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Transforming Islamic Religious Education Through the TPACK Approach in the Digital Era

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ABSTRACT

The development of the digital era requires teachers, especially in Islamic Religious Education (PAI), to be able to integrate technology into the learning process. However, many teachers still face obstacles in effectively integrating aspects of technology, pedagogy, and content. This study aims to analyze PAI teachers' understanding of the concept of TPACK and its implementation in the learning process. The method used is library research by reviewing relevant literature in the form of books, journals, and scientific articles. The results show that TPACK provides a comprehensive framework for teachers to synergistically combine technology, pedagogy, and content. The application of TPACK in PAI is able to create interactive, contextual, and learning experiences that is in accordance with the characteristics of students in the digital era, as well as assisting teachers in choosing learning strategies that suit their needs. Nonetheless, dynamic technological developments require teachers to constantly adapt and update their skills. In conclusion, this research emphasizes the importance of mastery of TPACK by PAI teachers as a strategy to increase the effectiveness and relevance of religious learning in the midst of ever-evolving technological advances

Keywords: Technology, Pedagogy, Content, Knowledge, PAI

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INTRODUCTION

The development of the digital era is increasingly visible, especially in the world of education. As the times develop, there will be changes, including in the world of Islamic education. As a teacher, he should have the ability that can support current learning. Teachers must be able to use technology to improve the quality of learning, and it can be implemented effectively. Technology in education is not just a digital tool, but also requires adequate understanding and insight to integrate technology, pedagogy, and lesson content.(Zamani Dzaki Aflah, 2023)

As a teacher, especially in Islamic religious education, it is important to have the ability to have *Technological Pedagogical and Content Knowledge* (TPACK) in the learning process so that teachers can find out about the right way or method that can be used when delivering learning to their students. (Ritonga et al., 2023) Concept *Technological Pedagogical Content and*

Knowledge (TPACK) is a framework for teachers to integrate technology in learning. *Technological Pedagogical and Content Knowledge* (TPACK) is more often used as a teacher's view in integrating technology into learning activities. *Technological Pedagogical and Content Knowledge* (TPACK) is used as a unit in interaction, pedagogic understanding, content understanding, and understanding of technology and transformation that occurs when combined. (Sari, 2022)

TPACK is a teacher's ability that makes it easier for students to understand Islamic religious education learning during the teaching and learning process. Teachers' knowledge in integrating technology in teaching and mastering content, broadly described in TPACK. A teacher's ability is not only to develop skills *Pedagogical* and *Content* in learning, but teachers must also be able to use technology creatively and innovatively so that learning is in harmony with development. Technology plays an important role in this day and age. Many activities, such as daily life activities, are done with the help of technology.(Mafida & Nurul, 1385)

Several studies have examined TPACK in the First Islamic religious education by Ais Isti'ana entitled "*Integration of Technology in Islamic Education Learning".* The results of the study show that the integration of technology in Islamic education has great potential to improve the quality of learning, as long as it is implemented with careful planning and adequate support.(Istanbul, 2025) The second is by Rama Armedi and Raihan Retriansyah Dilapanga entitled *"Moderate Character Development in Educational Learning"*. The results of the study show that to cultivate moderate character in PAI learning, it can be done with TPACK.(Armedi & Dilapanga, 2025)

Based on the above background, this research aims to analyze and identify concepts and understandings that Islamic religious education teachers can apply in the current digital era, namely with technology, pedagogy, and content. An Islamic religious education teacher in this era is required to master the changes that occur in the world of education with mastery and understanding of TPACK.

METHOD

The method used in this study is literature research *(library research)*, what is meant by literature research is a research activity that is carried out by collecting data in the form of books, journals, and the results of previous research related to the object of this research. The data collection method uses the help of the internet to search various references to books and previous research journals that are in accordance with the topic of research discussion.(Agustian & Salsabila, 2021)

The data collection technique used in this literature research is to find data about things or variables in the form of notes, books, papers or articles, journals, and so on.(Roesnilam &

Wiryo, 2020) The data analysis technique used in this literature research is the content analysis method (*content analysis*).(Putri, 2019)

RESULTS AND DISCUSSION

Konsep Tecnological Pedagogical Content Knowledge (TPACK)

TPACK is a concept of knowledge that integrates technology into learning effectively.(Saehu Abas et al., 2023) TPACK is a framework that integrates material, pedagogic and technological knowledge in certain learning and teaching contexts. TPACK is also a new knowledge for educators in order to realize an effective learning process, can develop a good learning environment and of course educators can integrate technology appropriately, in order to implement pedagogical knowledge in teaching.(Dayanti & Hamid, 2021)

TPACK *(Technological, Pedagogical, and Content Knowledge)* The framework used to design modern learning by combining three main elements, namely technology, teaching methods (pedagogic), and knowledge These three elements are combined into a single unit in the planning, implementation, and evaluation of learning, so as to be able to encourage the development of education in the era of digital technology.(Agustina et al., 2023)

TPACK or *Technological Pedagogical Content Knowledge* a relatively new form of knowledge that is very important for educators to master in today's digital era. This knowledge allows teachers to integrate technology effectively and meaningfully in the learning process so that they not only use digital devices, but also understand how technology can strengthen the consistency of materials and teaching strategies. More than just a concept of knowledge, TPACK has evolved into a comprehensive framework. This framework is used to examine and analyze the extent of teachers' understanding of the relationship between technology, pedagogy, and learning content.(Nurratri et al., 2024)

TPACK was first built by Lee Shulman (1986) on the basis of the PCK concept. In 2006 it was developed again by Mishra and Matthew J. Koehler by introducing the TPACK model by adding technological know-how.(Rahmatiah et al., 2022) This is in line with the concept of education in the 21st century where teachers are required to be able to master and apply technology in learning.

According to Mishra and Koehler, TPACK is a framework built from a combination of knowledge aspects, pedagogy, interaction of three basic knowledge, namely knowledge, pedagogy, mastery of learning materials (content) with technology that aims to facilitate the learning process. Koehler added that in using TPACK, a teacher, lecturer, tutor, instructor and other professions both in formal and informal education must measure and know the extent of mastery of the use of learning. This level of mastery is related to a person's ability to integrate technology in learning.(Zanthy et al., 2022)

There are several components contained in TPACK, which consist of 3 basic knowledge and 4 combined knowledge.(Mas'un & Saparudin, 2022) Here's the table:

Table 1. Components in TPACK

TPACK Components	Understanding	Application
Pedagogical knowledge (PK)	Knowledge that must be mastered by teachers in learning.	Teachers are able to Defining the approach learning, i.e. models, Strategies, Methods, and Techniques The Right in Deliver Learning that Means.
Content knowledge (CK)	The substance of the material that teachers must master in learning.	Teachers master the material Latest Teaching and References related to the teaching materials that conveyed, and able to integrate with the environment around students
Technology knowledge (TK)	Knowledge of the importance of technology integration in learning.	Teachers can design Media and teaching materials using a variety of Like software. Moreover Educators can access internet, such as Displaying Teaching Materials in PPt form using a projector.
Pedagogical content knowledge (PCK)	The selection of teaching methods, learning plans, and learning support facilities.	Teachers are able to Using analogies in the learning process accompanied by the provision of factual examples in daily life
Technological content knowledge (TCK)	How much influence does technology have on the development of a scientific discipline	Teachers can create Learning Media in the form of videos in explain the material that is abstract. Or Educators can Developing Content digital-based teaching.

Technological pedagogical knowledge (TPK)	Understand the advantages and disadvantages of technology in learning.	Through this TPK, teachers can understand the advantages and disadvantages of technology in learning to then be used as evaluation material.
TPACK	Comprehensive integration of technology, pedagogy, and knowledge content	Teachers apply Learning in which there is the application of technology such as PPT, projectors.

This TPACK framework can also shed light on effective teaching with technology. Applying TPACK to learning requires a context-bound understanding to fit the needs. All technologies must have advantages and disadvantages, therefore, the development of TPACK must start with relatively familiar technology.(Koehler et al., 2013)

Teachers will be easier in delivering material by utilizing existing technology. In line with what is conveyed by the implementation of TPACK, it is able to create independent and interactive learning. Teachers must be able to use technology so that the learning carried out is creative and innovative. The application of TPACK to each teacher is of course different.(Wardani et al., 2022)

Various kinds of learning can be packaged through various TPACK-based learning methods and models. One of them is the Problem Based Learning learning model. Through one of the Problem-based learning models with the TPACK approach, it will encourage students to build knowledge.(Widaningsih et al., 2023)

TPACK's approach in learning, teachers make pedagogic practice and concept understanding effective by integrating a technology. The technology used can be in the form of laptops, LCD Projectors, Microsoft Power Point as learning media, videos, youtube, smart phones, and the internet. The TPACK approach aims to develop teachers' creativity and skills in using technology in learning as well as to improve the learning experience of students. The use of the TPACK approach in learning trains and improves the learning experience of students in the use of technology, However, this TPACK approach is also adjusted to the background of the students. This approach is expected to make students more motivated and more active in learning so that the learning outcomes obtained increase and learning goals can be achieved.(Ajizah & Huda, 2020)

The TPACK approach can be simulated with a learning model that aims to train students to discover new insights independently with the guidance of teachers. One of the models that can be used is the PBL (Problem Based Learning) model. Learning models that attempt to allow

students to uncover new ideas independently with the instructor's direction can be used to mimic TPACK techniques. The PBL (Problem Based Learning) approach is one that can be used.(Pasaribu et al., 2024)

Tecnological Pedagogical Content Knowledge (TPACK) in Islamic religious education

Technological Pedagogical Content Knowledge (TPACK) in the context of Islamic religious education can help teachers teach religious values, knowledge, and skills in a relevant, interesting way according to the times. TPACK *(Technological Pedagogical Content Knowledge)* provides opportunities for PAI (Islamic Religious Education) educators to apply the learning approach needed according to the characteristics of students.

Integrating technology in developing teacher competencies to face rapid and complex technological developments. The actions that must be taken by teachers in integrating educational technology in the technological era are marked by digitalization to support the Islamic religious education learning model. The application of a learning model that integrates technology in learning offers collaborative learning, digital literacy, problem-solving, and honing students' thinking skills that are urgently needed in the digital era.(Armedi & Dilapanga, 2025)

To optimize the learning of Islamic religious education, teachers need to have skills and a deep understanding of TPACK, which includes technology, pedagogy, and learning content. This understanding will help teachers in utilizing technology effectively in the learning process. Teachers not only need to master the use of technological devices, but also understand how to integrate them to improve the effectiveness of learning and teaching. A good mastery of TPACK allows teachers to choose and apply technology tools and resources that are appropriate to the material, content, and learning objectives. TPACK's integrated Islamic Religious Education (PAI) learning involves effectively combining content knowledge, pedagogy, and technology. Teachers should plan and implement learning activities that incorporate an understanding of Islamic religious material, appropriate teaching strategies, and appropriate use of technology.(Aswandi & Quddus, 2025)

The TPACK model is particularly relevant to face educational challenges in an era where technology is increasingly becoming an integral part of education. In the context of Islamic religious education, for example, the application of TPACK can help teachers in conveying religious materials by utilizing various digital platforms and technological tools to create a more interesting and contextual learning experience.(Astuti et al., 2024)

Implementation *Technological Pedagogical and Content Knowledge (*TPACK) in Islamic Religious Education starts from teachers who must design, prepare, and set a Learning Implementation Plan (RPP) first as a guideline for learning activities, then applied in learning activities by integrating technology, pedagogy and learning content.*Technological Pedagogical*

and Content Knowledge (TPACK) is a learning that can be applied to all subjects, *Technological Pedagogical and Content Knowledge* (TPACK) is an appropriate concept as an instrument for the implementation of Islamic Religious Education (PAI) in education in the digital era.(Sari, 2022)

TPACK has several advantages, the TPACK learning model has a number of advantages, one of which is able to present a different approach from the previous learning model. Integration with computer technology has made a real change in the world of education, so that traditional learning can transform into more modern. The implementation of TPACK also brings many benefits and has a positive impact on the student learning process. In addition, students acquire new skills through the use of learning models that integrate technology in them.(HERMANSAH et al., 2024)

Technological Pedagogical Content Knowledge (TPACK) also has several shortcomings, including technological advances that continue to develop into a challenge for an educator in implementing the TPACK framework that focuses on a combination of content, pedagogics, and technology. This means that an educator must always be up to date regarding information about technology and adjust to technological knowledge, internet connection and technical problems, an educator is creative and wise to deal with situations when technology cannot function as it should. Providing meaningful tasks, before using technology in learning, an educator must ensure that the material to be delivered can be understood by students with the help of technology, not just focusing on how to use technology. TPACK offers a comprehensive framework for integrating technology in learning. By implementing TPACK, teachers can create a more effective, relevant, and meaningful learning experience for students.(Tasi, 2024)

CONCLUSION

The application *of Technological Pedagogical Content Knowledge (TPACK)* in Islamic Religious Education (PAI) learning is very important to answer educational challenges in the digital era. PAI teachers are not only required to master content and pedagogy, but also to be able to integrate technology creatively and effectively so that learning is more contextual, interactive, and meaningful. This mastery of TPACK allows teachers to design learning that is relevant to the needs of students while in line with the times. These findings reinforce TPACK theory as a comprehensive approach in 21st century education, particularly in the context of religious learning. The main contribution of this research is to expand the understanding of how TPACK can be adapted to improve the quality of PAI learning, as well as to encourage teachers to be more creative and responsive to educational technology developments The main contribution of this research is to expand the understanding of TPACK adaptation in PAI, as well as encourage teachers to be more creative and responsive to educational technology developments.

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