Teaching on the Edge: TPACK and Professional Identity Formation in a Remote Island of Indonesia

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Becoming a teacher is a challenging decision for many individuals, as the teaching profession is inherently complex. Furthermore, the challenges increase significantly when one chooses to teach in rural areas. The study aims to explore the experiences of six novice English teachers from rural Indonesia on how TPACK framework has helped them shape their professional teacher identity. Using a narrative inquiry approach, data were collected through in-depth interviews and observations. The narratives were analysed based on the predetermined themes that covers novice English teachers' career, their TPACK implementation, and how TPACK shape their professional identity. The analysis reveals that TPACK plays a significant role in the development of teacher identity, with each of its elements contributing significantly to different aspects of teaching. The findings indicate that a strong teacher identity emerges from a proportional understanding and effective implementation of the TPACK framework. Furthermore, the study highlighted the essential role of teacher education programs in providing pre-service teachers with comprehensive knowledge and experiences to foster identity formation. The relationship between the TPACK framework and teacher identity is found to be interconnected and complementary. Future research should explore the long-term impact of TPACK implementation on teaching practices and examine its effects in a more diverse and complex setting to obtain a broader understanding.

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Introduction

Over the past few decades teacher identity construction within the realm of teacher education has garnered massive attention (Dickinson & Gilles, 2012; Huang et al., 2019; Emara, 2020). This significant attention arises from the understanding that the trajectory of teacher identity presents a substantial challenge (Goktepe & Kunt, 2020), given its dynamic nature and the necessity for a supportive environment (Hong, Greene, & Lowery, 2017). Using the narrative inquiry research method, this study aims to explore the experiences of six novice English teachers in Eastern Indonesia and how the Technological, Pedagogical and Content knowledge (TPACK) framework influences their professional identity. The focus on Eastern Indonesia is critical given the uneven development and thus its impacts on educational provision and teachers' professional identity (Sakhiyya & Mulya, 2023).

Understanding teacher identity construction is crucial for informing teacher education practices and enhancing educational outcomes, particularly in remote areas. Moreover, novice teachers in these locations often face significant challenges, including limited access to technological resources and insufficient professional development opportunities. These obstacles not only hinder their teaching effectiveness but also complicate the process of identity formation. Previous studies have underscored the importance of supporting teachers through this development. For instance Barkhuinzen et al., (2014) and Craig, (2011) emphasize the need for flexible methodologies to capture the evolving nature of teacher development. This leads us to the TPACK framework which provides comprehensive structure for examining the integration of technology, pedagogy and content knowledge in teaching. The framework is instrumental in understanding how novice teachers navigate and construct their identities in technologically enhances educational environments (Koehler & Mishra, 2015; Mishra & Koehler, 2006; Ajloni & O'Toole, 2021).

The TPACK framework comprises three core dimensions with four intersections. Technological Knowledge (TK) incorporates an awareness and comprehension of the relevant technologies operating within a domain. It includes the technical knowledge of various technological tools, software, and resources. The concept of technological pedagogical knowledge (TPK) denotes the capacity of a teacher to integrate technology into the instructional method, wherein pedagogical knowledge intersects with technological knowledge. Regarding the second dimension, Pedagogical Knowledge (PK), comprehension of effective teaching practices, instructional design, and classroom management are imperative. By combining Pedagogical Knowledge and Content Knowledge, Pedagogical Content Knowledge (PCK) is produced. This intersection refers to knowledge of subject-specific teaching strategies that facilitate meaningful learning goals. Furthermore, Content Knowledge (CK) constitutes one of the three fundamental dimensions, stipulating the knowledge of the concept, theories, and principles of the subject matter within certain academic fields. When integrated with technological knowledge (TK), it yields Technological Content Knowledge (TCK), which pertains to teachers' proficiency in leveraging technology to augment comprehension of subject matter. The final dimension is the amalgamation of TK, PK and CK, known as TPACK. This holistic approach to teaching balances technological, pedagogical and content knowledge, as noted by Niess, (2011).

By exploring how teachers in these settings construct their identities through the TPACK framework, this study aims to provide valuable insights into the support and training needed for effective teaching in remote areas. However, although TPACK framework has been extensively studied, its specific application in the context of remote Indonesian education and

its role in shaping teacher identity remains underexplored.

To address this gap, narrative inquiry is believed to be the most appropriate method due to its ability to capture and highlight teacher development's dynamic and ongoing trajectory (Barkhuinzen et al., 2014; Craig, 2011). This approach allows for flexibility and responsiveness to participants' diverse experiences and emerging stories (Kahveci, 2021). Moreover, this technique providing a robust platform for in-depth explorations into the diverse environment of teacher development (Wood, 2000). By focusing on the narratives of six novice English teachers, this study centred on the essential structure of TPACK and its role in shaping teacher identities.

For the identity construction, we adopt Soren's (2013) identity model as an intricate and multifaceted concept, distinguished by its diverse, unsolidified, and adaptable nature. The model proposed three components of teacher identity: professional, personal, and institutional identity. These three models stipulate a comprehensive analysis area from various dimensions that foster individual teacher identity development. Through analysing the need to explore teacher identity, this study seeks to delineate the personal journey of a novice English teacher who transformed her teacher identity construction. We agreed that by looking back and reflecting on their experiences, teachers can gain greater clarity and move forward with a deeper understanding of the diverse perspectives and practices they encounter (Beattie & Conle, 1996).

The primary research inquiries addressed in this study were: how does six novice English teachers adopt the role of the TPACK framework for teaching English in a remote island of Indonesia? And how does the TPACK framework shape the professional identity of six novice English teachers in a remote island of Indonesia?. Through these questions, we aim to delineate the personal journey of six novice English teachers in their identity construction and provide insights into how TPACK framework can support this process.

Literature review

TPACK practice in remote area context

Technological Pedagogical Content Knowledge (TPACK) is a framework that highlights the interplay of three core knowledge domains crucial for achieving meaningful learning (Schmidt et al., 2009; Koehler, 2010). However, Roussinos and Jimoyiannis (2019) found that teachers still struggle to successfully integrate technology into their teaching approaches despite thoroughly understanding certain TPACK elements. In the context of learning in remote areas, the implementation of TPACK relies on many factors. The notion of technology cannot be limited to sophisticated tools and applications. Instead, teachers need to adopt a broader understanding of technology, recognizing its diverse form and applications.(Kimmons, 2018; C. Mishra, Ha, Parker, & L. Clase, 2019).

Teacher Identities construction

Identity is a complex and multifaceted concept characterized by its diverse, unsolidified, and adaptable nature (Soren, 2013 : Teng, 2020). Given its profound influences on social, cultural, and political contexts, this concept intertwines with discourse communities and communities of practice, employing a complex model that distinguishes power dynamics and social practice.

Soren's (2013) study resulted in a model for constructing teacher identity through three categories: professional identity, personal identity, and institutional identity, commonly known as Kling's elements of teacher identity. First, professional identity is derived from the acknowledgement of professional expertise and professional authority. Professional expertise involves possessing certain subject matter, while professional authority deals with external recognition of one's expertise (Huising, 2023). Alongside professional identity, personal identity plays a pivotal role in teacher identity construction, encompassing the acknowledgement of one's unique personality that defines them as teachers. The last category, institutional identity, pertains to how one's position and status in the institution or the academic community contribute to shaping one's identity as a teacher. Aligned with this, Rust, (2019) mentioned that institutional identity is defined as a teacher's state of identification with the institution where they teach.

TPACK as the framework to understand teacher's identities construction

Traditionally, the Technological Pedagogical Content Knowledge (TPACK) framework has been employed to assess teachers' ability to integrate technology into teaching. Research indicates a close relationship between the development of TPACK and the construction of teacher identity, influencing teachers' beliefs, attitudes, and intentions regarding educational technologies (Dikmen, 2022). TPACK framework is also considered a significant lens for understanding teacher identity construction (Saudelli & Ciampa, 2014 ; Absari et al., 2020; Kusuma et al., 2023).

Furthermore, the TPACK framework emphasises the integration of technology into teaching practices, influencing how teachers construct their professional identities in the digital age (Elmaadaway & Abouelenein, 2022; Yeh, Chan, & Hsu, 2021). Teacher identity construction is intricately connected to the development of TPACK and technology integration self-efficacy, shaping how teachers perceive themselves and their roles in integrating technology into their teaching practices (Su, 2023; Williams et al., 2023). In constructing and reconstructing their professional identity, teachers must navigate the dynamic landscape of technology integration (Hixon & Buckenmeoyer, 2009). Adapting to the changing role of being a technology user becomes crucial as technology becomes more prevalent in educational settings.

Teachers with specific knowledge of technology can effectively use technology to elevate teaching and learning (Akram et al.,2022). Integrating technology into teaching is advantageous, resulting in the development of students' essential digital skills and access to an abundance of sources of material (Ellsworth & Hedley, 1993). However, teachers encounter challenges integrating these new tools and resources into their teaching practices. Overcoming barriers, such as limited access to technology, lack of training and support, and the need to balance traditional teaching methods with innovative technological approaches, requires implementing various strategies (Johnson, Ehrlich, Watts-Taffe, & Williams, 2014) to effectively integrate technology into the classroom.

Method

In order to acquire a unique and valuable comprehension of individuals' experiences, perspectives, and identities, the present study employed the narrative inquiry method, as described by(Xu & Connelly, 2010). We contend that human narratives, characterised by their complex intricacies and implicit significance, present an abundant domain for investigation

via narrative inquiry. This methodology sheds light on the broader framework by examining the social strands intricately linked with personal stories ; Clandinin, 2006; Wood, 2000).

Participants selection for this study underwent a lengthy process, started when these novice English teachers were in their third year of teacher education. All participants were graduates of English teacher education program from the same university, and they graduated in the same year. After a careful consideration and comprehension selection process, also multiple engagement efforts, a total of six participants consented to participate in this study. They were chosen based on three fundamental criteria: first, former students of the English department who completed the English media course during their sixth semester, second, possess two to three years of experience as novice English teachers, and   the last, be familiar about the TPACK framework.

Data collection

As part of a series capturing human experience, a narrative inquirer can explore the life stories using a comprehensive framework (Mertova & Webster, 2007). As narrative inquiry seeks to comprehend and interpret individuals' experiences through storytelling, gathering narrative data from participants is a pivotal phase (Squire, Andrews, Davis, & Esin, 2014). In addition, as emphasised by Squire et al, (2014), narratives can be obtained through various sources, for instance, in-depth interviews, focus groups, personal journals, or other related documents.

In this narrative inquiry, we employed two methods for data collection. The primary method was in-depth interviews, during which a guided consisting of prompts from three predetermined themes was provided. Participants were then given the opportunity to share their experiences freely without interruption. Occasionally, prompting questions were given to delve deeper into their narratives. In addition to the direct interview, participants were given a series of written questions to be answered in writing.

Before the interview, the researcher arranged a meeting with all participants through a chat group. The first interview was conducted in a group setting at a restaurant on the beach. The purpose of this interview was as a preliminary interview and to convey the purpose of the study (Andrews et al., 2008). After the first group interview, as mentioned earlier, we distributed a written list of questions about TPACK and teacher identity. The researcher distributed the printed version as well as a digital version. But in the end, they preferred to fill in the digital version.

The written interview protocol had gone through a pilot study process to determine the extent to which the instrument or questions could be easily understood by those who read them. The pilot study was conducted on a campus with 15 pre-service teachers and 5 teaching staff. The conclusion of the pilot study showed that the questions that the researchers distributed were understandable and usable.

In addition to conducting in-depth interviews, direct observations were carried out to validate the interview data, along with interviews with school leaders. The purpose of these observations was to confirm the narratives provided by the participants. For instance, if a participant stated during the interview that their school building was inadequate, the observations allowed us to verify whether their narratives reflected the actual conditions. While this does not guarantee that all participants' stories align precisely with the on-ground reality, the observation stage does provide us with a clearer picture of the environment in

which these participants teach. In conducting observations, we developed a checklist to guide our focus during the process, encompassing several key areas of attention. This checklist included items such as the teaching location, access to the teaching space, subjects being taught, duration of teaching, class level, use of teaching media in the classroom, and the integration of technology in instruction. In total, there were 15 items on our checklist, ensuring a comprehensive evaluation of the teaching environment and practices.

Data analysis and trustworthiness

When participating in a narrative inquiry, participants essentially portray their stories, assemble pieces, give meaning to their journey, and explore their true nature (Barkhuizen, 2011). The researchers' job is to dive into the whole story through a deep analysis to find the answer to the questions posed. The data analysis phase of narrative inquiry is an intricate process that requires the researcher to engage in a dialogue with the narratives provided by the participants(Coffey & Atkinson, 1996).

The present narrative inquiry employed thematic analysis to examine the data as a qualitative research approach, based on multiple case studies. Thematic analysis helps researchers to establish the link between the provided theory and the stories from participants (Edwards, 2016). It also allows researchers to integrate diverse opinions of participants from different times and contexts in a similar project, opening up opportunities for interpretation (Ibrahim, 2012). Barkhuizen et al. (2014) outlined thematic narrative data analysis processes as follows: reading the data repeatedly, coding and categorising each data category, and organising it according to specified themes. In this study three themes were determined to guide the interviews; first, the participants' early careers as novice teachers, second, how the implementation of TPACK in their teaching and the last is how the role of TPACK in shaping their teacher identity, where the focus in this article is professional identity.

To ensure the trustworthiness, we did the member check for the whole transcript and interpretation of the data (Loh, 2013). This member check is essential to ensure that our transcripts and interpretations are in line with the stories told by the participants during the interviews (Kwok, 2020). Therefore, we minimised subjectivity in the delivery of the narrative.

Findings

After a series of data collection, interpretations, analyses and member checking, we presented some of the data aimed to answer the two questions posed at the beginning. In presenting the findings, first we arranged the data based on the themes established for the data analysis. After that, we elaborate the result of written interviews to highlight the professional identity construction. Six participants in this research appeared under pseudonyms as mentioned in the consent form.

Theme 1 : Teaching Career

The first theme in this study focuses on how these six novice teachers began their careers as teachers. Despite sharing a similar education background and graduating in the same year, not all of them immediately secured teaching positions. Participant R, Sam, M and Yuka struggled for a while to find a job and sent job applications to several schools. However, after a short wait, they eventually obtained teaching position. Differently, Grace and Catherine were even asked to start teaching even before they graduated from university.

R, and Sam were hired as English teachers at public primary schools in the capital of the district. Although these schools located are in the district town, they are situated on a remote island that far from the major city center. Grace also teaches at a Catholic junior high school in the city centre. Yuka, on the other hand, found a position in a remote village on the same island. M and Catherine, they chose to return to their hometown which is on a different small island. The island where M and Catherine teach is four hours away from the main island.

As a novice teacher, every teacher experience different challenges (Kozikoğlu & Senemoğlu, 2018). When direct observation was conducted in R's classroom, we noted that R, had to deal with students who were particularly troublesome. After the class, a short interview was conducted as the follow up to the observation as reflected in the following excerpt:

> Q   : What challenges did you face as a novice teacher, particularly in dealing with students, and how did you manage to overcome the challenge?
>
> R   : After I became a teacher, I understood how challenging the responsibility of a teacher is. Honestly in the beginning, I found it difficult to deal with students who were very stubborn. But in the end, I was able to overcome it.

Grace, on the other hand, at the beginning of her first year of teaching, had already gained a lot of trust from the leadership to handle school events. This caused her to be teased by senior teachers who seemed to be jealous of Grace's achievements as a novice teacher. Grace narrated:

> I was once sarcastically asked by a senior about a project or event that was going to take place. This senior asked as if he needed information when I knew that he was satirising me for constantly getting project events from the principal. I thought that I didn't need to respond. I answered as needed and eliminated all prejudice.

Grace face challenges not only from the seniors but also sudden role change at school. After two years of teaching English, she had to choose between losing her job or teaching unfamiliar art subjects. Embracing the challenge, she believed she could adapt with the help of technology.

Adding to this narrative, Catherine, teaching on the island where she was born, feels a profound sense of responsibility for education in her community.

> My decision to become a teacher in this remote area is a true calling from my heart. I remain resolute and refuse to give up, despite the negative comments and dismissive attitudes directed toward my school.

The field observation revealed the poor condition of the school. The building, though far from being considers a proper educational facility with its walls riddles with holes and dirt floors serves as a place of learning for small groups of students.

Meanwhile, M teaches on the other side of the same island but in a school that is in far better condition. Elsewhere, Sam, a novice teacher, struggles to maintain patience with his students

across the six classes he teaches every week. His difficulties in managing emotional outburst have resulted in a serious incident involving a student. However, the school has chosen to extend forgiveness for this lapse, recognizing that Sam is still in the early stages of his teaching career and requires time to develop and improve. The school principals asserted that :

> At the time of the incident, I did not scold or punish Sam; instead, I provided him with intensive support on how to be a patient teacher. I understand that this is a significant challenge for him, but he is gradually learning to manage his emotions better. I suggested that if he feels he can no longer control his emotions, he should step outside for a moment and drink some water to help stabilize his feelings, allowing him to return to teaching in a more relaxed manner.

Furthermore, Yuka confidently volunteered to take on the double role of English teacher and school operator. This makes Yuka have a great responsibility at school. Adding to the problem, the school building has not been repaired and Yuka has to think outside the box and be as creative as possible in teaching students without a real classroom.

Accordingly, the novice teachers involved in this study had different experiences. Each of them faced challenges and they had their own ways of handling the situation during their initial years of teaching career. The stories of participants for the firth theme provide an overview of how these novice teachers began their careers as English teachers in remote areas of Indonesia and later will give a basic to generate the conclusion about how their teacher identity developed.

Theme 2: TPACK Implementation

The second theme in this study is concerned with how TPACK is implemented in English language teaching by the six novice teachers in a remote area. Before further presenting some interview quotes related to this second theme, it is necessary to mention that these six participants were in the same year and in the same class when TPACK was introduced by the lecturer. Based on the belief that these novice teachers have been exposed to TPACK, this framework becomes a guideline for the formation of their identity as teachers.

Interviews with six novice teachers revealed diverse perspectives and implementation strategies for TPACK. Although, conceptually they recognized the importance of balancing technology, pedagogy, and content in their teaching, there was a difference in their levels of ability to understand and implement TPACK in their teaching activities. R for example stated that:

> I'm not an expert in technology, but thanks to the support from the school providing facilities, I confidently integrate technology into my conventional teaching model I use to teach content at my students' level. I also utilize technology as a learning resource.

Grace, on the other hand, views technology as a primary need and as a learning resource because she has to learn about new subjects that are not within her expertise. While Catherine on the island, tries to accept the students' situation and their limited ability to utilize technology. Although the school building is inadequate, the school tries to provide facilities

such as internet and other learning support facilities. For example, she realizes that almost all of her students are still lacking in vocabulary, so she teaches the students to use translation apps to learn new vocabulary. A bit different from M, although the school provides facilities, she is uncertain about using various types of apps for several reasons. She explained:

> I have observed that my students prefer a simple teaching model without the complexities of advanced technology. This is because many of them come from low-income families and have not had the opportunity to experience modern gadgets. However, I still find that technology helps me create engaging learning materials for my students.

In contrast to Sam and Yuka, they are novice teachers who are quite proficient with technology so that at school they are reliable teachers regarding the use of technology. Sam and Yuka also utilise technology in their teaching, so they often use several applications in teaching.

However, there is a surprising fact that these six novice teachers have become very dependent on technology in terms of English teaching content and pedagogy knowledge. Mostly, they have similar reasons that university experience was not enough. For example R stated that:

> Only ten per cent of what I have learnt at university can be applied at school. And that only covers a few things. Even during field practice, I didn't get enough time to learn. On campus, there was even less exposure to the English language. The rest I learnt by myself with the help of technology.

R's statement serves as a critique of the university where he studied, suggesting that there are significant issues within its teaching and learning system. However, R clarified that he did not intend to tarnish the university's reputation, especially considering the efforts made to develop it. He emphasized that his comments should be taken into account by the administrators of the Teacher Education program.

Theme 3: TPACK shape professional identity

To address the third theme in this study, we used an established interview protocol grounded in the TPACK framework, as outlined by Destiana et al., (2021). We adapted this instrument to involve elements of teacher identity proposed by Soren (2013). All questions were translated into Bahasa Indonesia, which is the participants' native language to enhance the quality and depth of the data collected. The written interview consists of seven constructs corresponding to the seven elements of TPACK. Each construct contains an average of five to seven questions. The following are the example written interview questions in English version :

Table 1: example of written interview

No	Construct	Items
1	Technological Knowledge (TK)	Do you have the technical skills to effectively use a computer?
		Do you find it easy to learn how to use technology?
		Are you able to solve technical problems on your own when using technology?
		Do you keep up with important developments in new technology?
		Can mastery of technology be considered an aspect of being a professional teacher? (Professional Identity)
2	Content Knowledge (CK)	Do you have sufficient knowledge about the subject you teach?
		Are you able to think about the content of the subject like a subject matter expert?
		Can you gain a deeper understanding of the material you present?
		Are you confident in your ability to teach the subject matter?
		Describe the unique characteristics of your teaching as an English teacher. (Professional Expertise)
		Compared to your early years of teaching, has anything changed or developed in your teaching practice? (Professional Expertise)

Based on the written answer provided by six participants, the following are the interpretations of the answer on the written interview to reveal how the TPACK framework shaping their professional identity.

The participants demonstrate a range of technological and pedagogical competencies. R is a tech-savvy teacher who effectively utilizes computers and the internet for instruction, showcasing strong technological knowledge (TK) and pedagogical content knowledge (PCK) by adapting methods to student needs. Catherine, a novice English teacher, possesses adequate technological skills and proactively deepens her understanding of content, reflecting her commitment to strong PCK. Grace, though not an ICT or art teacher, effectively integrates technology into her teaching, demonstrating basic TK and strong PCK as she adapts her methods to engage students. Similarly, M, despite lacking specific computer skills, uses technology for teaching and self-learning, showing her basic TK and strong PCK by using creative methods to foster a fun learning environment.

Sam and Yuka, both novice teachers, showcase their technological skills differently. Sam excels in operating technology and creating engaging classroom environments, indicating his strong TK and commitment to PCK as he strives for self-improvement. Yuka, adept at using various applications, demonstrates solid content knowledge (CK) and adapts her teaching methods, though her use of technology in the classroom is limited due to school facilities. Overall, their TPACK profiles reveal a collective dedication to improving teaching practices and integrating technology, highlighting their adaptability and commitment to enhancing student learning experiences.

Moreover, the TPACK framework significantly shapes the professional identities of teachers by integrating their understanding of technology, pedagogy, and content knowledge. For example, teachers like R and Grace demonstrate how effective technology integration enhances their teaching practices, fostering a dynamic classroom environment. R's ability to validate content through online resources and adapt his teaching methods illustrates a confident professional identity grounded in continuous improvement and responsiveness to student needs. Similarly, Grace's commitment to preparing thoroughly and engaging students reflects her identity as a reflective educator who values student involvement and learning outcomes.

In contrast, novice teachers like Catherine and Yuka showcase the journey of developing their professional identities through TPACK. Catherine's proactive approach to understanding content and her use of varied learning strategies highlight her dedication to growth, despite her basic technological skills. Yuka's strong technological literacy and commitment to integrating technology into her teaching, even while facing challenges, illustrate her evolving professional identity as she seeks to adapt her methods to better serve her students. Overall, TPACK empowers these educators to view themselves as adaptable and reflective practitioners, committed to enhancing their teaching effectiveness and fostering positive learning environments.

Discussion

This study aimed at answering two main research questions: First, how do six novice English teachers adopt the role of the TPACK framework in teaching English in a remote area of Indonesia?. Second, how does the TPACK framework shape the professional identity of the six novice English teachers in a remote area of Indonesia?

Regarding the first research question, it is necessary to view TPACK as a unity of the three core knowledge and the four intersecting elements between them (Schmidt et al., 2009). Before rounding up the conclusion up to answer the first research question, we will elaborate on how the six novice English teacher perceive the role of the three-core knowledge in TPACK. First, narratives from six participants inferred that the role of technology in the teaching practices is multifaceted and varies among individuals (Wang et al., 2024). The roles of technology in their teaching practice include: first, the role of technology as tool to improve the quality of teaching in the classroom (Obara, et al,. 2018). With the help of technology, these novice teachers can easily create interesting learning media to boost the students' engagement in learning English. As demonstrated in some studies, (eg. Aprianto, 2024; Asiah & Anwar, 2019; Nisa et al., 2023) using various media for teaching can improve students' interest and affect their achievement. Second role of technology is not only served as a tool for instruction, but technology is a valuable learning resource for novice English teacher. All six participants demonstrated a strong reliance on technology as a source for teaching materials, as they acknowledged their limited experience and knowledge in the field. With technology, these novice teachers search for valid and usable sources of materials as a supplementary to the current curriculum. The reliance on technology by novice teachers highlights the importance of comprehensive teacher preparation programs at universities (Bragg, 2023; Qadhi et al., 2020; Vold, 2017). However, the present study revealed that university experience does not guarantee proficiency in teaching the content. As a result, novice teachers rely on technology to enhance their understanding of the teaching (Caspersen & Raaen, 2014; Gong, Gao, & Lai, 2022; Septiani, Emiliasari, & Rofi'i, 2019).

Despite the limitation of the students, the narratives also revealed that technology provides opportunity for the teacher in creating meaningful learning. Such an opportunity will continue to be beneficial in students' personal learning. It is in line with the report by Pane et al., (2017). They asserted that personalization helps in addressing the unique learning styles and requirements of each student, ensuring that no one is left behind. In this study, for example, Catherine prefers to personalised her teaching complementary tool to meet the student need. It also opens the chance to a wider source of educational resources.

Adding to this discussion, six novice English teachers in this study perceived the role of pedagogical aspect in their teaching to be important in two ways; Firstly, pedagogical knowledge help the teacher in adapting to diverse learning need which related to the contextualization and differentiation (AL-Naimi, Romanowski, & Du, 2020; Caspersen & Raaen, 2014). This also accords with study by Nilsson, (2012). It was a good example of how teachers should consider the need of student in teaching to enhance their own teaching practices and promote effective learning experiences. The researcher suggested that the university that offer the teacher education programme should consider equipping pre-service teachers with the knowledge and skills to recognize and respond to students' needs effectively. The second role of pedagogical knowledge perceived by six participants was: pedagogical knowledge raised the awareness about the importance of mastering various method in teaching and it goes hand in hand with the content knowledge. Several reports have shown that being knowledgeable about a variety of teaching methods is crucial for effective learning (see : Kolesnikova, 2016; Nama & Ate, 2022; Thi Thu Hoai, 2021) . Moreover, Liu, (2021), also agree that applying various teaching methods, including differentiated instruction, can contribute to the professional growth and effectiveness of student teachers, ultimately benefiting their students' learning experiences.

Moving on the content knowledge, there are several points highlighted in the narratives of six novice English teacher. First, the six participants agreed that content knowledge is one of the crucial foundations for teaching. Shulman defined content knowledge as the teacher's understanding of the subject matter being taught, including the concepts, theories, ideas, and organizational frameworks within that domain (Koehler & Mishra, 2009). It encompasses knowledge of evidence, proof, established practices, and approaches for developing subject matter knowledge. Therefore, having a strong understanding of the content is important (Loewenberg Ball et al., 2008). However, in the case of six novice English teacher in this study, a strict validation is needed since they admitted their limitation in understanding subject matter. Second, six novice English teacher agree that content knowledge is the base for curriculum development. The teachers' content knowledge assists them in developing and adapting curriculum according to the students' needs and abilities. As the result of curriculum development, teacher with strong content knowledge can ensure the students' understanding of the subject material (Msimanga, 2020; Sin, 2021; Wahyudin & Ali, 2020). Teachers also can address students' learning difficulties. Our finding aligned with the work of Sin, (2021) who found that curriculum development is one of the tools for teacher professional development. While the six novice English teachers can manage to develop the existing curriculum if only, they had valid content knowledge.

Despite the crucial role of technological and pedagogical knowledge, the novice English teachers acknowledged that they encountered difficulties during their initial years regarding their content knowledge. Similarly, numerous research indicated that most novice teachers also deal with this situation (e.g. AL-Naimi et al., 2020; Brown & Sorrell, 2017; Caspersen & Raaen, 2014; Voss & Kunter, 2020; Vold, 2017). In English language classroom, for

example, Vold, (2017) recognize the challenge of novice English teacher due to the language used for the instruction which means that the novice teacher was struggle in delivering the content knowledge. As their university education does not prepare them enough, the novice teachers might also face a lack of belief in their own linguistic abilities, which forces them to resort to the security of textbooks and traditional methodologies of teaching. Such difficulties are likely to affect the quality of teaching and reduce the confidence of novice teachers in teaching.

Furthermore, the second research inquiry in this research paper was about how the TPACK framework shape the professional identity of six novice English teacher in a remote area of Indonesia. From the data analysis, the narratives of six participants demonstrated the readiness to become teachers with any consequences. TPACK framework has proven to play an important role in the formation of their professional identity. As of this point, they were recognized and accepted as novice teachers, considered competent, and even became favorite teachers eagerly awaited by their students. In the same vein, Can & Karacan, (2021) stated that strong self-efficacy and a willingness to become a teacher are also necessary for the development of professional identity. Moreover, technological training courses played an important role in helping participants to cope with the modern era and to develop multiple facets of their identity.

The TPACK framework significantly shapes the professional identity of novice English teachers in Indonesian remote area context by integrating fundamental knowledge areas: technological knowledge (TK), pedagogical knowledge (PK), and content knowledge (CK). It boosts skill development, enabling teachers like Catherine, Sam, R, and Yuka to confidently integrate technology into their teaching. However, Limbong et al., (2024) argued that context in which teachers work can also significantly influence their ability to integrate technology effectively, reflecting the experiences of novice teachers who may face unique challenges in remote areas.

TPACK fosters adaptability to student needs, as seen in M and Grace, and promotes reflective practices that enhance ongoing professional growth. Additionally, it empowers teachers to create engaging learning environments, reinforcing their identities as innovative educators committed to continuous improvement (Timotheou et al., 2023; Wang et al., 2024). On the whole, TPACK helps novice teachers acquire a confident and effective professional identity that enhances their teaching practices.

Conclusion

As part of a larger study, the two main questions were established in this narrative inquiry. First about how TPACK is implemented in English language learning and also how TPACK plays its role in shaping professional identity. The answers to the first question were the result of in-depth interviews with six participants. Narratives from six participants inferred that the role of technology in the teaching practices is multifaceted and varies among individuals. First, technology serves as a tool to improve the quality of English teaching in the remote island of Indonesia. Second, it function as both an instructional tool and a valuable learning resource for novice English teacher in this remote area.

Supporting the technological role in teaching English, pedagogical knowledge also plays crucial roles in two ways: Firstly, pedagogical knowledge help the teacher in adapting to diverse learning need which related to the contextualization and differentiation. Second, pedagogical knowledge raised the awareness about the importance of mastering various

method in teaching and it goes hand in hand with the content knowledge. Furthermore, the content knowledge, six novice English teacher perceived that a strong understanding of the content is vital in teaching English at this remote island context. However, they become dependent to the technology to validate their content knowledge since they were not confident with their understanding. Overall, the balance understanding regarding the three-core knowledge of TPACK and the intersections give a strong foundation for teaching English in this remote island context.

Finally the role of TPACK in shaping the six novice English teachers' professional identity showed in how the six novice English teacher belief in their TPACK implemented in the classroom. By mastering and balancing the elements of TPACK in their teaching practice, the six novice English teacher were acknowledged as the professional teacher as well as their professional identity getting stronger. They understand their role as a teacher despite all the limitations and trying to maximize their effort to provide a meaningful learning.

Findings of this study should add insight to the novice teacher that mastering the technological knowledge will lead to better understanding of pedagogical and content knowledge. Also, the teacher education programme could think about the best way to prepare the pre-service teacher in terms of technological skill, pedagogical skill, subject matter. If the university take this finding as a fruitful insight, the educational programme will result the great future teacher with strong identity foundation.

Future research should explore ways to enhance understanding of TPACK and its impact on teaching techniques. Longitudinal studies could track TPACK evolution among novice teachers, while examining its influence on student learning outcomes may reveal its effectiveness in fostering engagement. Comparative studies across cultural contexts can identify unique challenges and strategies. Additionally, designing intervention programs for pre-service teachers could improve their confidence and competence in technology integration. Research into effective pedagogical practices, cultural factors influencing TPACK, and technologies like mobile learning platforms will refine teacher education programs. Investigating teacher collaboration in TPACK implementation may also highlight the benefits of shared experiences, contributing significantly to the advancement of teacher education practices.

In conclusion, this study highlights TPACK's critical role in shaping novice English teachers' professional identities in remote Indonesia. By integrating technological, pedagogical, and content knowledge, these educators enhance their teaching and adapt to challenges. The findings stress the importance of prioritizing technological skills in teacher education programs to prepare future teachers effectively. Further research on TPACK's nuances and cultural influences is essential for refining teacher education. Ultimately, a strong grasp of TPACK will develop competent, adaptable teachers who can foster student success across diverse settings.

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This research has followed the ethical standards that are accepted in this journal.

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All the data collected from the participants narratives and observation result

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