The Influence of the Teacher Professional Education Programme on the Pedagogical Content Knowledge of English Students at Universitas Muhammadiyah Makassar

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Abstract

This study examined the implementation of the Teacher Professional Education Programme and its impact on the Pedagogical Content Knowledge of English students at Universitas Muhammadiyah Makassar. A qualitative descriptive approach was adopted, utilising data collected through observations, interviews, and document analysis to investigate how the programme was structured and executed to enhance the pedagogical content knowledge of English students as prospective teachers. The findings indicated that 27 out of 30 English students demonstrated substantial improvement in their application of Pedagogical Content Knowledge after participating in the programme. The Teacher Professional Education Programme effectively integrated theoretical and practical learning through coursework and Teaching Practicum, significantly enhancing students' pedagogical competencies, particularly in instructional strategies, content knowledge, and learner-centred approaches. However, the study also identified several challenges, including adaptation to the Merdeka Curriculum, the integration of technology in teaching, and addressing the diverse needs of students. These findings contribute to the development of teacher education policies and offer valuable insights into the effectiveness of the Teacher Professional Education Programme in preparing professional and adaptable future educators within the context of 21st-century education.

Keywords: Teacher Professional, Education Programme, Pedagogical Content Knowledge, English Students, Universitas Muhammadiyah Makassar

1. Introduction

Teachers play a fundamental role in shaping the quality of education by imparting knowledge, skills, and values to students. As professionals, they are responsible for fostering optimal student development through effective teaching and learning processes. Recognising the significance of qualified educators, the Indonesian government has established professional standards encompassing pedagogical, personal, social, and

professional competencies, as stipulated in Constitution Number 14 of 2005. These competencies are essential in preparing educators to address the diverse learning needs of students.

To enhance the quality of education, the Indonesian government has introduced various regulations and policies aimed at ensuring teacher certification and professionalisation. Initiatives such as the Teacher Professional Education Programme focus on developing competent educators through blended learning approaches aligned with national educational objectives (Goos et al., 2020). By cultivating a cadre of professional teachers, Indonesia seeks to elevate educational standards, particularly in the digital era (Nor et al., 2024). The government's emphasis on teacher certification and continuous professional development underscores the critical role of Pedagogical Content Knowledge in English language instruction and other subject areas.

Pedagogical Content Knowledge, a concept introduced by (Chiu et al., 2022), refer to a teacher's ability to effectively translate subject matter into teachable content that aligns with students' needs. It encompasses knowledge of instructional strategies, student characteristics, curriculum design, and assessment methods. For English teachers, mastery of Pedagogical Content Knowledge is particularly crucial, as it enables them to adapt teaching approaches to facilitate language acquisition, enhance student engagement, and address linguistic diversity within classrooms. However, research indicates that many prospective teachers continue to face challenges in mastering these aspects despite completing formal education programmes.

In Indonesia, there remains limited research examining how the implementation of the Teacher Professional Education Programme specifically impacts the development of Pedagogical Content Knowledge among English education students. Existing studies predominantly focus on in-service teachers or assess the general effectiveness of such programmes without analysing the role of teaching practicum and instructional strategies in shaping Pedagogical Content Knowledge. Addressing this gap, the present study investigates how the Teacher Professional Education Programme at Universitas Muhammadiyah Makassar enhances Pedagogical Content Knowledge among English students, offering insights into the programme's effectiveness in preparing future educators.

The implementation of the Teacher Professional Education Programme at Universitas Muhammadiyah Makassar commenced in 2022 as part of national efforts to standardise teacher education. While the programme provides structured training in lesson planning, classroom management, and assessment, preliminary observations suggest that students encounter difficulties in integrating Pedagogical Content Knowledge into real teaching scenarios. Many struggle with designing engaging lesson plans, employing appropriate instructional strategies, and adapting to diverse classroom contexts. These challenges underscore the need for a more comprehensive evaluation of the programme's impact on students' teaching competencies.

Several studies have examined the effectiveness of the Teacher Professional Education Programme in Indonesia, particularly in relation to teacher professionalisation and competency development. However, research specifically investigating the programme's impact on the development of Pedagogical Content Knowledge among English education students, particularly within the context of Universitas Muhammadiyah Makassar, remains scarce. Understanding how the programme influences students' pedagogical competencies is crucial for improving teacher education and addressing gaps in pre-service teacher training. This study contributes to the existing body of research by exploring how the Teacher Professional Education Programme supports English students in developing strong pedagogical and subject-matter expertise.

By assessing the programme's curriculum, instructional methodologies, and practical experiences, this study seeks to examine the implementation of the Teacher Professional Education Programme and its impact on the development of Pedagogical Content Knowledge among English students. Through an analysis of how theoretical coursework and teaching practicum contribute to their teaching competencies, this research provides valuable insights into the effectiveness of the programme in preparing professional educators. Furthermore, it offers policy recommendations for enhancing teacher education.

The findings of this study will yield insights into best practices in teacher training, identify areas for improvement, and provide recommendations for optimising pre-service teacher education programmes. These insights are particularly significant in the context of 21st-century education, where teachers must be equipped to integrate innovative pedagogical strategies and digital tools into their instructional practices.

2. Method

The study employed a qualitative descriptive research design to facilitate the construction of interpretations and theoretical propositions based on the collected data. This approach was selected to examine the implementation of the Teacher Professional Education Programme and its impact on the Pedagogical Content Knowledge of English students at Universitas Muhammadiyah Makassar.

The participants in this study comprised English students, lecturers, and mentor teachers enrolled in the Teacher Professional Education Programme at Universitas Muhammadiyah Makassar. Data collection was conducted using multiple instruments, including observation guidelines, semi-structured interviews, and document analysis. The teaching and learning process within the programme's classrooms was meticulously observed, with particular attention given to how students applied their Pedagogical Content Knowledge in authentic classroom settings. To systematically document key aspects of teaching practices, instructional strategies, and classroom management, the researcher utilised an observation checklist adapted from Hobson (2008).
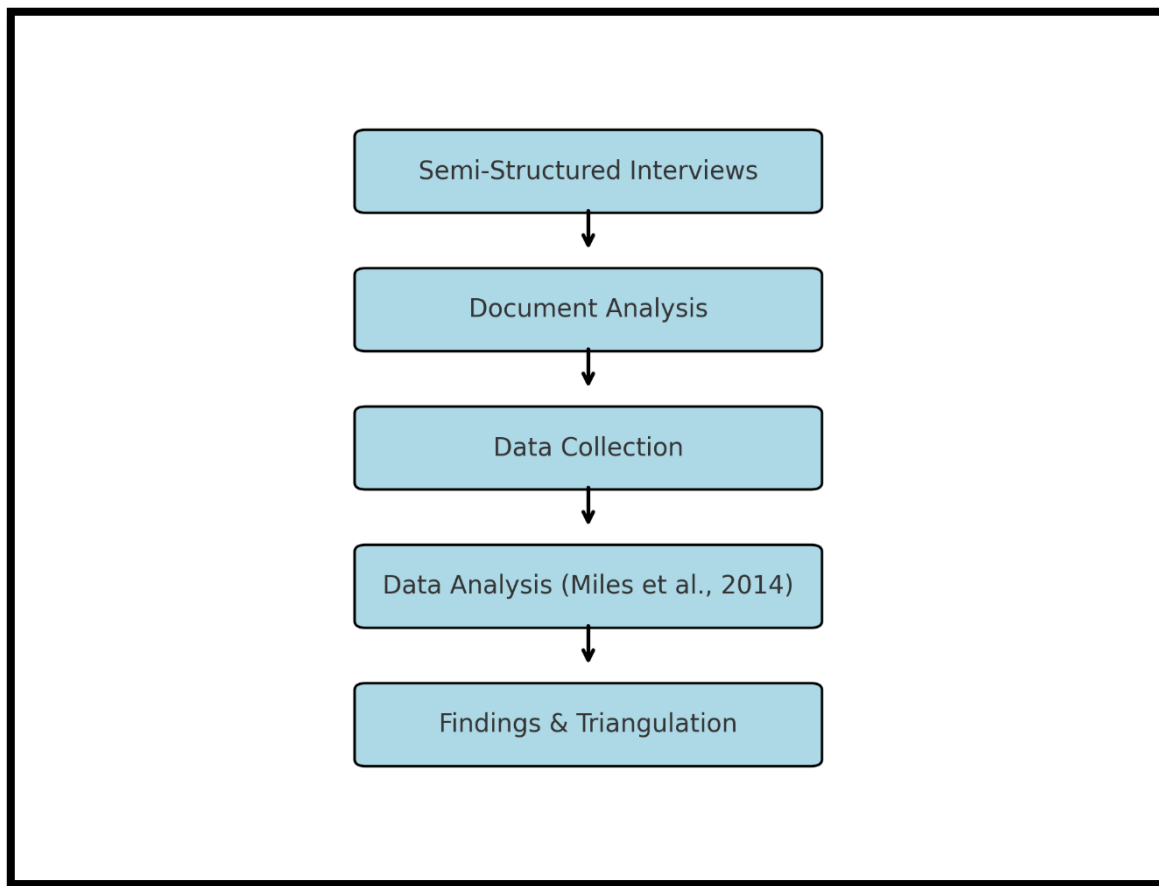
Figure 1. The Step of Research Data

To gain deeper insights, semi-structured interviews were conducted with both students and lecturers involved in the Teacher Professional Education Programme. These interviews were designed to evaluate the programme's effectiveness in equipping students with essential pedagogical competencies. An interview guideline was employed to ensure a structured yet flexible dialogue, enabling participants to provide in-depth reflections on their experiences. Each interview session was recorded and subsequently transcribed for comprehensive analysis.

Additionally, document analysis was carried out to examine relevant materials, including course syllabi, lesson plans, and assessment reports utilised within the Teacher Professional Education Programme. These documents offered a holistic understanding of how the programme aligns with the pedagogical and professional standards required for future educators.

The collected data were analysed using an interpretative qualitative paradigm, following the analytical framework of (Mayer, 2015)which involves data reduction, data display, and conclusion drawing. Observational data were categorised into key themes related to Pedagogical Content Knowledge, such as content knowledge, instructional strategies, student engagement, and assessment techniques. Interview transcripts were

thematically coded to identify patterns and recurring issues in students' learning experiences.

To ensure the validity and reliability of the findings, data triangulation was employed by cross-referencing information from observations, interviews, and document analysis. Additionally, member checking was conducted by sharing preliminary findings with participants to verify the accuracy and credibility of the interpretations.

3. Data Analysis

3.1. The Influence of the Teacher Professional Education Programme on the Development of Pedagogical Content Knowledge

a. Content Knowledge

With regard to content knowledge, the findings indicate that English students, as prospective teachers, possess a strong command of the subject matter they are expected to teach. They demonstrate the ability to adapt learning materials to align with students' readiness levels, abilities, learning styles, and interests. This was affirmed by Student 10, who stated that:

"This program teaches us that in teaching, learning must be centered on students so that one of the things we have to pay attention to is the subject matter that we will teach to students by adjusting the needs of each individual student so that learning achievement has better results."

To substantiate this perspective, the researcher examined the lesson plans developed by students to ensure that they incorporated fundamental concepts and adapted the materials to meet students' needs. Additionally, direct classroom observations were conducted to assess how students delivered instructional content, responded to student inquiries, and facilitated classroom discussions. Prior to teaching, students meticulously prepared lesson plans and teaching modules, utilising a diverse range of resources and formatsincluding text, video, and interactive mediato enhance the effectiveness and engagement of the learning experience.

b. Curricular Knowledge

With regard to Curricular Knowledge, the researcher found that the classroom learning process involving English students as prospective teachers was implemented following the Merdeka Curriculum. The Merdeka Curriculum offers schools and teachers the flexibility to tailor instruction based on students' needs, emphasising essential subject matter, character development, and competency enhancement. This finding aligns with the statement made by Lecturer 1, who asserted that:

"The learning process undertaken by Teacher Professional Education students at Universitas Muhammadiyah Makassar adheres to the Merdeka Curriculum, which is comprehensively designed to equip prospective teachers with the knowledge and skills to

implement diverse instructional approaches tailored to students' needs. This curriculum not only encompasses theoretical foundations but also emphasizes Praktik Pengalaman Lapangan (PPL) through project-based learning models and continuous reflective practice. Furthermore, the Merdeka Curriculum underscores the integration of educational technology to enhance the learning experience, aligning with the dynamic demands of 21st-century education. Through this approach, students are expected to design holistic, innovative, and contextually relevant learning experiences that cater to student needs while adhering to national educational standards."

By emphasising project-based learning, the Merdeka Curriculum fosters an active and collaborative learning environment. Beyond academic achievement, the curriculum also prioritises character development and moral values, ensuring that students are actively engaged in the learning process. Assessment is conducted through diverse methods rather than relying solely on examinations, aiming to create meaningful and engaging learning experiences that support students' optimal development.

The researcher observed that the Teaching Practicum of English students in the classroom reflected the principles of the Merdeka Curriculum. Prospective teachers implemented project-based and collaborative learning strategies, tailored instruction to accommodate students' varying abilities through differentiated learning, and developed lesson plans that incorporated key elements of the curriculum. These included a strong emphasis on character development and the application of varied assessment methods to enhance student learning outcomes.

c. Instructional Strategies Knowledge

With regard to instructional strategies, the researcher found that English students, as prospective teachers, demonstrated the ability to select and implement teaching approaches suited to the diverse needs of individual learners in the 21st century. They achieved this by administering questionnaires or surveys to assess students' interests, learning styles, and specific needs, observing classroom behaviours and interactions to identify student preferences, and consulting previous teachers or homeroom teachers to gather insights into students' characteristics, including their strengths and challenges in the learning process. This aligns with the statement made by Student 5, who noted that:

"After completing the programme, I acquired extensive knowledge of various teaching strategies that can be implemented in the learning process, tailored to students' abilities, readiness, learning styles, and interests. These strategies include Differentiated Learning, Teaching at the Right Level (TaRL), and Culturally Responsive Teaching (CRT). In a single lesson, we often applied three of these strategies and frequently integrated two strategies within one learning session to enhance effectiveness."

Furthermore, communication with students' parents was also established, allowing them to provide valuable insights into their children's social and cultural backgrounds, as well as their learning habits at home. By incorporating this information, English students were able to develop more targeted and effective instructional approaches tailored to each student's needs and potential. These approaches included project-based learning, collaborative group discussions, and the integration of technology to enhance active student engagement while reinforcing essential concepts and skills for learning.

d. Students' Knowledge

In this regard, English students, as prospective teachers, demonstrate a comprehensive understanding of students' characteristics, both cognitively and non-cognitively, by conducting diagnostic assessments at the outset of the learning process. Additionally, they collect information on students' social, cultural, and economic backgrounds through various methods, including administering questionnaires to gather data on students' social and cultural environments, home languages, health conditions, and family circumstances. Furthermore, they conduct interviews with students and parents to gain deeper insights into family backgrounds, cultural values, and potential health challenges that may impact learning. Concerning this matter, Student 1 stated that:

"I assess learners' abilities and characteristics through direct observation, interviews, diagnostic assessments, and collaboration with subject teachers or homeroom teachers. By conducting classroom observations, engaging in discussions with mentor teachers, and analysing assessment results, I gain a comprehensive understanding of learners' academic capabilities, learning styles, and social-emotional backgrounds. Additionally, I interact directly with learners to customise teaching modules according to their needs, ensuring a more effective and personalised learning experience."

By comprehending these contextual factors, teachers can develop more effective and contextually relevant instructional strategies while fostering an inclusive and supportive learning environment. These factors play a crucial role in shaping students' learning experiences and classroom interactions. Such an approach not only enhances student engagement but also nurtures their social and emotional development, thereby promoting holistic and sustainable learning.

e. Assessment Knowledge

When conducting assessments in the classroom, English students employ a variety of assessment methods to evaluate students' comprehension and progress. Three main types of assessments are utilised: diagnostic (initial) assessment, formative assessment, and summative assessment. This is supported by the findings from an interview with Student 18, who stated that:

"There are specific courses that focus on assessment in learning, which have provided me with a comprehensive understanding of the various assessment methods used to evaluate students' comprehension and academic progress—namely, diagnostic, formative, and summative assessments. Consequently, the teaching modules and lesson designs I develop are structured around these assessments. The diagnostic assessment process involves identifying students' needs, prior knowledge, and learning difficulties through tests, observations, or interviews to formulate appropriate instructional strategies. Once diagnostic assessment results are obtained, formative assessments can be conducted more effectively and efficiently, as the 'learning issues' within the classroom have been identified. This ensures that the 'intervention' applied is appropriate, ultimately leading to improved learning outcomes, which are reflected in the summative assessment results."

Diagnostic assessment is conducted specifically to evaluate students' competencies, strengths, and areas for improvement, enabling the learning process to be tailored to their abilities and individual circumstances. Formative assessment is implemented periodically throughout the learning process to track students' progress. It functions as a feedback mechanism for both students and educators, allowing for continuous refinement of teaching and learning strategies. In contrast, summative assessment is administered at the conclusion of an instructional period to assess students' overall performance, determining whether they have achieved the expected competencies.

f. Technological Knowledge

In the integration of technology within teaching, observations during the teaching practicum revealed that English students utilised instructional media adapted to the learning needs of their students, taking into account their abilities, learning styles, and interests. They incorporated various digital tools, such as Canva to present instructional materials at the beginning of lessons using a projector, and WordWall for interactive quizzes. These findings align with the interview insights provided by Student 11, who stated that:

"I enrolled in the Teknologi Baru dalamPembelajaran dan Pengajarannya course, which equipped me with the skills to integrate technology into teaching to enhance student comprehension and engagement. Beyond PowerPoint, I learned to utilise various digital tools, including interactive learning videos, Google Classroom, Canva, websites, WordWall, Kahoot, and Quizizz. The application of technology was aligned with the TPACK framework, students' learning culture in the classroom, and the availability of school facilities and infrastructure. Based on my observations and the experiences of fellow Teacher Professional Education program students, Google Classroom proved to be an effective 'paperless' tool for tracking attendance, Canva served as an editing platform, websites such as www.random.org and www.wheelsofname.com were used for randomising

student group assignments, while Kahoot and Quizizz facilitated the creation of interactive quizzes for students."

WordWall holds substantial potential to transform teaching and learning methodologies. As an interactive visual tool, it provides a range of features that can enhance students' learning experiences and improve instructional effectiveness. Likewise, Quizizz was employed for diagnostic assessments to evaluate students' prior knowledge. By integrating technology into the learning process, students become more engaged, actively participate in lessons, and develop a deeper understanding of the instructional materials delivered in the classroom.

3.2. The Pedagogical Content Knowledge of English Students Following the Programme

a. Advancement of Conceptual Comprehension and Application of Instructional Strategies
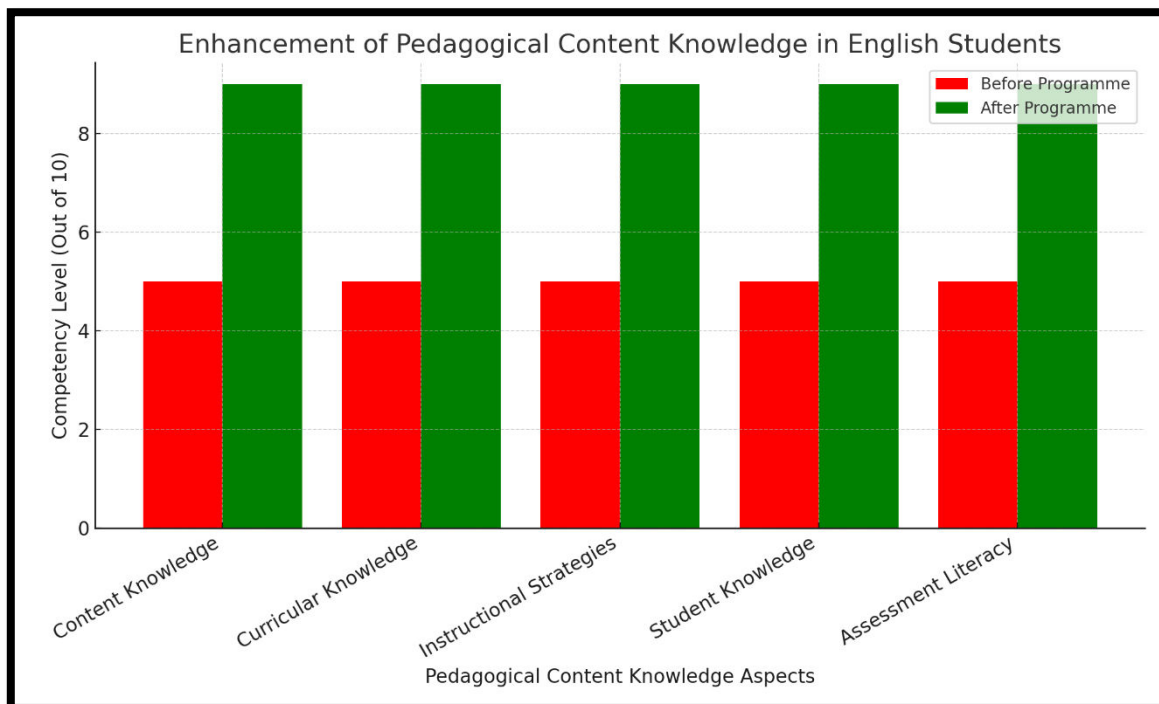

Figure 2. Enhancement of Pedagogical Content Knowledge in English Students

Based on the research findings, there was a notable enhancement in the Pedagogical Content Knowledge of English students following their participation in the Teacher Professional Education Programme. Prior to enrolling in the programme, 25 out of 30 English students exhibited limitations in comprehending fundamental aspects of Pedagogical Content Knowledge, including content knowledge, curricular knowledge,

instructional strategies, student knowledge, and assessment literacy. However, upon completion of the programme, 27 out of 30 students demonstrated significant progress in integrating these elements into their Teaching Practicum.

This improvement was evident through classroom observations conducted during the Field Experience Programme (PPL) and interviews with English students, supervising lecturers, and mentor teachers. Observations indicated that students exhibited greater proficiency in designing and implementing lesson plans that were responsive to learners' needs. They also displayed increased confidence in employing various instructional strategies, such as Differentiated Instruction, Teaching at the Right Level (TaRL), and Culturally Responsive Teaching (CRT), which were carefully adapted to the characteristics of their learners.

Additionally, interviews highlighted that English students developed a more profound understanding and a more effective application of Pedagogical Content Knowledge, particularly in the adaptation of teaching materials and the implementation of diagnostic, formative, and summative assessments. The mentor teacher further emphasised that, upon completing the programme, English students demonstrated a more comprehensive grasp of pedagogical concepts, enabling them to articulate learning theories with greater clarity and practical relevance.

Moreover, students undertook the Pedagogical Content Knowledge examination at the conclusion of their coursework, comprising 100 questions, and all participants successfully passed the assessment. This outcome aligns with the mentor teacher's statement:

"I conducted observations on the Teaching Practicums of English students during their instructional practice in fifth-grade classrooms, evaluating various aspects, including their comprehension of the learning topics delivered, their strategies for fostering engagement among passive students, and the extent to which lesson plans were effectively implemented. Across these dimensions, I noted that the students made concerted efforts to deliver more engaging and interactive instruction, with a strong emphasis on student-centered learning."

Regarding their knowledge of instructional strategies, English students who previously possessed only theoretical understanding of teaching methods have now demonstrated the ability to implement them in practical settings. Prior to participating in the Teacher Professional Education Program, they predominantly relied on lecture-based instruction. However, upon completing the program, they transitioned to more dynamic and student-centered approaches, such as Project-Based Learning, Collaborative Learning, and Problem-Solving Learning. Lecturer 2 observed that this transformation was particularly evident in how English students conceptualized and executed their teaching strategies:

"Students have demonstrated substantial progress in designing and implementing teaching strategies. While they previously relied primarily on lecture-based methods, their participation in the Teacher Professional Education Program has led to a greater adoption of active learning approaches, including Project-Based Learning, Collaborative Learning, and Problem-Solving Learning."

Furthermore, there was a noticeable enhancement in Content Knowledge, as English students who had previously faced difficulties in conveying English concepts in a clear and accessible manner are now able to organise instructional materials more systematically, aligning them with students' needs.

"In the past, my primary focus was on delivering the material directly. However, after participating in the Teacher Professional Education Program, I became more attentive to how learners comprehend the material. I have learned to incorporate diverse resources, such as videos, interactive games, and technology-based exercises, to create a more engaging and effective learning experience." (Student 8)

In addition to advancements in Instructional Strategies Knowledge, there was also a notable improvement in Student Knowledge. English students who previously had a limited understanding of students' characteristics and learning styles are now more adept at recognising individual learner needs. They have begun to implement more personalised and student-centred learning approaches. Observations further revealed that 25 out of 30 English students successfully adapted their teaching strategies based on student characteristics and utilised diagnostic assessments to identify learning difficulties before instruction.

"Before participating in the Teacher Professional Education Program, students often assumed that all learners processed information in the same way. However, after completing the program, they became more attentive to identifying students' challenges and adjusting their teaching strategies accordingly. This represents a highly positive transformation." (Mentor Teacher)

This study reaffirmed the significant role of the Teacher Professional Education Program in enhancing students' pedagogical competencies. Notably, improvements were most evident in the development of Pedagogical Content Knowledge, which has become more structured and applicable within the context of English language instruction. Moreover, these findings align with previous research on the effectiveness of the program in strengthening students' understanding of differentiated instruction strategies, integrating technology in teaching, and deepening their comprehension of the Merdeka Curriculum.

While the most substantial advancements were observed in Instructional Strategies Knowledge, Content Knowledge, and Student Knowledge, certain areas still require further reinforcement. One key challenge faced by students is the implementation of effective assessment methods to evaluate student learning outcomes.

"I still struggle to determine the most appropriate assessment techniques for each student, particularly in systematically conducting formative and summative assessments. This difficulty arises due to the limited duration of the Field Experience Program (PPL), which lasts only about four months. Because of this short period, we did not have the opportunity to conduct summative assessments directly, leaving us with limited experience in understanding their mechanisms, procedures, and outcomes." (Student 7)

To address this challenge, the Teacher Professional Education Program should incorporate additional sessions focused on student-centred assessment practices, encompassing both formative and summative evaluations. Furthermore, expanding case-based training can provide students with a more comprehensive understanding of various assessment scenarios. The integration of technology in assessment practices should also be further developed to encourage more innovative, effective, and efficient evaluation strategies. Lastly, strengthening reflection and evaluation sessions following the Teaching Practicum is crucial to enable students to critically review the effectiveness of their assessments and identify areas for improvement.

b. Reflection on the Teaching Practicum

Reflecting on the Teaching Practicum is an essential process in the professional development of teachers. This practice enables educators to critically assess their teaching experiences, recognise the strengths and weaknesses of their instructional approaches, and devise strategies for improvement to enhance the overall quality of learning. The following section presents the findings from an interview with a student regarding their engagement in reflective practices during their Teaching Practicum in schools.

"I engage in reflective practice during my Teaching Practicum by gathering feedback from students after each lesson. For instance, I frequently ask students to share their thoughts on the teaching methods I employ and the materials presented. This allows me to identify my strengths, such as effectively simplifying complex concepts, as well as areas for improvement, such as the need for greater diversity in teaching approaches to prevent student disengagement. Additionally, I document my experiences after each class, evaluating what was successful and what aspects require refinement for future lessons."

Based on the interview findings, English students reported an increased engagement in reflective practices concerning their teaching experiences in schools. They actively

identified the strengths and weaknesses of their instructional approaches and explored strategies for improvement. Furthermore, they exhibited enhanced evaluative skills, particularly in assessing students' comprehension and providing constructive feedback. However, despite these advancements, some students encountered challenges in applying Pedagogical Content Knowledge in classroom settings. These included difficulties in adapting lesson materials to accommodate diverse student needs and constraints related to limited school resources, infrastructure, and the short duration of the Teaching Practicum.

c. The Relationship with Teaching Quality

The enhancement of Pedagogical Content Knowledge is closely linked to the improvement of teaching quality among English students, which, in turn, has a direct impact on students' learning outcomes in the classroom. Lecturers have noted that students are now more adept at integrating the theoretical knowledge acquired during the program with their practical teaching experiences, thereby elevating the overall quality of instruction.

"This program does not merely provide theoretical instruction but also offers opportunities for practical application through direct teaching activities in schools. As a result, the knowledge and skills acquired at university can be effectively implemented in real classroom settings."

This statement highlights the critical role of bridging theory and practice in teacher education. Through teaching practicum experiences, students do not simply engage with pedagogical concepts in an abstract manner; rather, they gain direct exposure to real-world classroom dynamics, allowing them to apply these theories in a meaningful and practical way. This experiential learning process enables them to refine their teaching skills, enhance their confidence, and adapt instructional strategies to meet students' diverse needs. Consequently, they are able to deliver higher-quality teaching, ultimately contributing to improved student learning outcomes.

4. **Discussion**

The Teacher Professional Education Program is an initiative by the Ministry of Education, Culture, Research, and Technology designed to enhance the competencies of prospective teachers, particularly in real classroom settings. In this context, (Ghufrons' et al., 2022) Experiential Learning Theory (ELT) provides a crucial perspective, highlighting that direct experiencesuch as PraktikPengalamanLapangan (PPL) within the Teacher Professional Education Program—plays a central role in shaping teachers' professional competencies. However, without adequate supervision, the potential learning benefits from these experiences may not be fully maximized. Therefore, one key recommendation emerging from this discussion is the need to enhance the quality of mentoring during

field practice. This can be achieved through intensive training for mentor teachers, increased supervision by lecturers, and the development of a more comprehensive evaluation system during the PPL process.

Ghufron's ELT conceptualizes learning as a continuous process driven by personal experience. The theory outlines a four-stage learning cycle: Concrete Experience, Reflective Observation, Abstract Conceptualization, and Active Experimentation(Kolb & Kolb, 2005). This model describes how learners engage in direct experiences, reflect on them, derive abstract insights, and apply these insights in real-world contexts, fostering deeper comprehension and skill acquisition.

In the educational context, ELT has the potential to redefine the role of teachers from mere providers of information to facilitators of meaningful learning experiences. Through experiential learning, teachers design activities that encourage active student participation, allowing them to connect theoretical classroom concepts to real-world problems. This pedagogical approach enhances student motivation, engagement, and adaptability, preparing them for practical applications in both personal and professional domains. Studies in higher education indicate that experiential learning effectively bridges the gap between theoretical knowledge and psychomotor skills, thereby improving students' readiness for real-world challenges (El Bedawy, 2017; Gottipati & Shankararaman, 2016; Kolb & Kolb, 2005; Obi et al., 2022).

The key principles of ELT align closely with thePPL course in the Teacher Professional Education Program, as both emphasise learning through direct experience. The Concrete Experience stage involves students actively participating in real classroom teaching, confronting actual teaching scenarios. The Reflective Observation stage encourages them to critically evaluate their experiences, analysing successes and challenges encountered during instruction. The Abstract Conceptualization stage allows students to integrate their reflections with educational theoriessuch as pedagogical strategies and teaching methodologiesdeepening their understanding of how theoretical concepts translate into practice. Finally, the Active Experimentation stage enables students to implement new strategies based on prior learning, refining their teaching approaches in subsequent classroom sessions. Through this cyclical process, PPL provides an ideal framework for developing student-teachers' ability to integrate theory and practice, fostering reflective and adaptive professionals (De Beer, J., Petersen, N. & Van Vuuren, 2020; Jordan, 2016; Mallillin, 2021; Morrison-Love & Patrick, 2024).

Furthermore, the hybrid learning model implemented in the program—particularly during the month of Ramadan, where sessions were conducted both online and offline—has offered considerable flexibility. However, findings from observations and interviews reveal that disparities in digital access remain a significant challenge, particularly for

students from regions with limited technological infrastructure. This digital divide has implications for their learning experiences and outcomes within the program. These findings are consistent with (Mustapa et al., 2023), who highlighted that the integration of technology in teacher education in Indonesia continues to face substantial obstacles, particularly in ensuring equitable access to quality digital infrastructure across diverse regions.

a. **The Effectiveness of Enhancing Pedagogical Content Knowledge**

Observational findings indicate that the Teacher Professional Education Program has been effective in strengthening students' Pedagogical Content Knowledge (PCK), encompassing curriculum comprehension, instructional strategies, and assessment proficiency. For instance, students have successfully implemented Differentiated Instruction (PembelajaranBerdiferensiasi) strategies, reflecting a nuanced understanding of learner diversity. Additionally, they have demonstrated the ability to integrate technology into teaching, which enhances student interaction and engagement in the classroom.

Regarding Content Knowledge, Student 10 emphasised that instructional materials must be tailored to individual student needs. A solid grasp of Content Knowledge enables student-teachers to deliver subject matter effectively, minimising misconceptions, misinterpretations, or misunderstandings. Their ability to conceptualise, apply procedural and contextual understanding, and analyse content across disciplines strengthens their competence in teaching English effectively (Snow et al., 1989).

In terms of Curricular Knowledge, classroom Teaching Practicums have aligned with the principles of curriculum development in Indonesia, particularly the Merdeka Curriculum. The Teacher Professional Education Program incorporates project-based and collaborative learning, differentiated instruction tailored to students' abilities, and meticulous review of lesson plans to ensure alignment with the Merdeka Curriculum framework. These elements place a strong emphasis on character development and diverse assessment methods.

The enhancement of English students' Pedagogical Content Knowledge is closely linked to the implementation of project-based and collaborative learning strategies, differentiated instruction, and learning assessments, as supported (Almaguer et al., 2015; Bender, 2012; Imbaquingo & Cárdenas, 2023; Zaafour & Salaberri-ramiro, 2022). Students who have mastered PCK are adept at integrating subject matter with effective pedagogical techniques to foster greater student engagement. Project-based and collaborative learning approaches enable student-teachers to create dynamic, interactive learning environments, encouraging learners to work together on meaningful, real-world tasks. Meanwhile, Differentiated Instruction allows them to tailor their teaching methods to accommodate students' diverse abilities and learning styles, while assessment practices help them evaluate instructional effectiveness and identify learning difficulties. By

synthesising these three components, English students enhance not only the effectiveness and efficiency of their teaching but also promote creativity and active participation among learners.

Nevertheless, assessment remains a challenge. Students predominantly rely on standard formative and summative assessments, while comprehensive diagnostic assessments are seldom employed. Diagnostic assessment is essential in identifying students' initial competencies and unique learning needs, thereby enabling more adaptive instructional strategies. The limited use of diagnostic assessment may stem from insufficient training or inadequate access to supporting resources. As a potential area for improvement, incorporating targeted diagnostic assessment training within the Teacher Professional Education curriculum would be highly beneficial, equipping future educators with the necessary tools to design more inclusive and responsive teaching strategies.

b. Understanding Student Diversity and Teaching Preparedness

The Teacher Professional Education Program has proven effective in fostering a comprehensive understanding of student diversity among pre-service teachers. Interview findings reveal that students employ initial assessment methods and collaborate with mentor teachers to gain insights into students' social and cultural backgrounds, which is instrumental in designing inclusive and responsive learning experiences.

However, limited facilities and technological resources in partner schools often hinder the implementation of innovative pedagogical approaches, such as Culturally Responsive Teaching (CRT) and Teaching at the Right Level (TaRL). In some instances, student-teachers struggle to optimally apply these strategies due to restricted access to visual aids and digital media, which are essential for facilitating differentiated instruction. Addressing this issue requires closer collaboration between universities and partner schools to enhance access to teaching resources, particularly through the provision of technology-based learning media.

The partnership between universities administering the Teacher Professional Education Program and partner schools involves the integration of visual aids and digital media to support technology-enhanced learning. Universities serve as key facilitators, offering training and resources related to educational technology, including learning software, interactive applications, and digital instructional materials (Alenezi, 2023; De Juana-Espinosa et al., 2023; Habib et al., 2021; Mallillin, 2021). Meanwhile, partner schools function as practical implementation sites, providing feedback based on direct classroom experiences regarding the effectiveness of these technological interventions.

This collaboration frequently extends to the joint development of instructional tools, such as digital learning modules, educational videos, and interactive whiteboards. Universities typically conduct intensive training sessions for teachers in partner schools, ensuring they acquire the necessary skills to effectively utilise digital media and

technological tools in their teaching practices (Laurillard, 2013). Furthermore, in some cases, universities and partner schools share responsibility for maintaining technological infrastructure, including software updates and the replacement of outdated equipment. Through this mutually beneficial collaboration, both universities and partner schools contribute to enhancing the quality of learning in alignment with students' evolving needs in the digital era (Zhao et al., 2023).

c. **Challenges and Areas for Improvement in the Teacher Professional Education Programme for Strengthening English Students' Pedagogical Content Knowledge**

The implementation of the Teacher Professional Education Programme faces several key challenges, including limited access to teaching resources in the field and insufficient practical experience, both of which hinder students' ability to explore diverse pedagogical approaches. Some students have expressed concerns that mentor teachers' guidance lacks depth, particularly regarding the application of project-based learning and technology-enhanced instructional strategies.

To mitigate these challenges, the programme could introduce additional training and mentoring initiatives for mentor teachers, equipping them with the skills necessary to support students in mastering contemporary teaching methodologies. Furthermore, extending the duration of field practice or increasing the frequency of classroom observations could provide students with greater exposure to real-world teaching environments, helping them develop confidence and adaptability in addressing varied classroom challenges.

Addressing the technological constraints and project-based learning limitations within partner schools requires innovative solutions. Firstly, universities administering the Teacher Professional Education Programme could offer intensive training to prospective teachers on optimising the use of simple, low-tech solutions, such as mobile devices and offline educational applications that do not depend on stable internet access. Additionally, the development of low-tech teaching modules and instructional materials could provide a viable alternative for schools with limited technological infrastructure (Wang et al., 2023).

Secondly, to facilitate project-based learning in resource-constrained environments, the programme could integrate contextual teaching approaches, encouraging students to utilise the local environment as a learning resource. By designing locally relevant, easily implementable projects, pre-service teachers can enhance student engagement while adapting to available (Wu et al., 2021).

Thirdly, collaboration among universities, partner schools, and local communities is essential for overcoming technological barriers. This could involve shared learning resources, collective efforts to establish basic educational infrastructure, or community-driven initiatives to improve school facilities (Machin-Mastromatteo, 2023).By implementing these enhancements, the programme can not only address existing

limitations but also foster creativity, adaptability, and resourcefulness among prospective teachers, equipping them to design inclusive and impactful learning experiences.

d. **Policy Recommendations and Future Directions for Development**

Based on the analysis, the following policy recommendations are proposed to enhance the effectiveness of the Teacher Professional Education Programme. Firstly, increasing governmental support in terms of funding and resource allocation, particularly in the provision of educational technology, is essential. This would help bridge the gap between theoretical instruction at universities and the practical application of teaching strategies, which is often constrained by limited facilities in partner schools.

Looking ahead, the Teacher Professional Education Programme could strengthen its evaluation framework by integrating feedback mechanisms involving alumni and mentor teachers. Their insights would be invaluable in enhancing the quality of mentorship and refining the programme's approach to teacher training. Additionally, longitudinal research should be conducted to track the career progression of programme graduates, providing empirical data on its long-term impact and identifying areas that require further curricular adjustments.

Furthermore, findings from interviews and classroom observations indicate that students are increasingly engaging in reflective teaching practices. This allows them to assess their strengths and areas for improvement. However, there is still scope for improvement in the depth and quality of these reflections. Many students focus predominantly on technical aspects of teaching, often overlooking broader socio-cultural dimensions that influence student learning and classroom dynamics. Therefore, the Teacher Professional Education Programme should place greater emphasis on fostering holistic reflection, encouraging students to consider pedagogical, social, and cultural factors in their teaching practice.

Finally, the Teacher Professional Education Programme at Universitas Muhammadiyah Makassar has established a strong foundation in equipping students with pedagogical competencies. However, several implementation challenges remain, particularly in terms of resource constraints and curriculum refinement. Addressing these issues through enhanced funding, curriculum updates, and improved mentoring systems will be crucial in ensuring the programme continues to evolve and effectively prepares highly competent future educators.

5. **Conclusion**

Based on the findings and discussion, this research concludes that the Teacher Professional Education Programme (PPG Prajabatan) at Universitas Muhammadiyah Makassar has been effectively implemented in enhancing the Pedagogical Content Knowledge (PCK) of English students. In terms of programme implementation, the study highlights that the curriculum is well-structured, incorporating core, selective, and

elective courses. Key modules such as Filosofi Pendidikan Indonesia, Prinsip Pengajaran dan Asesmen, Pembelajaran Berdiferensiasi, and Teknologi Baru dalam Pembelajaran have played a significant role in deepening students' theoretical understanding and practical teaching skills. The programme adopts an innovative approach, integrating project-based learning, differentiated instruction, and TPACK-based technological tools (e.g., WordWall, Canva, and Quizizz) to support student-centred learning. However, certain challenges—notably limited access to technology in partner schools and the short duration of field practice—were identified as barriers to full programme implementation.

With regard to the impact of the programme on students' Pedagogical Content Knowledge, the findings indicate a substantial improvement in students' mastery of key pedagogical aspects, including curriculum knowledge, instructional strategies, student assessment, and technology integration. Students exhibited greater teaching readiness, demonstrating stronger adaptation of content to diverse learner needs and increased engagement in reflective practices. However, diagnostic assessment skills remain an area requiring further development, as students predominantly focus on formative and summative assessments, with limited emphasis on the early identification of learner difficulties.

Finally, the Teacher Professional Education Programme has successfully enhanced both theoretical and practical teaching competencies among English students. Nonetheless, further improvements—such as extending the duration of field practice, strengthening mentor teacher training, and incorporating diagnostic assessment training—are necessary to maximise the programme's effectiveness in preparing highly competent future educators.

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