



Infusing TPACK Domains in Lesson Plan: Higher English Education Teachers' Standpoints

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Abstract

This study aimed to explore the knowledge of five English language lecturers regarding the design of TPACK (Technological Pedagogical and Content Knowledge)-informed lesson plans. A descriptive qualitative approach was used in this research. The data sources in this study were obtained from an open-ended questionnaire as well as the lesson plan designed by the lecturers. The questionnaire was used to determine the methods of English language teaching by considering students' backgrounds, learning styles, instructional media, and learning objectives. The document analysis was applied to gain the data that concern the practice of the teachers in designing lesson plans based on the seven components within the Technological Content Knowledge (TPACK) framework. The analysis of the lesson plans meticulously prepared by the five teachers revealed that their lesson plans not only encompass but also integrate the seven component deemed relevant and in accordance with the criteria established within the framework. Furthermore, the findings suggest that educators acknowledge the influential role of personal factors in students' English language learning experiences, considering not only their backgrounds but also diverse learning styles while incorporating pertinent instructional media. In essence, this research underscores educators' commitment to crafting a comprehensive and pertinent learning environment.

Keywords: TPACK, Lesson Plan, ELT, Teachers, Higher Education

Introduction

A lesson plan serves as a teacher's guiding framework for executing effective teaching and learning. The quality of these plans fundamentally determines the success of a lesson (Ratnawati, 2017). It is a critical tool that educators must meticulously design before engaging in their instructional activities. Without proper planning, learning is susceptible to failure, lacking a structured reference for achieving success. In this context, the teacher assumes a pivotal role as a determinant of success in the learning and teaching process. Teachers must undertake the preparation and development of comprehensive learning plans to realize the established learning objectives (Permatasari, 2021).

It aligns with the mandate outlined in the Minister of Education and Culture's statement, Number 22 of 2016, stipulating that every teacher in the educational unit is obligated to craft a structured and comprehensive lesson plan. It ensures that learning unfolds interactively, efficiently, inspiringly, and joyfully, fostering active student engagement, creativity, and independence in the teaching and learning process (Permendikbud, 2016). Therefore, one of the critical preconditions for successful learning is meticulous planning and preparation, achieved through the design and

development of structured lesson plans, ensuring a systematic execution of the learning process.

The dynamics of the 21st-century world are characterized by the pervasive use of information and communication technology across various facets of life, particularly in educational activities. The imperatives of 21st-century learning underscore the necessity of integrating technology as a learning medium to cultivate essential skills (Azizah et al., 2020). Schools are compelled to strike a balance between the demands of the millennial era and the objective of instilling life skills relevant to the 21st century in students. Furthermore, educators must possess technological proficiency to enhance students' learning outcomes, facilitate the learning process, and formulate effective lesson plans (Yusuf et al., 2015; Agustini et al., 2019).

To support these demands, a novel concept known as TPACK (Technological Pedagogical and Content Knowledge) can serve as a framework for designing a more fitting teacher education curriculum aligned with the demands of 21st-century learning. TPACK is an evolution of PCK (Pedagogical Content Knowledge), originally introduced by Shulman in 1986, and further developed by Koehler and Mishra (2006). TPACK comprises three primary components:

TP (Technological Knowledge), PK (Pedagogical Knowledge), and CK (Content Knowledge) (Koehler et al., 2009), along with sub-components, namely PCK (Pedagogical Content Knowledge), TPK (Technological Pedagogical Knowledge), TCK (Technological Content Knowledge), and TPACK (Technological Pedagogical Content Knowledge) (Mishra & Koehler, 2006). Moreover, TPACK represents a complex and pivotal knowledge base for English language teachers, particularly in the preparation of lesson plans (Sholihah et al., 2016). The integration of TPACK in lesson plan preparation has been shown to enhance learning quality (Azizah et al., 2020). English teachers can effectively utilize appropriate technology in teaching and learning activities when they synthesize the six types of knowledge into their compiled learning tools, namely TK, CK, PK, PCK, TCK, and TPK (Harris et al., 2013). Consequently, the lesson plans designed by English teachers are a reflection of TPACK (Harris & Hofer, 2011). Additionally, possessing TPACK proficiency contributes to the development of teacher professionalism. Teacher professionalism is characterized by four competencies: pedagogic, professional, personality, and social competencies (Murkatik et al., 2020). When teachers excel in TPACK, they are better equipped to refine their skills in crafting TPACK-infused lesson plans (Sholihah et al., 2016). Moreover, regular practice in designing lesson plans aids teachers in cultivating and refining their TPACK skills (Tyarakanita et al., 2020).

To gauge the extent of a teacher's TPACK proficiency in compiling lesson plans, evaluation becomes imperative. While some studies concentrate on the impact of demographic factors such as gender, age, and education, the present research will specifically explore teachers' actualization and their perceptions regarding the design of TPACK-informed lesson plans.

Literature Review

TPACK as The Need for 21st Century Teaching and Learning Shulman (1986) described the categories of knowledge that a teacher requires to promote comprehension among students. In particular, was the knowledge of content and pedagogy that blended together to create a flexible learning environment for diverse groups of students. The TPACK framework builds on Shulman's work to include technology for effective teaching and emerges from interactions among content, pedagogy, and technology (Koehler et al., 2009).

There are three main components of TPACK framework, namely, Content Knowledge, Pedagogical Knowledge, and Technological Knowledge.

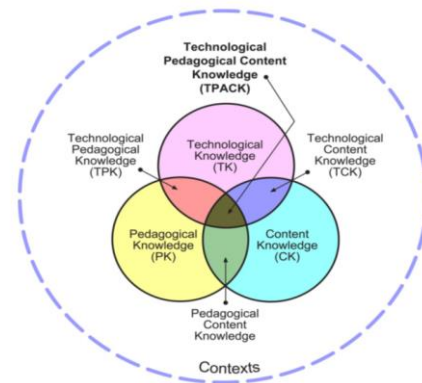


Figure 1. TPACK Framework and its Components

As shown in Figure 1 above, a complex interaction between the three domains gives rise to an additional three components: pedagogical content knowledge, technological content knowledge, and technological pedagogical knowledge. Technological content knowledge refers to lecturer's knowledge of the use of appropriate technology in order to communicate the content material within specific discipline. Pedagogical content knowledge includes appropriate methods of teaching to convey specific content. The teacher knows the subject matter and uses different ways of representing it. Technological pedagogical knowledge demonstrates how a particular technology enhances teaching and learning. Technology can be used differently to suit the context and purpose.

The framework has been implemented in various educational institutions with most of them reporting average levels of technology integration in their teaching and learning process. The studies have identified further need for improvement in technological, pedagogical, and content aspects of teaching and learning skills (Ersanli, 2016; Lye, 2013). While some educators emphasize technology over pedagogy, others prefer pedagogical knowledge over technology for an effective TPACK implementation (Goradia, 2018). Moreover, (Tanak, 2020) found that the Pedagogical Knowledge could have a large impact on the TPACK of the teachers. In contrast, other studies have found improvement in students' knowledge and skills, especially within the science domain (Sheffield et al., 2015). In general, most educators believe competency with TPACK is a core attribute essential for professional development in the teaching and learning environment.

Today's world faces challenges such as climate change, socio-economic inequality, unemployment, globalization, and cultural diversity. The 21st century is volatile, uncertain, complex, and ambiguous (Acedo & Hughes, 2014). In addition, with the development of information technology, there is a growing need to keep abreast with technology (Hidayat et al., 2023). Educators, therefore, highlight the importance of restructuring the education system, such as to prepare 21st-century learners to face these complex challenges. Educators as well as the public, support the notion that higher-order thinking skills are essential to face these complex issues and involve creativity, critical thinking,

collaboration, and lifelong learning (Goradia, 2018; Sacconaghi, 2006; Scott, 2015).

Lesson Plan in Teaching and Learning

Various experts in education hold diverse perspectives on lesson planning. A lesson plan, defined by (Farrell, 2002; Zazkis et al., 2009), serves as a teacher's designed roadmap, offering guidance for effective teaching and learning practices. It is considered a vital tool, with teachers required to develop a lesson plan for each instructional session, as underscored by Heidari and Heidari (2020), recognizing planning as a critical component for achieving successful teaching. Milkova (2005) and Putra et al. (2014) further highlight that a lesson plan serves as a teacher's guide, outlining what learners need to acquire and how the learning and teaching process will unfold. Collectively, these perspectives emphasize the importance of a lesson plan as a crucial instructional guide.

Transitioning to the significance of lesson plans emerges as a pivotal and influential element in determining the success of the teaching and learning process. It is echoed in the educational practices of many countries, emphasizing that lesson planning is integral for meeting national standards, fostering effective teaching, and optimizing learning (Borich, 2017). Developing a lesson plan allows teachers to delve deeply into the subject matter, contemplating how the content is presented and selecting methods to facilitate student comprehension (Chen & Zhang, 2019).

In pursuit of effective teaching, teachers are urged to develop meticulous lesson plans, as asserted by Ratnawati (2017). Additionally, adherence to the 2013 Curriculum necessitates that lesson plan design align with the Regulation of the Ministry of Education and Culture, number 65, 2013. The regulation stipulates that a lesson plan should, at a minimum, encompass the learning objective, learning material, learning method, learning source, and assessment of students' achievement. The specific components of a lesson plan include (1) identity (school name, subject, class/semester, major content, and time allotment); (2) core competence (aspects of attitude, knowledge, and skill to be learned); (3) basic competence and indicators of competence achievement; (4) learning objectives; (5) learning materials; (6) teaching method; (7) resources (tools and media); (8) teaching activities; and (9) assessment (Srihidayanti et al., 2015).

Method

Research Design

A descriptive qualitative approach was used in this study. Descriptive is a problem formulation that guides the study to portray or explore the social situation in a thorough, broad, and in-depth way. Qualitative research focuses on social phenomena about the feelings and perceptions of research participants (Moelong, 2011).

The data sources in this study were obtained from an open-ended questionnaire as well as the lesson plan designed by the lecturers. The instrument in this study used the document analysis sheet to gain data regarding the application of

TPACK on the lesson plan and interviews to uncover the knowledge of the TPACK teachers.

Participants

In conducting this study, the participants included five lecturers from the English education department who taught at universities in Indonesia. The participants represented hypothetical participants in the form of conventional samples or participants that are now available and easy to get information. In this case, purposive sampling was used to select the participants with the following criteria: having teaching experiences of more than five years in English skills, being active in using technology, and having a master's degree in English education.

Instruments

To attain the data of this present study, the researchers used an open-ended questionnaire and document analysis. The questionnaire was applied to know the lecturers' perspectives on their experience in designing TPACK lesson plans, while document analysis was used to explore the teachers' skills in infusing TPACK into lesson plans. In this case, the questionnaire was designed into Google Forms and shared the link access to the English department lecturer. Further, the document analysis was applied to gain the data that concern the practice of the lecturers in designing lesson plans. The researchers asked the lecturers to collect their lesson plans that were designed by them.

Data Analysis Technique

In this research, the researcher conducted a document analysis based on the seven components of TPACK, which encompass Content Knowledge (CK), Pedagogical Knowledge (PK), Technological Knowledge (TK), Pedagogical Content Knowledge (PCK), Technological Pedagogical Knowledge (TPK), Technological Content Knowledge (TCK), and, most importantly, Technological Pedagogical Content Knowledge (TPACK). The analysis was undertaken to assess the extent to which the teachers' lesson plans reflected an understanding and integration of these knowledge components within the realm of learning.

The researcher also conducted a thematic analysis of data gathered through open-ended questionnaires. It facilitated an in-depth exploration of meanings and latent patterns embedded in participant responses and relevant documents. By meticulously categorizing and grouping findings into key themes, the research aimed to unveil profound insights into the conceptual frameworks and understandings held by respondents. The outcomes of this thematic analysis are anticipated not only to enhance comprehension of the investigated phenomenon but also to identify trends or patterns that may serve as a foundation for subsequent recommendations or actions.

Results

TPACK Lesson Plan of English Education Lecturers

The result of the analysis of teachers' lesson planning is described as follows:

Table 1. Lesson Plan designed by the teachers

Based on the document analysis of the lesson plans authored TCK (Technological Content Knowledge), and TPACK

No.	TPACK Components	Criteria	Result
1.	CK	a) Providing clear lesson objectives. b) Exhibiting sufficient knowledge of the subject topic/content.	All the lesson plans designed by the lecturers have provided clear lesson objectives and exhibited sufficient knowledge of the content.
2.	PK	a) Assessments match the instructional method. b) The lesson appears to help organize and manage student behavior and explains the sequence of events and procedures for students.	The lecturers have to match the assessment and provide the sequence of procedures for students to organize and manage their behavior.
3.	TK	a) The lesson plan incorporates at least one technology. b) Discussing possible limitations to technology or potential problems, as well as solutions. c) Providing clear rationale for technology choice. d) Demonstrating understanding of technology as a teacher or student tool.	The lesson plans designed by the lecturers have provided the integration of varied technology, both software and hardware, such as laptops and digital platforms (YouTube, movies, Kahoot and Quizziz).
4.	PCK	a) Selecting effective teaching strategies appropriate to subject domain to guide student thinking and learning. b) Demonstrating awareness of possible student misconceptions. c) Presenting appropriate strategies for developing understanding of the subject content.	Most of the lesson plan provide the teaching strategies by considering its compatibility with the learning objectives and students or class condition.
5.	TPK	a) Choosing technologies enhancing approaches (teacher centered approaches) b) Selecting technologies enhancing student learning (student centered approaches) -- c) Providing clear rationale for technology choice to deliver instruction	The lesson plans present the utilization of technology that facilitate the teaching and learning process in presenting the material and involving the students to explore the content and achieve the learning goals.
6.	TCK	a) Choosing appropriate technologies for subject domain b) Linking between technology and content is obvious or explicit	The lesson plans put on the technologies that appropriate with the topic will be learned.
7.	TPACK	a) Appropriately uses content, pedagogy, and technology strategies b) Technology enhances content objectives and instructional strategies	The use of technology applied to enhance the objective of learning and strategies used by the lecturers.

by the five teachers, it was inferred that their instructional designs comprehensively addressed the seven components of TPACK. The teachers demonstrated a robust understanding of CK (Content Knowledge), PK (Pedagogical Knowledge), and TK (Technological Knowledge), effectively integrating these elements within their pedagogical frameworks. Furthermore, they successfully amalgamated PCK (Pedagogical Content Knowledge), TPK (Technological Pedagogical Knowledge),

(Technological Pedagogical Content Knowledge) in a harmonious synergy. This achievement reflected the competency of these educators in formulating lesson plans that not only amalgamated content knowledge, pedagogical expertise, and technological proficiency but also aligned them effectively to attain optimal learning objectives.

The Lecturers' Views on their Experience in Infusing TPACK on Lesson Plan

Preparing the Learning Materials in English Language Teaching

In preparing the learning materials for English language teaching, there are some key points used by the participants as consideration to develop their learning materials. Some participants develop teaching materials based on the students' needs, classroom situations, and learning objectives. It is shown in the following participants' answers:

"In crafting English language learning materials, I consistently initiate the process by analyzing the individual needs of students. I strive to comprehend their proficiency levels, interests, and learning styles, enabling me to develop materials that are tailored and pertinent for each student within the class." (T1)

"I pay special attention to the classroom situation and conditions when designing learning activities. For instance, in the presence of students with varying comprehension levels, I incorporate variations in teaching approaches to ensure active engagement and inclusivity among all students." (T2)

"Learning objectives serve as the primary guide in all my material preparation. I consistently contemplate what I aim to achieve with students, whether it be the enhancement of speaking, writing, listening, or reading skills. This approach assists me in formulating focused and relevant instructional materials." (T3)

"When planning learning activities, I take into account the diversity of students' learning styles. I provide an array of activities, ranging from role-playing to collaborative projects, ensuring that each student can find the most effective way to absorb information and enhance their English language proficiency." (T4)

"I consistently initiate communication with students to comprehend their needs and expectations in English language learning. This aids me in tailoring learning materials to align with their interests, thereby fostering a supportive environment that motivates each student to attain the learning objectives." (T5)

The aforementioned statement reflected an approach that was highly attentive to students' needs, classroom situations, and learning objectives in the design of English language teaching materials. The teacher initiated the process by conducting a thorough analysis of individual student needs, encompassing proficiency levels, interests, and learning styles. The outcomes of this analysis served as the foundation for the teacher to construct materials that were not only relevant but also capable of eliciting active student participation. Subsequently, the teacher took into consideration the classroom situations and conditions, introducing variations in teaching approaches to accommodate differences in student comprehension. In this context, learning objectives served as the primary guide, forming the basis for crafting focused activities that aligned with the needs of the class. Ultimately, through an ongoing commitment to open communication with

students, the teacher aimed to comprehend their needs and expectations in English language learning, thereby facilitating the adaptation of materials to align with student interests. The approach sought to cultivate a supportive learning environment, motivating and providing opportunities for each student to achieve learning objectives optimally.

Determining Teaching Method/Strategy in English Language Teaching

The teaching method tends to be the way that is used to implement the plan that has been arranged in the form of real and practical activities. It becomes one of the necessary components that can determine the success of learning. Based on the data from the questionnaire, the participants determined the methods of English language teaching by considering students' backgrounds, learning styles, instructional media, and learning objectives.

"In formulating English language teaching methods, I consistently take into consideration students' backgrounds, including their proficiency in their native language and prior experiences with English. This aids me in tailoring the instructional approach to suit their individual needs." (T1)

"When selecting English language teaching strategies, I consistently attend to instructional media relevant to students' daily lives. I believe that incorporating engaging and familiar content enhances participation in the learning process and expedites the comprehension of the English language." (T2)

"Educational objectives serve as the primary guide in determining English language teaching methods. I comprehend that each student harbors distinct goals, be they academic, professional, or personal. Consequently, I design instructional frameworks to support the achievement of these objectives." (T3)

"In instructing the English language, I endeavor to comprehend students' learning preferences and styles. Some students may exhibit greater responsiveness to audiovisual methods, while others may prefer interactive learning. By acknowledging their learning styles, I can create a more effective learning experience." (T4)

"I not only consider students' backgrounds but also the available instructional media. This renders the learning experience more meaningful and provides additional motivation for active participation in the teaching and learning process." (T5)

Determining the Technology-based Media Utilized in English Language Teaching

Media has a necessary role in teaching in that it becomes one of the assistive tools that is used in the teaching and learning process to stimulate the learning patterns; then, it can support the process of teaching and learning to run effectively and successfully in achieving the desired goals. The data of these terms showed that most of the participants had applied a variety of platforms such as YouTube, movies, Kahoot, and Quizziz.

"In English language instruction, I actively leverage diverse media platforms, including YouTube, as sources of dynamic and engaging content. This aims to provide students with a more visual and contemporary learning experience." (T1)

"I incorporate instructional media elements such as movies into English language instruction to offer students a profound experience within the context of everyday language use. This serves to enrich their listening skills and understanding of language application." (T2)

"The use of Kahoot! in the classroom assists in creating a competitive and interactive learning atmosphere. This platform not only enhances student motivation but also reinforces their comprehension of vocabulary and grammar within an educational gaming context." (T3)

"In harnessing Quizziz!, I design interactive quizzes to assess students' understanding of English language materials. This affords them the opportunity for self-directed learning while remaining engaged and enthusiastic." (T4)

"English language instruction in my classroom involves the utilization of media platforms such as YouTube, movies, Kahoot!, and Quizziz! as strategies to create a diverse and engaging learning environment. Consequently, students can develop their English language skills through enjoyable and meaningful learning experiences." (T5)

Discussion

Through a comprehensive analysis of the learning planning documents meticulously prepared by the five teachers, it was discerned that their lesson plans not only encompass but also integrate the seven components deemed relevant and in accordance with the criteria established within the TPACK (Technological Pedagogical Content Knowledge) framework. Each teacher appears to grasp the significance of formulating lesson plans that not only account for the subject matter content but also delineate methods to integrate technological knowledge and apply effective pedagogical approaches. It reflects their dedication to creating a holistic learning experience, amalgamating substantial aspects of the curriculum with the ability to manage technology and employ teaching approaches that motivate students. The success in implementing these seven components provides a positive overview of the teachers' efforts in crafting a utilitarian learning experience for student development. Consequently, lesson plans become not only pedagogical aids but also instruments capable of expediting the process of students' understanding and mastery of the subject matter. Nonetheless, the analysis also presents opportunities for continual refinement and development of instructional strategies. This finding aligns with previous studies asserting that lesson plans aid students in expediting the process of comprehending and mastering subject matter (Heidari & Heidari, 2020; Milkova, 2005; Putra et al., 2018).

This research reveals that participants are not merely executing the teaching process but actively engaging in the development of instructional materials. They comprehend

thoroughly that the success of learning depends not only on the mastery of content but also on the ability to formulate teaching materials that align with the needs of students, classroom situations, and learning objectives. Thus, they demonstrate a profound awareness of the importance of flexibility and adaptation in designing a curriculum that is responsive to the diversity of learning contexts. Furthermore, the findings indicate that the teachers do not underestimate the personal factors of students that can influence the English language learning process. They consider not only the students' backgrounds but also diverse learning styles, utilizing relevant instructional media. By incorporating these elements into the instructional planning, they create a more dynamic and inclusive classroom environment where each student can access learning in a manner consistent with their needs and preferences. Beyond adhering solely to conventional methods, the research participants also exhibit openness to technology in the learning process. The utilization of various platforms such as YouTube, films, Kahoot, and Quizziz signifies their efforts to make learning more engaging and interactive. By leveraging technology, they introduce variation in the learning approach, enhancing student motivation and facilitating a more effective understanding of the material. It is consistent with previous studies that underscore the pivotal role of teachers in facilitating effective classroom learning. (Singh, 2021; Szymkowiak et al., 2021)

Conclusion

Based on the findings, the analysis of the lesson planning documents prepared by the five teachers describes a meticulous incorporation and fulfillment of the seven components in accordance with the Technological Pedagogical Content Knowledge (TPACK) standards. Each teacher conscientiously devises lesson plans that consider not only the subject matter content but also integrate technological knowledge and effective pedagogical approaches. The successful implementation of these seven components reflects the teachers' commitment to providing a comprehensive and beneficial learning experience for student development. They appear to possess a profound understanding of the importance of crafting lesson plans as instruments that address not only the substantive content of the curriculum but also delineate strategies for technology management and teaching approaches capable of motivating students.

This study also illustrates that participants are actively involved in the creation of instructional materials, recognizing that the success of learning extends beyond content mastery to the formulation of teaching materials tailored to students' needs, classroom dynamics, and learning objectives. It underscores a deep understanding of the significance of adaptability and flexibility in curriculum design to address diverse learning contexts. Additionally, the findings suggest that educators acknowledge the influential role of personal factors in students' English language learning experiences, considering not only their backgrounds but also diverse learning styles while incorporating pertinent instructional media. The inclusive approach contributes to the

establishment of a dynamic and accommodating classroom environment. Going beyond conventional methods, the participants display a willingness to integrate technology, employing platforms like YouTube, films, Kahoot, and Quizziz to enhance engagement and interactivity in the learning process. Through such technological integration, educators introduce variety in the learning approach, fostering heightened student motivation and facilitating a more effective comprehension of the material. In essence, this research underscores educators' commitment to crafting a comprehensive and pertinent learning environment.

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