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Implementation of Technological Pedagogical Content Knowledge in Islamic Religious Education Learning

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ABSTRACT

Purpose of The Study: This study aims to analyze the planning of learning tools based on technological pedagogical content knowledge (TPACK), the implementation of TPACK in PAI learning in Fiqh subjects with Maqasid Sharia material, as well as students' results and responses toTPACK-based PAI learning.

Methodology: This study uses a qualitative approach with a case study type of research. The researcher acts as the main instrument as well as a full participant in the learning process in the classroom. The subject of the study is students in grades X-E6 of Wachid Hasyim 2 High School Taman Sidoarjo. Data collection techniques are carried out through observation, documentation, interviews, and learning evaluation.

Main Findings: The results of the study show that: (1) technological pedagogical content knowledge -based learning planning is carried out by integrating aspects of technology, pedagogy, and learning content into lesson plans, PowerPoint media, Educandy Studio, spinner games, learning modules, and evaluation instruments. (2) The implementation of TPACK is carried out through PowerPoint, Spinner Game, and Educandy Studio media which are applied through smart TV, and combined with interactive lecture methods (3) The implementation of TPACK has a positive impact on increasing learning motivation, learning understanding, and student activity in the classroom.

Novelty/Originality of this study: This study is an integrated research that examines the planning of TPACK-based learning tools, the implementation process in the classroom to the impact and response to student learning outcomes in a complete study, especially in Fiqh lessons at the high school level.

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1. INTRODUCTION

The modernization of digital technology has brought significant changes in various aspects of life, including in the world of education. The development of technology requires the education system to adapt to the demands of an increasingly interactive and modern era. Meanwhile, education is an individual effort by a person or group consciously to develop a person's individual potential, by changing behavior and attitude as a form of effort to mature themselves so that they are able to live meaningfully and be able to achieve happiness through training, teaching, and guidance in the family, community, and school environment [1]
. In the school environment, in the educational process, technology not only functions as a tool for the learning process, but can also be part of the learning strategy designed by teachers, which can have a positive effect on learning [2].

Changing times like today, the success of the learning process does not only depend on mastery of the material by teachers, but also requires teachers to have the ability to determine adaptive pedagogical strategies and be able to use technology appropriately. Because teachers are professional educators who are tasked with guiding, educating, training, and evaluating students to form knowledgeable, useful and characterful human beings [3]. Therefore, it is important for a teacher to be able to master all learning strategies. Among them, being able to apply technology effectively and systematically. However, the use of technology in learning does not automatically result in effective learning. Technology can run systematically and effectively if its use is in accordance with the character of the student, the characteristics of the material, the exact strategy used by the teacher, and clear learning objectives. Because the development of technological media not only increases student learning motivation, but can also strengthen the accessibility of materials, strengthen communication between students and teachers, and enrich learning methods [4].

Islamic Religious Education **(**PAI) is a religious education that focuses on teaching Islamic religious values in a conscious and structured manner to educate students to be able to understand, appreciate, believe and practice them in daily life sourced from the Qur'an and Hadith [3]. PAI is one of the fundamental subjects in educational institutions that has an important role in shaping students' morals, religious character, and spirituality. However, in practice, Islamic Religious Education learning in several schools, especially at the upper secondary level, as at Karanganyar State High School is still often traditional, as well as learning that focuses on teacher lectures, relies on textbook methods, manual whiteboards, and without implementing technology as a support for learning methods. Circumstances like this have the potential to make learning boring, monotonous, and less able to accommodate the learning needs of students in the modern era like today [5].

Islamic religious education has its own character, because it is not only oriented towards the mastery of knowledge, but also related to the appreciation, understanding, and application of religious values. Fiqh is one of the subjects in PAI, this lesson not only requires students to know Islamic law, but also understand its basis, purpose, and relevance to life. One of the materials taught in fiqh is *Maqasid Shari'ah*, This material requires conceptual understanding [6]. The students not only memorize the meaning and concepts *Maqasid Shari'ah*, but it is necessary to understand the objectives contained in the establishment of Islamic law and relate to problems in life. Therefore, learning in this material requires a teacher's strategy that can help students to understand the material effectively.

One of the relevant frameworks used to respond to such needs is Technological pedagogical content knowledge (TPACK). This framework is believed to be able to provide fundamental solutions to improve the quality of learning, because this concept combines the use of technology adaptively with pedagogical strategies that are relevant to the characteristics of Islamic Religious Education materials. Several studies have shown that the implementation of technological pedagogical content knowledge in Islamic Religious Education (PAI) learning has the potential to improve the quality of students in learning [7]. technological pedagogical content knowledge ogical pedagogical content knowledge emphasizes the importance of integrating technological knowledge, pedagogical knowledge, and understanding of learning content [8].

According to Kohler and Mishra, TPACK is the basis of technology-based teaching that requires teachers' understanding of how to represent learning concepts using technology and the application of constructive pedagogical techniques to teach learning content that is effective and easy for students to understand [9]. TPACK combines three main components, namely: knowledge of content *(content knowledge)* is a teacher's in-depth understanding of the material to be taught to students, pedagogical knowledge *(pedagogical knowledge*) is the teacher's understanding of effective teaching strategies and methods, this includes how to overcome students' learning difficulties, how to deliver and plan learning and how to provide effective answers. Then finally technological knowledge *(technological knowledge)* That is, understanding how to use technology and integrate it in learning effectively and knowing what media are most relevant to learning [10].

A number of studies have examined the implementation of technological pedagogical content knowledge in the context of education in schools. As per the research conducted by Zahro, that the concept of TPACK is able to increase student activity, this can be seen from the results of student learning [11]. Likewise, the research conducted by Kahfi, the implementation of the technological pedagogical content knowledge concept with the support of the media WORDWALL teerproven to increase students' interest and motivation to learn [12]. Research conducted by Khaliq also found that technological pedagogical content knowledge is very conducive to the learning process [13]. From several studies, it is shown that technological pedagogical content knowledge has an important role in improving the quality of learning by integrating technology in learning.

Although a lot of research on technological pedagogical content knowledge has been conducted, there is still a lot of room for in-depth study. Previous research is more likely to explain the implementation of TPACK in learning and its impact on students in learning, technological pedagogical content knowledge is still often understood to be limited to the use of digital devices or media only. In fact, the use of PowerPoint, Smart TVs, learning applications, or other digital media does not necessarily indicate the implementation of technological pedagogical content knowledge if it is not designed in accordance with learning strategies and material characteristics [14]. Meanwhile, studies that specifically explain the implementation of technological pedagogical

content knowledge in its entirety, starting from the planning of learning tools, implementation, to student outcomes and responses, are still very limited. In addition, the application of technological pedagogical content knowledge in PAI learning is not only influenced by technology, but it is necessary to see how technology can be combined with pedagogical strategies and the characteristics of learning materials. This gap is the basis for researchers to examine the implementation of technological pedagogical content knowledge starting from learning planning to student responses in PAI learning.

This research has an update on the depiction of the implementation of technological pedagogical content knowledge in PAI learning as a whole by paying attention to the relationship between planning, technology implementation, pedagogical strategies, and learning content, as well as student responses. The implementation of technological pedagogical content knowledge is studied through Fiqh learning with *Maqasid Sharia* materials by combining the use of digital media such as powerpoint through smart TVs, lesson plans, learning modules, group discussions, presentations, questions and answers, and digital games. This approach can describe how technology is integrated with learning content and pedagogy in the learning process that is relevant to student characteristics. This research is important, because the use of technology requires a strategy from a teacher and adjusting student characteristics, so that students can be actively involved in learning. It still needs to be studied more deeply. In addition, the implementation of technological pedagogical content knowledge needs to be considered from the planning stage of learning tools to the emergence of student results and responses, not only during the learning process.

Judging from some of these urgency, this research is important to answer the need to develop the quality of teachers in PAI learning with a focus on fiqh subjects through the implementation of technological pedagogical content knowledge. This research not only focuses on the extent to which technology is used, but this study aims to comprehensively examine the planning of technological pedagogical content knowledge -based learning tools, the implementation of technological pedagogical content knowledge learning by PAI teachers, student learning outcomes and student responses to technological pedagogical content knowledge -based PAI learning. Therefore, the researcher titled this research with "Implementation of Technological Pedagogical Content Knowledge in Islamic Religious Education Learning.

2. RESEARCH METHOD

This study uses a qualitative approach with the type of case study research (case study) that are descriptive. In the context of this research, the qualitative approach aims to to deeply understand the implementation process of learning-based Technological Pedagogical Content Knowledge in the context of PAI learning. This research was carried out at Wachid Hasyim 2 High School Taman Sidoarjo with a research focus on the planning process, implementation of technological pedagogical content knowledge, as well as student outcomes and responses to technological pedagogical content knowledge -based learning. This allows researchers to obtain an in-depth picture of the learning process, dynamics, and impacts that take place [15]. The subject of this study is students in class X E-6 of Wachid Hasyim 2 Taman High School who participated in the learning of PAI Fiqh subjects with Maqasid Shari'ah material totaling 43 students. In this study, the researcher is the main instrument that is directly involved in the data collection and interpretation process. Then it is supported by other instruments in the form of observation guidelines, interview guidelines, and documentation.

Data were collected through observation, interviews, and documentation. Observation was carried out during the learning process, where the researcher observed the learning state using the technological pedagogical content knowledge method. Meanwhile, interviews were conducted with five students of class X E-6 who were selected purposively, and supported by interviews with PAI teachers and the principal of Wachid Hasyim 2 Taman Sidoarjo High School. Documentation was used to obtain supporting evidence through images, documents or journal articles. The three techniques were used in an integrated manner to obtain a better picture of the implementation of technological pedagogical content knowledge.

The data analyst technique is carried out by means of data reduction, which is used to sort out the most relevant data. Then the presentation of data by describing and forming the data structure and the last one draws conclusions [16]. Next, a check of the validity of the data is carried out in several stages. Starting with the extension of observations, with the aim of completing the previous data that is incomplete. Then, the diligence of observation, which is aimed at re-confirming whether the data being studied is correct. Then the last is data triangulation, in this study the researcher uses source triangulation and triangulation methods [17].

3. RESULTS

3.1. Technological pedagogical content knowledge -Based PAI Learning Planning

Learning planning is a very important first step to determine the learning flow. In this study, the researcher developed a technological pedagogical content knowledge-based learning tool to support the success of the

teaching and learning process in Fiqh subjects with material *Maqasid Shariah.* The learning tools prepared include Learning Implementation Plans (RPP), teaching materials in the form of learning modules, learning media in the form of powerpoints, learning resources, and evaluation instruments used to measure students' level of understanding of the material learned.

The RPP prepared by the researcher integrates three main components of technological pedagogical content knowledge, in the form of technological aspects (technology knowledge), aspects pedagogues (pedagogical knowledge), and content aspects (content knowledge) [8]. The technological aspect is manifested by PowerPoint in delivering the material displayed on a smart TV, the use of media spinner to determine the group in charge of presenting randomly, and then the use of the Educandy Studio game to find out the level of students' understanding of the material. The selection of media is based on the researcher's consideration that students are more interested in interactive learning and involve visual elements.

The planning shows the relationship between the three main components of technological pedagogical content knowledge. A Technological Knowledge spec is seen through the use of Smart TV, PowerPoint, Educandy Studio, and digital spinner. The Pedagogical Knowledge aspect is seen in the use of interactive lecture strategies, questions and answers, group discussions, presentations, and evaluations. Meanwhile, the aspect of Content Knowledge is seen in the mastery and selection of Maqasid Sharia material by teachers. The results of this study show that the implementation of technological pedagogical content knowledge begins with the planning stage. Technology is not just chosen after the learning strategy has been prepared, but based on functions that are in accordance with the character of the students. Thus, planning is the initial stage that determines how the technological pedagogical content knowledge -based learning concept can be realized systematically and effectively in learning activities.

These results are in line with the technological pedagogical content knowledge framework that integrates technology, pedagogy, and content as the basis of learning planning. A teacher is not enough to only master the learning material, but must understand how to integrate materials, technology and pedagogy that suit the character of students. In this study, technology is used to strengthen the process of delivering material, increase student activity, and support evaluation activities. The findings also show that the function of teachers in teaching and learning activities is not only as a material presenter. However, teachers play the role of learning planners who determine goals, set strategies, choose materials, choose media, and design evaluations. Thus, technological pedagogical content knowledge -based learning planning shows the relationship between the technological pedagogical content knowledge framework and the function of teachers in managing the learning process in schools [10].

3.2. Implementation of TPACK in PAI Learning

Implementation-based learning Technological Pedagogical Knowledge in this study was carried out in fiqh subjects with material *maqasid shariah.* The implementation of learning is carried out based on pre-arranged learning tools that integrate elements of technology, pedagogy, and learning content in an integrated technological pedagogical content knowledge -based manner. In this learning activity, the researcher acts directly as a teacher who carries out the technological pedagogical content knowledge -based learning process in the classroom. In general, the implementation of fiqh learning here takes place through three main stages, namely preliminary activities, core activities, then ending with closing activities.

The preliminary activity began with greetings and apprehensions with students. Then the teacher divided the students into several groups through digital spinner media to carry out discussions. Furthermore, the teacher delivered the material using powerpoint media displayed on the smart TV. The use of digital media here does not replace the function of the teacher, but as a supporting means for teachers in delivering the material, the teacher still uses the method of interactive lectures, questions and answers and builds communication with students.

After the presentation of the material is completed, the teacher gives each group the opportunity to discuss the material that has been presented by the teacher before, then prepare the material to be presented in front of the class. Due to time constraints, only some groups get the opportunity to make presentations, while other groups are assigned to make questions. Discussion activities are designed to provide opportunities for students so that each student actively understands the learning material, can share understanding, exchange opinions, and develop critical thinking skills through interaction with group members and other group members [18].



Figure 1. The Group Discussion Process

After the presentation and question and answer activities were completed, the researcher continued learning by using educational games based on the Educandy Studio application. On this occasion, the group was tasked with playing Game Asked to answer questions related to the material *maqasid shari'ah* that have been studied before. The use of game-based learning media provides a more varied and not boring learning atmosphere. So that students not only receive passive learning, but also actively participate in learning activities [19].



Figure 2. Learning Evaluation with Educandy Studio

The implementation of technology media here shows that technology does not stand alone, because it is combined with pedagogy in the form of questions and answers, interactive lectures, group discussions, and presentations. Both are also combined with learning content in the form of maqasid sharia material books. This shows that technological pedagogical content knowledge has been well integrated between kindergarten, PK, and CK. Materials *maqasid shari'ah* is an aspect of content knowledge that students must understand, strategies in the form of questions and answers, interactive lectures, and presentation group discussions are aspects of pedagogical knowledge. Meanwhile, the use of technological media is an aspect of technological knowledge. These three aspects support each other in the learning process.

Overall, the implementation of technological pedagogical content knowledge -based learning in this study can run well. The integration of technology, learning strategies, and learning materials is able to create a more interesting learning atmosphere and increase student involvement in the teaching and learning process. Although there are still several obstacles such as the large number of students that make it difficult to supervise as a whole, time constraints, and some students have not actively participated in group discussions. The implementation of learning shows that the technological pedagogical content knowledge approach has great potential to support more interactive, active, and meaningful fiqh learning for students.

3.3. Student Outcomes and Responses to TPACK-Based Learning

Implementation of learning-based technological pedagogical content knowledge on the material *Maqasid Syariah*has a very good impact on students' understanding. Based on the results of observations during the learning process, the researcher found that the students responded very well by showing a fairly high level of involvement in following each stage of learning. This was seen from the beginning of learning when the teacher delivered the material using PowerPoint media applied through a smart TV. Most of the students paid close attention to the teacher's explanation and showed interest in the material delivered through PowerPoint.

This finding was also strengthened by the results of interviews with fiqh teachers who described the classroom conditions when the researcher was implementing technological pedagogical content knowledge in learning. He said that technological pedagogical content knowledge -based learning can increase students' motivation in learning. Learning with the technological pedagogical content knowledge method is very good if it runs according to the goal, because it is proven to increase students' motivation in teaching and learning activities, students look very enthusiastic in learning, and are active in discussing learning and questions and answers.

In addition to observation, students' responses also showed a tendency to be psychosive. The students considered learning that combines technological media, discussion activities and also learning modules to be more effective and not monotonous. The use of powerpoint and smart tv helps to present the material more clearly, while the use of educandy studio provides variety in presenting evaluation instruments. Based on the results of the interviews, the students also said that with the development of technology, it does not mean that we have to abandon conventional learning as a whole like notebooks or package books. According to them, books and modules are still needed to deepen and repeat the understanding of the material that has been explained by the previous teacher. One of the learners said:

"The media that I like besides the media is conventional media such as paper, notebooks or package books, I can repeat the lesson easily when the subject matter is in paper form"

This statement shows that students view technology as a complement, not a substitute for conventional media as a whole. They still need learning modules or package books as a reference to repeat the subject matter independently both in class and at home. Students also give positive responses to learning that uses group discussion and presentation systems. According to them, discussions and presentations help them understand the material well through the process of exchanging ideas with their group friends or outside their group. However, not all responses from students were positive. They also expressed criticism and suggestions on the implementation of learning that had been carried out. One of the inputs that emerged was that the success of TPACK-based learning was not only determined by the use of technological media, but also highly dependent on the teacher's ability to manage the classroom and deliver material to students.

"In my opinion, even though learning in the classroom has used technology, discussion, and presentation, the success of learning still depends on the teacher, how he can process the class well and fun, because sometimes there are teachers who have used technological media, but learning in the classroom is still boring and monotonous".

This statement proves that the role of teachers in the classroom is so important, technology media is not the only factor that determines the success of student learning, but how teachers can manage learning effectively is also important for the sustainability of teaching and learning in the classroom. In addition, the researcher also found several notes, including, in group discussions, not all students actively participate in discussions, this is due to the large number of students, so it is difficult for teachers to organize classes properly. Based on the findings mentioned earlier, it can be concluded that technological pedagogical content knowledge -based learning in fiqh subjects with material *Maqasid Shariah* at Wachid Hasyim 2 Taman Sidoarjo High School received a positive response from students. This learning not only has an impact on improving student learning outcomes, but also increases student involvement, interest in learning, and motivation to learn. Although it is not perfect overall and there are several aspects that need improvement, in general, the implementation of technological pedagogical content knowledge -based learning shows great potential to create PAI learning, especially fiqh, that is more effective, active, meaningful, and interesting for students.

Based on the results and discussion, this study produced several findings: First, learning planning is a very important first step to implement technological pedagogical content knowledge to support the success of the teaching and learning process in Fiqh subjects with *Maqasid Sharia* materials in particular. The integration of technology media is not carried out spontaneously during classroom learning, but is designed through the selection of strategies, materials, media, and evaluation instruments. Second, technology media functions optimally in the implementation of TPACK when combined with the right pedagogical strategy. The use of powepoint media, smart tv, educandy studio, and digital spinner will not run optimally if it is not combined with pedagogical

strategies such as interactive lecture activities, discussions, presentations, evaluations, and also combined with mastery of the material.

Third, the results and responses of students show a very good response to the implementation of learning based on Technological Pedagogical Content Knowledge with a positive tendency towards learning, this is evidenced by the active involvement of students in following each stage of learning. Most students are also able to answer questions very well, both given by teachers and other groups, students also consider learning more interesting and help students in improving their understanding of the material. Fourth, the main findings in this study show that the success of technological pedagogical content knowledge implementation does not only depend on the completeness of technology, but the ability of teachers to systematically integrate technology, pedagogy and content according to the needs of students and the characteristics of the material are very influential in learning success. Conventional media such as books are also still the favorite media of students in learning activities even though technological media is adequate. These findings show that adequate technological media is not enough to produce optimal learning. Instead, teachers need to understand the pedagogical function of technology used in learning and ensure that it truly supports the achievement of learning goals.

4. CONCLUSION

This study shows that the implementation of technological pedagogical content knowledge in the teaching of PAI in Fiqh subjects with Maqasid Syari'ah material at Wachid Hasyim 2 Taman Sidoarjo High School has integrated technology media, pedagogy and learning content in learning activities. The integration has been designed from the planning stage through the selection of learning tools, media, and evaluation, then applied in learning through the use of powerpoint, smart TV, educational studio, and digital spinners combined with learning methods that are relevant to the characteristics of the material. The implementation has a positive impact on students' understanding of learning. This is evidenced by the students' activity in learning and the ability of students to answer questions relevant to the learning material. The researcher also found that the effectiveness of technological pedagogical content knowledge implementation is greatly influenced by the ability of teachers to integrate technology, pedagogical strategies, and mastery of learning content effectively and systematically

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AUTHOR CONTRIBUTIONS

Conceptualization: M.A.; Methodology: M.A; Formal Analysis: M.A., A.F., and M.A.A.; Initial Draft Preparation: M.A.; Review and Editors: M.A, A.F, and M.A.A.; Supervision: A.F., and M.A.A. All authors have approved the published version of the manuscript.

INFORMED CONSENT STATEMENT

All subjects who have provided information and participated in this study, have obtained explanations and given consent before and after the research was carried out.

CONFLICTS OF INTEREST

The authors stated that this study does not have a conflict of interest that could affect the implementation and results of the research

USE OF ARTIFICIAL INTELLIGENCE (AI)-ASSISTED TECHNOLOGY

The authors in conducting the research and compiling this article, the researcher uses artificial intelligence (AI) to help create a basic framework for the research. And the data is obtained directly in the field through observation and interviews.

REFERENCES

[1] A. Pramudia and R. Ibrahim, "Islamic education in the perspective of the trimurti founder of the gontor islamic boarding school," *MODELING: Journal of PGMI Study Program*, vol. 11, no. 2, pp. 200–235, 2024, doi: https://doi.org/10.69896/modeling.v11i1.2035.

[2] M. Bate'e and D. Zebua, "The role of educational technology in learning," *IDENTIK: Journal of Economics, Education and Engineering*, vol. 03, no. 01, 2026.

[3] R. Hidayat, *Islamic Education "Guiding the Direction of Indonesian Islamic Education."* in 1. Medan: LPPPI, 2016.

[4] D. Rahmadani, R. Tizahara Onma, and Gusmaneli, "The use and utilization of digital technology in the teaching and learning process in the islamic boarding school environment," *Journal of Islamic Religious Studies*, vol. 8, no. 10, pp. 13–23, 2024.

[5] Y. M. Saputro, L. Asmara, dan Z. Fiddarain, "Implementation of the TPACK Approach in Islamic Religious Education Learning at SMA Negeri Karanganyar," *Ant*, vol. 3, no. 1, pp. 87–98, Apr 2025, doi: 10.23917/mier.v3i1.10079.

[6] S. Haryati and Chanifudi, "Integration of fiqh values in the islamic education curriculum," *El-Ta'dib Journal*, vol. 06, no. 01, 2026.

[7] H. Ahaya, I. R. N. Hula, and R. Bt. Hj. Bahri, "The application of technological pedagogical and content knowledge (TPACK) in meeting the needs of PAI Driving Teachers," *IHSANIKA*, vol. 3, no. 2, pp. 09–25, Mar 2024, doi: 10.59841/ihsanika.v3i2.2413.

[8] D. Kurniawan and M. A. Aqib, "Implementation of tpack-based learning using geogebra media on flat building materials," *WALADA: Journal of Primary Education*, vol. 05, no. 01, pp. 98–107, 2026.

[9] M. J. Koehler dan P. Mishra, *Handbook of Technological Pedagogical Content Knowladge (TPCK) for Education*, 1 ed. New York: Routledge for the Amarican Association of Colleges for Teacher Education, 2008.

[10] A. S. Akbar, P. A. Dharmayanti, and V. A. Nurhidayah, *Innovative Learning Models & Methods : Theory and Practical Guide*, 1 ed. Jambi: PT. Sonpedia Publishing Indonesia, 2023.

[11] L. Zahroh, "*The Application of the TPACK-Based Problem Based Learning Model to Improve the Activity and Learning Outcomes of IPAS in Phase B Students of Class IV Sd Negeri Sentang*," Master of Elementary Education Study Program, University of Jambi, Jambi, 2025.

[12] M. Khoiriyah, M. A. Kahfi, and M. Fahmi, "Implementation of the tpack (technological pedagogical and content knowledge) learning model in pai subjects through the wordwall platform at SMPN 35 Surabaya," *Journal of Islamic Education*, vol. 07, no. 02, pp. 11–31, 2025, doi: https://doi.org/10.70281/t4cb0794.

[13] Abd. Khaliq, "Explanatory factor analysis on islamic education teachers' level of technological pedagogical content knowledge (TPACK) at primary schools," *At Turots J. Pendidik. Islam*, vol. 6, no. 2, pp. 708–718, Dec 2024, doi: 10.51468/jpi.v6i2.754.

[14] M. Maimanah dan A. B. A. Majid, "Implementation of technology-enhanced learning media based on technological pedagogical and content knowledge (TPACK) to Improve Student Engagement in PAI Learning," *EDUSOSHUMS: Journal of Islamic Education and Sosial Humanities*, vol. 5, no. 1, pp. 74–83, 2025.

[15] Nadia Adiningrat and Meyniar Albina, "Application of Descriptive Approach Model in Educational Research," *QZ*, vol. 2, no. 1, pp. 196–204, Jun 2025, doi: 10.61104/qz.v2i1.275.

[16] Sri Yani Kusumastuti, Annisa Fitri Anggraeni, and Andi Rustam, *Research Methodology: Qualitative and Quantitative Approaches*. Jambi: PT. Sonpedia Publishing Indonesia, 2025.

[17] D. Susanto, Risnita, and M. S. Jailani, "Data Validity Examination Techniques in Scientific Research," *JQ*, vol. 1, no. 1, pp. 53–61, Jul 2023, doi: 10.61104/jq.v1i1.60.

[18] I. P. Sari and M. Kasduri, "The application of group discussion methods to improve students' understanding of islamic religious education materials at SMA PAB 4 Sampali," *Wisdom*, vol. 2, no. 4, pp. 01–11, Oct 2025, doi: 10.61132/hikmah.v2i4.1279.

[19] A. N. Firdaus and M. I. Ghonim, "The effect of the use of educational game-based media in indonesian language learning in elementary schools," *JSES*, vol. 2, no. 3, Des 2023, doi: 10.30651/jses.v2i3.20912.