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IMPLEMENTATION OF TEACHING MODULES WITH THE TPACK APPROACH IN *TEMBANG MACAPAT* LEARNING

Yen Hestu Musyarofah[1], Suwarna[2], Sri Harti Widyastuti[3]
[1,2,3]Universitas Negeri Yogyakarta, Indonesia
Corresponding Author: yenhestu.2024@student.uny.ac.id

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Absract

This study aims to examine the implementation of a teaching module based on the TPACK (*Technological Pedagogical and Content Knowledge*) approach in the learning of *tembang macapat* at SMK Negeri 1 Kaligondang, Purbalingga. The focus of this research is to enhance students' understanding, interest, and skills through the integration of technology in learning, in line with the principles of the Merdeka Curriculum, which emphasizes the development of 21st-century skills: critical thinking, creativity, communication, and collaboration. This research employs a qualitative descriptive approach, with research subjects including the principal, Javanese language teacher, and students of SMK Negeri 1 Kaligondang. Data were collected through interviews, observations, and documentation, and analyzed using the Miles and Huberman model, which consists of data reduction, data display, and verification. The results of the study show a significant improvement in students' learning outcomes, with a 64.5% increase in *pretest* scores after the learning process. Furthermore, the implementation of the teaching module based on the TPACK approach also enhanced teachers' creativity and innovation in designing more engaging and relevant lessons, while motivating students to be more active in the learning process. Thus, the implementation of the teaching module using the TPACK approach proves to be effective in improving learning outcomes and the quality of *tembang macapat* instruction, as well as supporting the creation of a more adaptive and responsive learning environment in the face of technological developments and the educational demands of the 21st century.

Keywords: *Teaching module; TPACK approach; tembang macapat*

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INTRODUCTION

21st-century education requires a paradigm shift in teaching and learning methods to prepare the younger generation with the skills needed in the Industrial Revolution 4.0 era. The term for the various preparations in education to face this era is known as 21st-century learning (Rafiqoh, 2020). 21st-century learning is designed to integrate knowledge skills, competencies, attitudes, and mastery of Information and Communication Technology (Yunizar, 2022). One approach that teachers can take to address 21st-century learning is to design lessons in accordance with the 4C skills, which include: 1) Critical thinking skill, 2) Creative and innovative thinking skill, 3) Communication skill, and 4) Collaboration skill (Rosnaeni, 2021). With this learning design, teachers can use various technological tools, learning materials, methods, and instructional models that are relevant to the needs of students, enabling them not only to possess knowledge but also the ability to adapt and innovate in an ever-evolving world (Dewi & Insani, 2024).

The Merdeka Curriculum (*Kurikulum Merdeka*), which is implemented in Indonesia, is the government's step in facilitating learning needs in the 21st century. The Merdeka Curriculum is defined as a learning design that provides opportunities for students to optimize themselves in showcasing their natural talents, potential, and abilities through a calm, relaxed, and enjoyable learning process, free from stress and pressure (Rahayu et al., 2022). To support the implementation of the Merdeka Curriculum, relevant learning resources are essential (Supriyanto & Insani, 2025). One important learning resource for the successful implementation of learning in schools is the teaching module (*modul ajar*) (Maulida, 2022). A teaching module is a learning plan based on the curriculum that is applied with the goal of achieving established competency standards (Jannah & Irtifa', 2023). In this regard, the teacher's pedagogical competency in preparing the teaching module (lesson planning) is highly necessary to create effective and interactive learning. Teachers must also possess a deep understanding of technology to integrate it into learning.

However, in the context of teaching Javanese language, many teachers still use conventional, teacher-centered models that tend to be monotonous and rely solely on textbooks (Insani et al., 2024). In line with this, Kholiq et al., (2024) and Adnan et al., (2024) findings also revealed that most teachers have not integrated technology, which makes students quickly bored and less interested in learning. A study on the TPACK levels of Javanese language teachers in Central Java and DIY showed that, although teachers have high competency in Content Knowledge (CK), they have a higher negative tendency in technology-related dimensions (TK, TCK, TPK, and overall TPACK) (Insani et al., 2024). This limitation in technological literacy hinders teachers from developing diverse and innovative learning media, leading to low learning efficiency.

Field observations also indicate that many teachers still do not understand the proper procedure for compiling a teaching module. A learning process that does not plan the teaching module properly can result in unsystematic delivery of material to students, leading to an imbalance in learning between the teacher and the students (Salsabilla et al., 2023). In this regard, the teacher's pedagogical competency in preparing the teaching module is highly necessary to create effective and interactive learning. Teachers must be able to compile plans, content, and learning evaluations in accordance with the Ministry of Education, Culture, Research, and Technology's guidelines regarding Learning Outcomes (CP) according to the learning phase (Nuraini et al., 2023). Furthermore, in the digital era, teachers must also have a deep understanding of technology so they can integrate it into learning (Dewi et al., 2023). Thus, teachers must be capable of adapting and innovating in facilitating meaningful learning for students (Lukman et al., 2022). One relevant approach to optimizing lesson planning is through the TPACK (Technological Pedagogical and Content Knowledge) approach.

TPACK (Technological Pedagogical and Content Knowledge) is a framework used to effectively combine technology in education. The TPACK approach consists of three components: Content Knowledge (the teacher's knowledge of the material or content being taught), Pedagogical Knowledge (knowledge of teaching methods or strategies), and Technological Knowledge

(understanding the relevance of technology that can support learning) (Dewi et al., 2024). These three components (content, pedagogy, and technology), when used simultaneously, can create effective learning. By integrating TPACK, the learning process becomes easier and more enjoyable, and it enables students to learn independently because they are motivated by technology (Wahyuni et al., 2023). The TPACK approach can also enhance the 4C skills (Communication, Collaboration, Critical Thinking, Creative and innovative) as required in 21st-century learning (Chai & Kong, 2017). Thus, the TPACK approach can create a more meaningful understanding of the material and align with the characteristics of students in the digital era.

Javanese language learning is a compulsory local content subject that aims to preserve the noble values of Javanese culture which must be instilled in students as early as possible (Alfiah et al., 2020). One of the Javanese language learning materials that carries high cultural and noble values is *tembang macapat*, a traditional Javanese poetry form rich in meaning and philosophy (Zahra, 2018). *Tembang macapat* not only contains aesthetic elements in the form of poetry but also serves as a medium for conveying moral teachings and life values that have been passed down through generations in Javanese society (Anjarsari, 2022). However, the understanding and appreciation of *tembang macapat* often receive less attention in Javanese language learning in schools. Therefore, to revive interest and create a more meaningful understanding of the *tembang macapat* material, innovation in the preparation of teaching modules is necessary, one of which is through the TPACK approach.

The TPACK approach is one of the relevant approaches for optimizing lesson planning in the digital era (Koehler et al., 2013). The TPACK approach must adapt to complex cultural content. Given the specific and value-rich content of *tembang macapat*, this framework must be developed to accommodate the factor of complex cultural context. This will ensure that the selected technology and pedagogy explicitly support the preservation and critical understanding of cultural values (Haga, 2024).

Based on the description above, this research will discuss the implementation of teaching modules with the TPACK approach prepared by teachers in *tembang macapat* learning. It is hoped that this research can contribute knowledge and reference for teachers in preparing lesson plans that prioritize the integration of technology and content for a more engaging and comprehensive learning process. This research also seeks to connect cultural aspects, technology, and learning motivation into a unified whole that is mutually supportive, in accordance with the needs of students in facing the increasingly advanced and complex challenges of the era. By utilizing technology, *tembang macapat* learning not only becomes more interesting and interactive but also relevant to the daily lives of students who are accustomed to gadgets and digital media, making *tembang macapat* easier for the younger generation to accept and understand. Furthermore, this article also aims to internalize citations in the *Piwulang* journal that has published similar research, such as the study on *Media Pembelajaran Interaktif Serat Wulangreh Pupuh Gambuh Berdialek Ngapak* (Dewi et al, 2023).

METHODS

The type of research conducted in this study is descriptive qualitative. Qualitative research is a process of data collection in a natural way for the purpose of interpreting and analyzing phenomena where the researcher can be the main instrument. In qualitative research, data is not sought through statistical means or other quantitative measurement methods (Anggito & Setiawan, 2018). Furthermore, the descriptive method according to Sugiyono (2014: 21) is a method used to describe or analyze a research result, but is not used to draw broad conclusions. According to I Made Wirartha (2006), the qualitative descriptive method is to analyze, describe, and summarize various conditions and situations from various data collected in the form of interview results or observations regarding the researched problem that occurred in the field. This research will describe and outline the implementation of teaching modules with the TPACK approach in *tembang macapat* learning.

This research took place at SMK Negeri 1 Kaligondang, Purbalingga. The subjects for this study are the school principal, the Javanese language teacher, and the students at SMK Negeri 1 Kaligondang, Purbalingga. The primary data source in qualitative research is words and actions, with other additional data such as documents and others (Adipta, 2016). This means that the main data sources in this research are the information received from interviews with the research subjects, as well as the words and behavior of the people when the research was conducted. Furthermore, documents in the form of the *Merdeka Curriculum* and teaching modules with the TPACK approach in *tembang macapat* learning are additional data sources for comparison and to strengthen field data.

The data collection procedures in this study include interviews, observation, and documentation. Interviews were conducted by questioning the school principal, the Javanese language teacher, and the students of SMK Negeri 1 Kaligondang. This interview activity aimed to obtain in-depth information regarding the *Merdeka Curriculum*, the design of the TPACK-based teaching module, and the impact of its implementation in the classroom. The interview guide frequently used by the researcher is the "semi-structured" format. In this activity, the interviewer (the researcher) first asks several structured questions that have been prepared, then each previous question is explored in depth to obtain further information (Arikunto in Jannah, 2021).

The observation method is a data collection activity carried out by the researcher systematically, where data collection uses a standardized procedure (Arikunto in Jannah & Irtifa', 2023). In this case, the observation method was carried out through direct observation of the teacher's preparation of the teaching module and the implementation of learning in the classroom.

The next data collection procedure is the documentation method. This method is used to collect written data from a state and activity of the research subject (Sukmadinata, 2005). The documentation method is necessary as a complement that can strengthen or enrich the research data that is related to the research objectives, and as a secondary interpretation of events. In this research, the documentation method was carried out by collecting written data in the form of the TPACK Teaching Module, *Merdeka Curriculum* documents, and student *pretest-posttest* results as reinforcing data.

Data analysis in this study uses descriptive analysis. In this analysis, the data is interpreted descriptively and presented narratively. From the collected and arranged data, an analysis is then performed using qualitative descriptive analysis, which presents a description of the data obtained during data collection. The things that need to be described are the *Merdeka Curriculum*, the basic concept of the teaching module, and the implementation of the teaching module with the TPACK approach. In this research, the analysis used is the Miles and Huberman model (1992, 16-21), namely: 1) data reduction, 2) data display, and 3) verification.

Furthermore, data validity is highly necessary so that the research data obtained in the study can be accounted for. To check the data validity, the technique used is source and method triangulation. Triangulation is done by comparing and testing data originating from different sources (school principal, Javanese language teacher, and students) and different methods (interviews, observation, documentation) to accelerate the findings.

RESULTS AND DISCUSSION

The research activities were carried out at SMK Negeri 1 Kaligondang, Purbalingga in November 2024. The activities began with conducting interviews with the school principal, the Javanese language teacher, and the students of SMK Negeri 1 Kaligondang. The interview topics used included the *Merdeka Curriculum*, the design of the teaching module, and the implementation of the teaching module with the TPACK approach in *tembang macapat* learning. Subsequently, the researcher conducted an observation through direct monitoring of the teacher's preparation of the teaching module and its implementation in the classroom, the impact on students' interest and understanding, and the teacher's reflection after the lesson. While conducting interviews and observations, the researcher also documented every activity both in writing and in the form of images to collect data as reinforcement or enrichment for the research objectives. The results of these research activities are as follows:

1. Curriculum Analysis (Merdeka Curriculum)

The activities carried out in this stage included reviewing the Learning Outcomes (CP) of the *Merdeka Curriculum* at Phase F (SMK Grade XI and XII), specifically for the Javanese language subject, and determining the learning objectives. The results of the curriculum analysis, based on the "Guideline for the Local Content Curriculum of Javanese Language for Basic and Secondary Education Levels in Central Java Province in 2022," are as follows:

Table 1. Learning Outcomes and Learning Objectives for *Tembang Macapat* Phase F.

Learning Outcomes	Learning Objectives
Students are able to understand and evaluate information in the form of ideas, thoughts, views, directions, or messages from literary texts in the form of didactic literature (*sastra piwulang*) (for example: *wedhatama, wulangreh, wulangsunu, wulangputri, tripama*/others) to find the explicit and	Through learning activities using the scientific approach, Problem Based Learning model, discussion, question-and-answer, and presentation, students will be able to: 1. Paraphrase the *tembang macapat Pangkur Serat Wedhatama* creatively. 2. Conclude the content of the *tembang macapat Pangkur Serat Wedhatama* critically. 3. Sing/Chant (perform the song of) the *tembang macapat Pangkur Serat Wedhatama* accurately/correctly.

implicit meanings.	
Students are able to write ideas and thoughts in the form of *tembang macapat* literary text.	Through learning activities using the scientific approach, Problem Based Learning model, discussion, question-and-answer, and presentation, students will be able to: 1. Analyze the structure of the *tembang macapat Pangkur Serat Wedhatama* accurately. 2. Create the lyrics for *tembang macapat Pangkur* creatively.

2. Teaching Module Design with the TPACK Approach

The design of the teaching module using the TPACK approach in *tembang macapat* learning involves displaying links or QR Codes for applications used in the learning activities (introduction, core activities, and closing activities). The use of these QR Codes aligns with the implementation of AR (Augmented Reality) in Physics learning, which has been proven to support students in visualizing abstract concepts or phenomena that cannot be observed directly, thereby encouraging independent learning in practicing critical thinking (Bakri & Sunardi, 2022). The following is a summary of the TPACK integration featured in the teaching module:

Table 2. TPACK Integration in the Teaching Module.

Learning Steps	*TPACK*
Introduction	1. The teacher provides trigger questions through https://www.mentimeter.com/. 2. The teacher administers a diagnostic assessment in the form of a pre-test through the Wordwall application.
Core Activities	1. In the orientation stage toward the problem, students are directed to open a website to find problems about *tembang macapat*. (Critical Thinking) 2. In the organizing students stage, the teacher provides the opportunity to open the *tembang macapat* Teaching Material via a Canva slide/flipbook. (Collaboration) 3. In the guiding individual and group investigation stage, the teacher accompanies and monitors students in accessing the teaching materials uploaded in the flipbook. 4. In the developing and presenting works stage, students present using PowerPoint/Canva slides. (Communication) 5. In the analyzing and evaluating the problem-solving process stage, students take a post-test through the Wordwall application. (Creativity)
Closing Activities	The teacher provides learning reflection through Google Form.

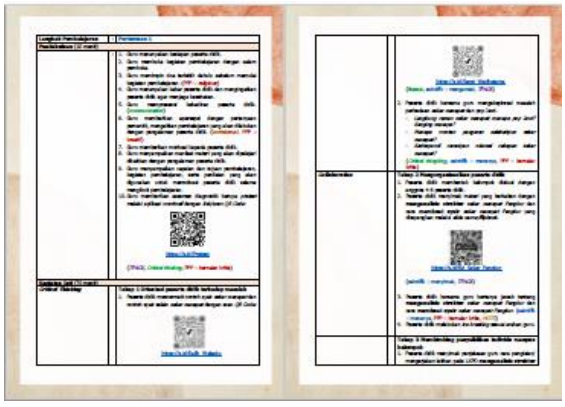

Figure 1. Display of the Teaching Module with the TPACK Approach

3. Impact of the Implementation of the Teaching Module with the TPACK Approach

The teaching module with the TPACK approach in this study was implemented in class

XII TP 2, SMK Negeri 1 Kaligondang. With the implementation of this teaching module, students' interest and understanding (learning outcomes) increased. This is proven by the learning outcomes in the knowledge and skills assessment (formative assessment), where student completeness reached 100%, as well as the increase in pretest-posttest results and student engagement in group discussions. The following is the table and graph showing the increase in student pretest and posttest results in *tembang macapat* learning:

Table 3. Increase in Pretest and Posttest Results

Activity	Pretest	Posttest
Number of Students	31	31
Number Completed (Passed)	5	25
Number Not Completed (Failed)	26	6
Percentage of Completeness	16.1%	80.6%

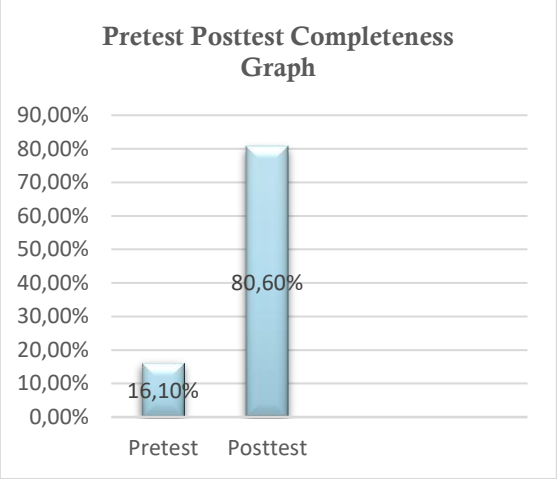

Figure 2. Pretest and Posttest Completeness Graph

Javanese language learning as a local content subject, as stipulated in the "Guideline for the Local Content Curriculum of Javanese Language for Basic and Secondary Education Levels in Central Java Province in 2022," must be taught with the aim of preserving the noble values of Javanese culture that must be instilled in students. Through Javanese language learning that emphasizes the instillation of noble Javanese cultural values, it is hoped that it can build superior student character (Alifah et al., 2020). In line with curriculum developments, the Merdeka Curriculum aims to build student character in order to reduce and overcome problems related to 21st-century student character (Arpianti, 2023). The *Merdeka Curriculum* also focuses on the development of moral and ethical values that are important for the formation of students' personality (Cahya, 2024). To achieve these results, varied learning that is relevant to the characteristics of 21st-century learning is needed.

Based on the *Merdeka Curriculum* analysis, this research focuses on Javanese language learning material: tembang macapat in Phase F (Grades XI and XII). The Learning Outcomes (CP) for the reading element of *tembang macapat* state that students are able to understand and evaluate information in the form of ideas, thoughts, views, directions, or messages from literary texts in the form of didactic literature (*sastra piwulang*) (e.g., *wedhatama, wulangreh, wulangsunu, wulangputri, tripama*/others) to find explicit and implicit meanings. Meanwhile, for the writing element, students are able to write ideas and thoughts in the form of *tembang macapat* literary text. Furthermore, the Learning Objectives (TP) for *tembang macapat* include: 1) Paraphrasing the *tembang macapat Pangkur Serat Wedhatama* creatively, 2) Concluding the content of the *tembang macapat Pangkur Serat Wedhatama* critically, 3) Singing the *tembang macapat Pangkur Serat Wedhatama* accurately, 4) Analyzing the structure of the *tembang macapat Pangkur Serat*

Wedhatama accurately, and 5) Creating the lyrics for *tembang macapat Pangkur* creatively.

The 21st-century learning paradigm emphasizes student skills to be able to think critically (Critical Thinking), collaborate (Collaboration), connect knowledge with the real world (Creative and innovative), master information technology, and communicate (Communication). Furthermore, in the Minister of National Education Regulation No. 16 of 2007, it is stated that one of the mandatory competencies for teachers is utilizing information technology for the purpose of conducting educational development activities. Thus, the challenges of 21st-century learning demand that teachers, as educators, be more capable of designing learning to be more engaging and meaningful, and that teaching and learning activities must be extended beyond the classroom boundaries (Prasetyo & Abduh, 2021). As in this study, the teacher designed the lesson plan by integrating TPACK into *tembang macapat* learning. TPACK plays an important role, ensuring that technology and pedagogy are explicitly chosen to support the mastery of cultural content (MacKinnon, 2017).

Tembang, according to the Great Indonesian Dictionary (KBBI), is poetry that is set to music (to be sung). The definition of *macapat* in Javanese culture is a form of traditional poetry, where each stanza has a certain number of lines (*guru gatra*), each line has a certain number of syllables (*guru wilangan*), and ends with a specific end rhyme sound (*guru lagu*) (Badan Pengembangan dan Pembinaan Bahasa, 2016). Thus, it can be concluded that *tembang macapat* is a traditional Javanese poetic verse that has specific rules for being sung. *Tembang macapat* learning is easier for students to understand and be interested in if the teacher plans learning (teaching modules) that encourages student independence and active participation in learning. In this study, the teacher developed a teaching module with the TPACK approach, including embedding links or QR Codes of applications or website addresses used in the learning activities (introduction, core activities, and closing activities).

In the introduction activities, the TPACK element is applied when the teacher gives trigger questions and diagnostic assessments. Trigger questions can be given through Mentimeter (https://www.mentimeter.com/). Mentimeter is an online application that allows users to display various diagram results of social interaction among a group of people. For example, polls or opinions submitted openly and briefly (Istiandaru & Prabowo, 2020). Mentimeter has the potential to maintain class interaction even when conducted remotely (Mentimeter, 2020). Furthermore, the teacher gives a diagnostic assessment in the form of a pretest through Wordwall. Wordwall is an application presented in the form of a game that aims to involve students in answering quizzes, discussions, and surveys (Purnamasari et al., 2022). By providing trigger questions and diagnostic assessments through these applications, students become more motivated and enthusiastic about receiving *tembang macapat* learning.

In the core activities, the teacher applies the TPACK element simultaneously with the 4C skills (*Critical Thinking, Collaboration, Creative and innovative, Communication*) as required in 21st-century learning. The learning model used in compiling this teaching module is Problem Based Learning (PBL). Problem Based Learning (PBL)

is a learning method that habituates students to solve problems and reflect on them with their experiences based on their prior knowledge, thus enabling the development of thinking skills (reasoning, communication, and connection) in solving meaningful, relevant, and contextual problems (Siswanti & Indrajit, 2023: 3). In this research, the Problem Based Learning model used is supported by presentation technology (Canva, PowerPoint). With technology, students' communication and creativity skills in interpreting and producing cultural content are modernized through digital platforms (Howard, 2021).

The Problem Based Learning stages are: 1) Orientation of students to the problem, 2) Organizing students for learning, 3) Guiding individual and group investigation, 4) Developing and presenting works, 5) Analyzing and evaluating problem-solving (Rosidah, 2018). In this case, learning uses real problems encountered in the environment as a basis for obtaining knowledge and concepts through critical thinking skills in problem-solving.

In the orientation to the problem stage, the skill honed is critical thinking (*Critical Thinking*) and the TPACK element applied is opening a website. Students are directed to open a website to find problems about *tembang macapat*. In the organizing student stage, the skill honed is collaboration (*Collaboration*) and the TPACK element applied is using Canva slides/Flipbook. The teacher gives students the opportunity to access *tembang macapat* teaching materials through Canva slides/Flipbook. In the guiding individual and group investigation stage, the teacher accompanies and monitors students in accessing teaching materials uploaded in the Flipbook. Furthermore, in the developing and presenting works stage, the skill honed is communication (*Communication*) and the TPACK element applied is PowerPoint/Canva slides. Students present the results of group discussions about *tembang macapat* using PowerPoint/Canva slides. Finally, in the analyzing and evaluating the problem-solving process stage, the skill honed is creative innovative thinking (*Creative and innovative*) and the TPACK element applied is using the Wordwall application. Students conduct the post-test through the Wordwall application.

A website is a collection of web pages with related topics, sometimes also accompanied by image files, videos, or other files (Sherley & Kurnia, 2021). Through the implementation of technology, especially websites, the *tembang macapat* learning process is expected to be more student-centered, so that learning outcomes will increase. Canva is a graphic design platform used to create social media graphics, presentations, posters, documents, and other visual content (Canva, n.d). Canva is a graphic design tool that helps users easily create and design various types of creative designs (Amini & Pujiharti, 2021). Teachers and students can be creative in creating interesting work that can be displayed as learning media in or outside the classroom (Masfufah et al., 2022). Engaging learning media can be a stimulus for students in the *tembang macapat* learning process. Thus, the Canva application can be an alternative learning media that can be used to increase students' interest in learning *tembang macapat*.

A Flipbook is one of the most widely used devices for mobile learning activities because it is interactive for students and a facility for teachers in explaining material. Besides being interactive, a flipbook is attractive to students because it

contains elements of animation, video, and audio that are certainly different from printed books (Altin et al., 2018). The use of a flipbook as digital teaching material in poetry material (*tembang macapat*) is an example of the existence of technology in facilitating Javanese language learning in Phase F (Grades XI and XII). This is in line with Agni's research (in Dayanti, 2021) that developing technology can be used as a learning facility. Pratiwi & Insani (2025) also revealed that flipbooks can make learning more interesting. Other research conducted by Mulyadi (2016) also shows that using a flipbook can help students understand learning material, especially material that is abstract, and students can learn independently, think creatively, and increase their interest in learning. By using digital teaching materials based on a flipbook, the *tembang macapat* learning material becomes easier for students to understand. In addition, the operation of the teaching material is easy, so it can increase students' interest and activity in *tembang macapat* learning.

PowerPoint is a presentation application program which is one of the computer application programs under Microsoft Office (Muthoharoh, 2019). This application can be used to create presentations that can be used as learning media. A PowerPoint presentation is a way used to introduce or explain everything that is summarized and packaged into several slides, so that the audience can better understand the explanation through visualization summarized in the slides, whether in the form of text, images/graphs, sound, movies, and so on (Purnomo, 2009). In this research, the PowerPoint application is used by students to present or display the results of group discussions about *tembang macapat*. Wordwall is one platform based on a website used as interactive and fun learning media by presenting various template variations such as quizzes, matching, anagrams, word scrambling, grouping, word search, and various other templates (Arrosyad et al., 2023). The Wordwall application is used for summative assessment (posttest) because this application is interesting and innovative as a learning resource, media, and a fun evaluation tool for students.

In the closing activities, the TPACK element is applied when the teacher provides learning reflection. This learning reflection is carried out to find out the student response after following the *tembang macapat* learning, related to how they felt after the learning, what they had learned, what chapter they had not understood, and what the expected learning process was so that students could easily accept and understand the learning material. In this case, the TPACK element used is the Google Form application. Google Form is a part of the Google Docs component provided by the technology giant Google (Santoso, 2019). Google Form is used for learning reflection because the application is already familiar to students, and it can be accessed for free and is quite easy to operate.

After the implementation of the teaching module with the TPACK approach, students found it easier to accept and understand the *tembang macapat* material. Students' interest and learning outcomes also increased, proven by the increase in pretest-posttest results and students' engagement in group discussions. Learning outcomes in the knowledge and skills assessment (formative assessment) reached a 100% completion rate for students, while the pretest and posttest scores increased by 64.5% (the pretest completion rate of 16.1% increased to 80.6% during the posttest). In addition, the

implementation of the teaching module with the TPACK approach also made the teachers more creative, innovative, and attractive in creating learning devices by integrating technology that could attract students' attention in the learning process. Thus, students responded faster to learning, their curiosity increased, and those who were previously uncooperative and tended to be indifferent in discussions became more active and willing to cooperate with their groups.

CONCLUSION

This research shows that the implementation of a teaching module with the TPACK (Technological Pedagogical Content Knowledge) approach in *tembang macapat* learning for Phase F (Grades XI and XII) can improve students' understanding, interest, and learning outcomes. By integrating technology into learning, such as the use of applications like Mentimeter, Wordwall, Canva, Flipbook, PowerPoint, and Google Form, the learning process becomes more interactive, engaging, and relevant to the characteristics of 21st-century learning, which emphasizes the 4C skills: 1) Critical thinking skill, 2) Creative and innovative thinking skill, 3) Communication skill, and 4) Collaboration skill. The TPACK approach in *tembang macapat* learning also helps students participate more actively, understand the material more deeply, and improve their ability to write and analyze literary texts. This is proven by a significant increase in the pretest and posttest results of 64.5% and a formative assessment completion rate that reached 100%.

Furthermore, the use of technology in this learning process has a positive impact on the creativity and innovation of teachers in designing more varied and interactive lessons, thereby creating a more enjoyable and motivating learning atmosphere for students. The integration of various digital applications allows teachers to present material in a more flexible and engaging way, which can adjust to the diverse learning styles of students. Thus, the implementation of the teaching module with the TPACK approach in *tembang macapat* learning not only improves learning outcomes but also shapes a more superior student character in accordance with the learning objectives in the *Merdeka Curriculum*, and supports the creation of a learning environment that is adaptive and responsive to the developments of the digital era.

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