engaged and motivated towards the school's PD programme? (4)
9	In general, what do you think of the ability to design assessments and providing feedback, and reporting on student's learning	(5)
10	In your opinion, how does the TPE training improve the teacher's classroom management skills?	(6)
11	What about the professional engagement with parents and the community?	How do you think their preparedness is for building rapport with students and parents? (7)
12	Looking at the teacher's profile, what do you think about their ability to teach culturally and socio-economically diverse learners?	(8)
13	In overall of pedagogy, what do you think of the teacher's ability to teach in the classroom?	(9)
WRAP-UP		
14	In general, how does TPE contribute to/impact teacher's competencies?	What impact can this have directly on teachers' abilities?
15	If you can suggest, as school management, what can be improved in the TPE programme to improve teachers' quality?	
16	Can you recommend a specific professional development programme to improve teacher's professional practice?	

Daftar pertanyaan untuk semi-structured Interview dengan Kepala Sekolah_Indonesian Version

Wawancara diatur sesuai dengan bidang utama.

The interview schedule is organised across the key areas:

- a. Program Pendidikan Guru untuk meningkatkan praktik profesional guru
- b. of graduate teachers as central to one's preparedness for work
 1. Collegiality.
 2. Design and implementation of curriculum.
 3. Professional ethics.
 4. Engagement with ongoing professional learning.
 5. Assessment and the provision of feedback and reporting on student learning.
 6. Classroom management.
 7. Professional engagement with parents/careers and the community.
 8. Teaching culturally, linguistically, and socio-economically diverse learners.
 9. Pedagogy.

Personal Bio:

1. Name :
2. Institution :
3. Gender :
4. Age :
5. Length of career :
6. Length of time being principal:

No	Prompts	Probe
WARM-UP		
1	Dari jumlah guru di sekolah ini, ada berapa yang sudah tersertifikasi atau belum tersertifikasi?	
2	Secara umum, bagaimana guru bersertifikat dan tidak bersertifikat dalam praktik profesional mereka?	Apakah ada perbedaan yang signifikan?
3	Dalam hal pekerjaan, mana yang lebih disukai? Yang sudah lulus PPG atau fresh graduate?	
4	Selain untuk tujuan sertifikasi, apa pendapat Anda tentang program Pendidikan Profesi Guru pemerintah untuk guru dalam jabatan?	Bagaimana perbedaannya sebelum dan sesudah program?
Kualitas pribadi, karakteristik dan atribut		
5	Dalam hal kolegialitas, bagaimana para guru lulusan PPG daljab berhasil bekerja secara kolaboratif dengan rekan kerja?	(1)
6	Bagaimana menurut Anda PPG dapat meningkatkan pengetahuan konten Pedagogis mereka?	(2)
7	Apa sajakah ciri-ciri seorang guru profesional yang harus dimiliki?	Mengingat guru Anda, apakah menurut Anda mereka telah

		memenuhi karakteristik ini? (3)
8	Ceritakan tentang budaya sekolah untuk pengembangan profesional guru?	Bagaimana keterlibatan dan motivasi guru terhadap program professional development sekolah? (4)
9	Secara umum, apa pendapat Anda tentang kemampuan merancang penilaian dan memberikan umpan balik dan melaporkan pembelajaran siswa?	(5)
10	Menurut Anda, bagaimana pelatihan PPG meningkatkan keterampilan manajemen kelas guru?	(6)
11	Bagaimana dengan keterlibatan profesional dengan orang tua dan masyarakat?	Bagaimana menurut Anda kesiapan mereka dalam membangun hubungan dengan siswa dan orang tua? (7)
12	Melihat profil guru, apa pendapat Anda tentang kemampuan mereka untuk mengajar pada peserta didik yang beragam secara budaya dan sosial ekonomi?	(8)
13	Secara keseluruhan pedagogi, apa pendapat Anda tentang kemampuan guru untuk mengajar di kelas?	(9)
WRAP-UP		
14	Secara umum, bagaimana PPG berkontribusi/berdampak pada kompetensi guru?	Apa pengaruhnya secara langsung terhadap kemampuan guru?
15	Jika Anda dapat menyarankan sebagai manajemen sekolah, apa yang dapat ditingkatkan dalam program PPG untuk meningkatkan kualitas guru?	
16	Dapatkah Anda memberikan rekomendasi program pengembangan keprofesian khusus untuk meningkatkan praktik profesional guru?	

Appendix M Data Collection Instrument-TPE Management

Questions for Semi-Structured Interviews with TPE Management_English Version

The interview schedule is organised across the **four** key areas:

Exploring the effectiveness of the TPE programme from TPE management's perspectives

- a. TPE Management roles
- b. Policy and practice in TPE Programme
- c. Programme evaluation of TPE
- d. Challenges in TPE implementation and management

Personal Bio:

1. Name :
2. Institution :
3. Gender :
4. Age :
5. Length of career :
6. Length of time in PPG management :

Questions:

No	Prompt	Probe
WARM-UP		
	How is the TPE Structured within the University	
	How are the TPE management roles in the programme	
TPE MANAGEMENT ROLES		
	What are the main key responsibilities of TPE management in the programme?	
	How is the implementation of the TPE programme?	Recruitment? Scheduling? Distribution?
	Do you find the current model of TPE, Full Blok/ online, effective or ineffective?	Any suggestion to improve?
POLICY AND PRACTICE		
	To what extent does the institution have any flexibility towards TPE management?	Curriculum? Model of teaching practicum?
PROGRAMME EVALUATION		
	How is the TPE programme implementation evaluated in general?	Government? Other stakeholders?
	Is there any feedback or evaluation of teacher educators' performance?	If yes, how?
	Is there any feedback or evaluation of management's work?	If yes, how?
CHALLENGES IN TPE IMPLEMENTATION AND MANAGEMENT		

	How is the curriculum for TPE designed to meet the needs of teachers?	
	What are the challenges presented by the government in regard to a top-down approach to the TPE programme?	
	Can you identify issues of TPE from a management perspective?	
	What are the main challenges of running a TPE programme in general?	And what can be improved?
WRAP-UP		
	What will you recommend to improve the implementation of the TPE programme?	What will you recommend to improve the implementation of the TPE programme?

Questions for Semi-Structured Interviews with TPE Management Category_Indonesian
Version

The interview schedule is organised across the **four** key areas:

Mengexplorasi efektivitas program PPG dari perspektif manajemen TPE

- a. Model
- b. Policy
- c. Program evaluation
- d. Challenges in TPE management

Personal Bio:

1. Name :
2. Institution :
3. Gender :
4. Age :
5. Length of career :
6. Length of time in PPG management :

Questions:

No	Prompt	Probe
1	Apa tanggung jawab utama manajemen PPG?	
2	Bagaimana implementasi program PPG?	Perekrutan calon siswa? penjadwalan? distribusi?
3	Bagaimana kurikulum untuk PPG yang dirancang memenuhi kebutuhan guru?	
4	Sejauh mana lembaga memiliki fleksibilitas terhadap pengelolaan PPG?	Kurikulum? Model pembelajaran praktikum?
5	Bagaimana evaluasi pelaksanaan program PPG secara umum?	Pemerintah? Pemangku kepentingan lainnya?
6	Apakah ada umpan balik atau evaluasi untuk kinerja dosen pengajar program PPG?	Kalau Ya, Bagaimana?
7	Apakah ada umpan balik atau evaluasi untuk pekerjaan manajemen?	Kalau Ya, Bagaimana?
8	Pada model PPG Full Blok/ online saat ini, apakah menurut Anda efektif atau tidak efektif?	Ada saran untuk ditingkatkan?

9	Apa saja tantangan yang muncul terkait pendekatan top-down yang dilakukan pemerintah dalam program PPG?	
10	Dapatkah Anda mengidentifikasi permasalahan/tantangan pengelolaan PPG dalam aspek manajemen?	
11	Apa tantangan utama menjalankan program PPG secara umum?	Dan apa yang bisa ditingkatkan?
12	Apa yang akan Anda rekomendasikan untuk meningkatkan Implementasi program PPG?	