Implementation of Technology-Enhanced Learning Media Based on Technological Pedagogical and Content Knowledge (TPACK) to Improve Student Engagement in PAI Learning

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ABSTRACT

This study aims to determine the implementation of TPACK-based learning media, to determine the increase in student learning activity, to determine the supporting and inhibiting factors for the implementation of TPACK-based learning media in increasing student activity in Islamic Religious Education subjects at SMA Wahid Hasyim 2 Taman Sidoarjo. This type of research is qualitative research with an inductive descriptive approach. Data collection techniques use observation, interviews and documentation. This study is based on the conditions of SMA Wahid Hasyim 2 Taman Sidoarjo. When the learning process, some students tend to be less active and unproductive in the Islamic Religious Education learning process. The results of this study are that the implementation of TPACK-based learning media in Islamic Religious Education subjects at SMA Wahid Hasyim 2 Taman Sidoarjo went well. In its implementation, Islamic Religious Education teachers at SMA Wahid Hasyim 2 Taman Sidoarjo have involved TPACK in the learning process. This can be seen from the learning planning that has been made by Islamic Religious Education teachers in the teaching module, students feel more interested in learning Islamic Religious Education because the methods used are not boring and there are always new things that can be learned through technology. The conclusion of the research results is that the implementation of TPACK-based learning media in Islamic Religious Education learning can increase student activity. It can be seen from the activity of students who were initially less active in learning showing an increase in active learning after the implementation of TPACK-based learning media.

1. INTRODUCTION

Education is the key to a country's success. Education gives the younger generation the opportunity to acquire the skills and knowledge needed to face future challenges. Culture is driven by education, which makes people creative and innovative. Education in Indonesia is very important and considered significant (Widiyono & Millati, 2021). Education must adapt to the rapidly changing and dynamic developments in the world to be more effective in preparing students for an ever-changing world. According to Fahrozy (2022), because the progress of learning faces many

obstacles, the Indonesian government is working hard to continuously improve the quality of education.

Education aims to improve the quality of life of the Indonesian people so that they can compete with other countries, as mentioned in Law No. 20 of 2003 Article 3: That the national education system must be able to ensure the equitable distribution of educational opportunities, the improvement of quality, as well as the relevance and efficiency of education management to face challenges in accordance with the demands of local, national, and global life changes, thus requiring a planned, directed, and sustainable educational renewal. In the era of modern globalization, education is very important to address the increasingly complex challenges of life in all fields. The quality of education must be improved at every level of education so that Indonesia has strong human resources that can help the country's development.

Islamic Religious Education is an important aspect aimed at producing individuals who are faithful, educated, possess noble character, and act in accordance with the principles of Islam. Islamic education is the teaching of Islamic concepts transmitted through generations in various ways and means. In Islamic education, the unlimited institutions include formal institutions, such as schools, as well as informal institutions, such as families, communities, and the environment. According to Dewi Masitoh, the rules or basic standards that serve as guidelines in practicing Islamic education are known as the fundamentals of Islamic education. Planning, implementation, and evaluation of Islamic education must be carried out by considering the foundations of Islam that are reflected in the principles of Islamic education (Dewi Masitoh, 2023).

Based on the observation results, the condition of SMA Wahid Hasyim 2 Taman Sidoarjo during the learning process shows that some students tend to be less active and unproductive in the PAI learning process. The lack of enthusiasm among students in participating in the learning process poses a challenge for teachers to engage students more actively in the learning process. Learning activity encompasses all the physical efforts of students by engaging in physical activities such as practicing skills like reading, listening, writing, and other activities, while the mental condition aspect is more related to the thinking stages to gain learning experiences so that the learning process can be considered successful (Purwati, 2020).

In this study, what is meant by learning activity is the effort of students to learn. Learning activity consists of the terms "active" and "learning," and it means the effort or learning activities carried out with great effort. Students' active involvement in the learning process can be observed through how actively they participate in the learning process. For example, they can participate in conversations, listen to explanations and solve problems, complete active tasks, compile reports, and present the results (Nurhayati, 2020).

TPACK (Technological Pedagogical Content Knowledge) is one example of a learning method that involves ICT. Technological Pedagogical Content Knowledge (TPACK) is a teacher's knowledge of how to use technological and pedagogical approaches to facilitate students' learning of

a particular topic. Mishra and Koehler explain that quality teaching and learning activities require a deep understanding of the closely related relationship between the three main sources of knowledge: technology, pedagogy, and content. They also explain how these three sources are implemented according to the principles of TPACK, which is an understanding of how the domains of knowledge principles interact in a complex manner (technology, content, and pedagogy) (Rizal et al., 2023).

Based on the observation results, SMA Wahid Hasyim 2 Taman Sidoarjo has long been implementing the TPACK approach, as seen from the availability of facilities such as LCD/Projectors in every classroom. The results of an interview with the PAI teacher, Mr. Drs. H. Abd. Malik, M.Pd.I, stated that with the implementation of technology in learning, students become more enthusiastic during the teaching and learning activities. Students become more free to express themselves in learning, making them more active. He said that students become more creative and their participation in class increases, such as asking and answering questions. The use of various technologies such as projectors, computers, the internet, and interactive learning software relevant to PAI material.

2. METHODS

The purpose of descriptive research is to explain the characteristics and facts of a certain number or area accurately and systematically (Ratnaningtyas, 2023). The data collection techniques for this research use observation, interviews, and documentation. Penelitian ini berlokasi di SMA Wahid Hasyim 2 Taman Sidoarjo. Sumber data pada penelitian ini didapat dari Wakil Kepala Sekolah SMA Wahid Hasyim 2 Taman Sidoarjo, Guru Pendidikan Agama Islam SMA Wahid Hasyim 2 Taman Sidoarjo, Siswa – siswi SMA Wahid Hasyim 2 Taman Sidoarjo. Dalam penelitian ini, peneliti menggunakan triangulasi sumber data yang bertujuan untuk memperkuat dan memvalidasi data atau kombinasi informasi dari satu informan dengan data dari informan lainnya melalui observasi, wawancara, dan dokumentasi terkait implementasi media pembelajaran berbasis TPACK untuk meningkatkan keaktifan siswa dalam mata pelajaran PAI di SMA Wahid Hasyim 2 Taman Sidoarjo.

3. RESULTS AND DISCUSSION

3.1. Implementation of TPACK-Based Learning Media in Islamic Education Subjects

According to Moleong (2012), the word Implementation refers to the realization of an activity and its transformation into a procedure, a way to perform or carry out an action, whether abstract or concrete. Implementation is an activity carried out by individuals or groups with the aim of achieving specific results (Arima, 2019). Meanwhile, according to Mamonto et al. (2018), implementation is not just an activity, but an activity that has been planned and executed according to certain norms and criteria. From the various opinions above, implementation is the process of applying or executing plans, ideas, policies, models, or systems to achieve specific objectives. In the

context of education, implementation involves concrete steps to ensure that the solutions or strategies that have been planned can function effectively in real practice. The series of implementation activities includes planning, execution, and evaluation. According to Mishra and Koehler, Technological Pedagogical Content Knowledge (TPACK) provides teachers with a new type of knowledge that integrates technology into learning (Sukaesih et al., 2017). According to Mishra and Koehler, Technological Pedagogical Content Knowledge (TPACK) is a new type of knowledge defined by how teachers integrate technology into the learning process (Koehler et al., 2013).

The implementation of TPACK in learning is an educational activity where teachers combine technology, pedagogy, and content knowledge into a cohesive whole that is reflected in lesson plans (RPP) or teaching modules to achieve learning objectives (Dayanti, 2021). Technology in the educational world is extensively utilized in learning because, in addition to assisting teachers in instruction, the use of technology in learning can make it easier for students to understand the material. The term technology integrated with pedagogy and learning content is known as Technological Pedagogical and Content Knowledge (TPACK). Mishra and Koehler state that Technological Pedagogical Content Knowledge (TPACK) is a new type of knowledge defined by how teachers integrate technology into learning (Koehler et al., 2013).

The implementation of TPACK in PAI (Islamic Education) learning has been in place for a long time. Mr. Drs. H. Abd. Malik, M.Pd.I and Mr. Syarifuddin, LC, as PAI teachers, feel that the application of TPACK in PAI learning greatly assists the learning process. The effects of TPACK are not only felt by the teachers but also by the students, who become more active, creative, and innovative. In relation to the implementation of TPACK in PAI learning at SMA Wahid Hasyim 2 Taman Sidoarjo, in line with the theory of Mishra and Koehler, the implementation of TPACK in PAI learning includes lesson planning, execution, and the process of using TPACK carried out by Mr. Drs. H. Abd. Malik, M.Pd.I and Mr. Syarifuddin, LC in the classroom. This research focuses on how PAI teachers and students at SMA Wahid Hasyim utilize technology in the learning process. Therefore, based on the research findings, the researcher concludes that the implementation of TPACK is present in the PAI learning process by PAI teachers, namely Mr. Drs. H. Abd. Malik, M.Pd.I and Mr. Syarifuddin, LC. In this regard, the school also supports this utilization. In addition to support, the school facilitates the use of technology media. This includes allowing students to use smartphones in learning, and providing LCD projectors in each classroom.

In the Government Regulation of the Republic of Indonesia No. 19 of 2005 concerning National Education Standards, Article 20 states that the planning of the learning process requires a learning plan that includes at least learning objectives, materials, teaching approaches, learning resources, and evaluation of learning outcomes (Al Anshory, 2020). The learning module consists of three parts: general information components, core components, and additional components. The general information components include school identity, initial abilities, Pancasila student profiles, student objectives, player suggestions, and learning models. The core components include learning

objectives, understanding of meaning, guided questions, learning activities, evaluation, and improvement and enrichment. The final part contains appendices that include student evaluations. When creating teaching modules for the curriculum, teachers can use various approaches. However, it is crucial to assess the conditions and needs of students, teachers, and schools (Maulida, 2022).

Technology in the field of education is widely utilized in learning because, in addition to assisting teachers in their instruction, the use of technology in learning can make it easier for students to understand the material. In relation to lesson planning, the PAI teachers at SMA Wahid Hasyim 2 Taman Sidoarjo, namely Mr. Drs. H. Abd. Malik, M.Pd.I and Mr. Syarifuddin, LC, have created teaching modules by integrating technology, pedagogy, and content within them. This demonstrates that SMA Wahid Hasyim has effectively implemented TPACK in the PAI subject. According to the Indonesian Government Regulation No. 19 of 2005 concerning National Education Standards Article 20, the planning of the learning process must include a syllabus and a lesson plan. These documents must minimally contain learning targets, teaching materials, teaching approaches, learning content, and learning evaluations. The learning process consists of three phases: the introductory activity, the main activity, and the closing activity (Al Anshory, 2020). In line with this theory, during the implementation of learning, teachers and students collaborate in the learning process using TPACK. This is evidenced by the researcher's observation that the learning process using TPACK was found, where the teacher began with a stimulus and students prepared the projector and PowerPoint. Students were grouped into three to four groups, and during the core activity, the groups took turns presenting in front of the class. After the presentations, a question-and-answer session and discussion were opened. In the closing activity, the teacher provided a stimulus and a conclusion regarding the material discussed.

In the evaluation of learning, teachers involve TPACK in assessing students. This can be seen from the observation results when, at the end of the lesson, the PAI teacher conducted an evaluation using educational assessment with technology, specifically Quizizz. Mr. Drs. H. Abd. Malik, M.Pd.I and Mr. Syarifuddin, LC also utilized technology to help compile students' grades using Excel, which were then uploaded to Google Drive. This is supported by research from Nursita (2022), which proves that using technological media facilitates teachers in providing learning evaluations to students. In this case, the evaluation of PAI learning with TCK greatly assists teachers in achieving the learning objectives for students.

Based on several research findings above, it can be concluded that in the implementation of TPACK in Islamic Education learning by Mr. Drs. H. Abd. Malik, M.Pd.I and Mr. Syarifuddin, LC, Islamic education teachers at SMA Wahid Hasyim 2 Taman Sidoarjo, the implementation of TPACK in PAI learning makes it easier for teachers to organize and realize the lessons. Although not all PAI teachers at SMA Wahid Hasyim 2 Taman Sidoarjo apply TPACK, it has been proven to facilitate both teachers and students in the learning process.

This is reinforced by research conducted by Swan & Hofer (2011) in (Fuada et al., 2020), which explains that the TCK component in TPACK has been shown to be effective in supporting teachers in understanding how to design lessons by integrating technology into classroom learning.

3.2 .Increasing Student Engagement in Islamic Religious Education Subjects

Student engagement refers to their involvement in learning that connects emotional abilities and focus with creativity. It is hoped that this can enhance their foundational skills, making them creative learners, capable of developing ideas, self-improvement, deep understanding, rational thinking, and good socialization (Afandi & Zuraidah, 2020). According to Bahri (2022), a teacher's ability to create effective learning strategies is one of the factors contributing to the success of achieving the objectives of Islamic Education (PAI). The application of TPACK in PAI learning facilitates both teachers and students in conveying the goals of PAI. One of the objectives of PAI learning is to have students actively participate in the learning process. Learning engagement encompasses all physical efforts of students through activities such as practicing skills like reading, listening, writing, and so on, while the psychological aspect is more related to the thinking process to gain learning experiences so that the learning process can be considered successful (Purwati, 2020). Based on research findings, it can be concluded that student engagement at SMA Wahid Hayim 2 Taman can be improved through the implementation of TPACK-based learning media. TPACK shows great potential in enhancing student engagement. By integrating technology, pedagogy, and content knowledge, schools can create a more dynamic and effective learning environment. Existing challenges must be addressed through careful planning and ongoing support to ensure the successful implementation of TPACK.

TPACK is an activity that contains a list of knowledge needed by educators to optimize teaching skills and understanding of subject matter by utilizing technology in the learning process. According to Taopan et al. (2020), the use of the Technological Pedagogical Content Knowledge (TPACK) framework in the teaching and learning process offers several advantages, such as motivating both teachers and students, creating a flexible and engaging learning environment, and providing opportunities for students to create meaningful work. Based on observations and interviews, the supporting factors for the implementation of TPACK in enhancing student engagement in the PAI subject at SMA Wahid Hasyim 2 Taman Sidoarjo consist of internal and external factors. Internal factors include students who tend to be active, making the learning process more dynamic. External factors come from outside the students, such as the availability of facilities from the school, enabling teachers to implement learning by integrating technology, pedagogy, and content.

According to Taopan et al. (2020), Technological Pedagogical Content Knowledge (TPACK) also has weaknesses, as educators face challenges when applying TPACK, which emphasizes the integration of content, pedagogy, and technology due to the continuous development

of technology. In other words, an educator must always be knowledgeable about technology and adapt to it, including network connections and technical issues; an innovative and resourceful teacher is needed to handle situations when technology does not function properly, providing relevant assignments. Before implementing technology in the learning process, a teacher needs to ensure that students can understand the material being taught with technology and not just focus on its usage. Research on TPACK is still limited and has not been extensively studied.

The implementation of TPACK-based learning media at SMA Wahid Hasyim 2 Taman Sidoarjo has great potential to enhance student engagement in Islamic Education subjects. However, the success of this implementation heavily relies on supporting factors such as the availability of technology, administrative support, teacher competence, student motivation, as well as collaboration and support from various parties. Conversely, inhibiting factors such as lack of infrastructure, time constraints, resistance to change, insufficient ongoing training, and ineffective evaluation need to be addressed to ensure the sustainability and effectiveness of this program. With the right strategies, SMA Wahid Hasyim 2 Taman Sidoarjo can achieve the goal of increasing student engagement through the implementation of TPACK-based learning media.

4.   CONCLUSION

From the description and discussion above, it can be concluded that (1) the implementation of TPACK-based learning media in PAI (Islamic Education) at SMA Wahid Hasyim 2 Taman Sidoarjo has been effective in increasing student engagement. In its implementation, the PAI teachers at SMA Wahid Hasyim 2 Taman Sidoarjo have incorporated TPACK into the learning process. This is evident from the lesson planning where PAI teachers create a more dynamic, engaging, and effective learning environment. (2) The student engagement at SMA Wahid Hasyim 2 Taman Sidoarjo, which was initially low, shows improvement in active learning after the application of TPACK-based learning media. This difference is noticeable when teachers use traditional methods, as students tend to become bored and sleepy, leading to lower engagement. However, when PAI teachers implement TPACK in the PAI subject, students not only become more active but also more creative. (3) The internal supporting factor for the implementation of TPACK learning media in enhancing student engagement in PAI at SMA Wahid Hasyim 2 Taman Sidoarjo is the willingness to collaborate between teachers and students in creating an innovative classroom atmosphere. Meanwhile, the external supporting factor is the availability of adequate facilities and infrastructure provided by the school. The internal hindering factors stem from either the teachers or students, such as teachers not emphasizing pedagogy and focusing solely on the students, or issues like a broken phone or students accessing the internet outside of the learning material. The external hindering factors include unstable internet, damaged facilities, or unavoidable occurrences such as power outages.

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