Analysis of Pedagogical and Professional Competence in Utilizing Technological Pedagogical Content Knowledge (TPACK) of Islamic Education Teachers

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Abstract. The use of TPACK in Islamic education instruction at SMP Muhammadiyah 1 Gondangrejo Karanganyar in 2022 became a study on teacher professional and pedagogical competence. The objective of this research is to investigate the supporting and inhibiting factors influencing the pedagogical and professional competence of teachers in utilizing Technological Pedagogical Content Knowledge (TPACK) in the context of Islamic education and the pedagogical and professional competence of Islamic education teachers in Gondangrejo Sub-district, Karanganyar District, at SMP Muhammadiyah 1 Gondangrejo. This research adopted a descriptive and qualitative field study approach. The subjects of this study were Islamic Education (PAI) teachers at SMP Muhammadiyah 1 Gondangrejo, located in Gondangrejo sub-district, Karanganyar District. In-depth interviews, observations, and document analysis were employed for data collection, and then the data were subjected to data reduction, presentation, and inference as the primary data analysis methods. This research presented several findings: 1) teachers effectively utilized TPACK in Islamic education pedagogy, demonstrated the ability to develop instructional materials, leveraged digital technologies for instructional development, and created IT-based teaching resources. Teachers could use the internet to fulfill their instructional media requirements in teaching. 2) Regarding professional competence, teachers could effectively deliver instructional materials and identify appropriate strategies and models for their students. When teachers employ TPACK, they can effectively utilize technology to plan their lessons and guide classroom activities. The internet enables teachers to deliver instructional content. However, the implementation of TPACK does not significantly influence student motivation. Considerable gaps exist in pointing teachers' instructional models and strategies, and the infrastructure is inadequate. At SMP Muhammadiyah 1 Gondangrejo has supporting factors include IT-based instruction and organize workshops at the school to enhance teachers' understanding of religious perspectives.

Keywords: Pedagogical and Professional Competence · Islamic Education Instruction · TPACK

1 Introduction

Primary, middle, and secondary education are the three levels of formal education. Through mentoring or training, education can also be considered a deliberate effort to prepare students for future tasks. The holistic development of individuals is the ultimate goal of national education. A person with noble character, knowledge, competence, and responsible personality in society and the nation, faithful and devoted to the One Supreme God. Islam teaches not only *Ubudiyah* (the practice of worship), such as prayer, fasting, and others, but also social ethics, which people use as a tool for social control. It makes Islam one of the religions that provides a comprehensive and robust educational concept for the prosperity of the people. One of the comprehensive teachings of Islam is the Quran and Hadith. This exposition includes scientific and educational matters taught by Prophet Muhammad SAW (PBUH) regarding an individual's personality according to the Quran, particularly QS. Al-Qalam/68: 1–4. It is mentioned below:

نَ ۚ وَالْقَلَمِ وَمَا يَسْطُرُوْنَّ ١ مَاۤ اَنْتَ بِنِعْمَةِ رَبِّكَ بِمَجْنُوْنٍ ٢

وَاِنَّ لَكَ لَاَجْرًا غَيْرَ مَمْنُوْنٍّ ٣ وَاِنَّكَ لَعَلٰى خُلُقٍ عَظِيْمٍ ٤

Meaning: *1. By the pen and what everyone writes! By the grace of your Lord, you ⌜O Prophet⌝ are not insane 3. You will certainly have a never-ending reward, And you are truly ⌜a man⌝ of outstanding character* [1].

According to the above verse, Prophet Muhammad SAW had a noble character, which should be an example for all teachers to follow when using their competence to teach in education or learning activities in attitude and behavior [2]. A teacher should possess the character of Prophet Muhammad SAW, be able to learn new things, write, and effectively communicate with people around them. These are the skills the teachers are required to possess. According to Law Number 74 of 2008 concerning teachers, competence is a set of knowledge, skills, and behaviors that must be possessed, mastered, and practiced by teachers to fulfill their professional responsibilities. A teacher's ability to implement a series of learning activities is one of the keys to success in education. Since they are responsible for carrying out the educational process, teachers require expertise in this field. Thus, the outcomes of experiences depend on how educators teach. Teachers need competence to support their responsibilities to perform their tasks effectively and efficiently. Professional, pedagogical, personal, and social competencies are examples of skills or abilities teachers possess in fulfilling their role as educators. Teachers must continuously strive to develop these skills to create effective learning. It can be said that teachers are the "frontline of innovation in success" when it comes to their responsibility to monitor or develop learning. On the other hand, a teacher becomes a mandatory professional who can fulfill the competence requirements to maximize their tasks and authority, even though the actual conditions has caused concern in terms of a teacher's quantity, quality, and professionalism [3]. Educators become allies of values in public, creating positive learning conditions and ensuring school outcomes. Hence, educators must develop their abilities, particularly in academic skills and expertise.

Pedagogical competence, which encompasses the ability to learn, plan, implement the evaluation process of learning, and use the results to unlock students' various potentials, is a crucial skill emphasizing the mastery of theoretical knowledge and practical application in teaching. Pedagogical competence includes the teacher's learning management, mastery of instructional materials, understanding of students, utilization of information technology, adoption of effective teaching models, curriculum development in the learning process, assessment of learning, and student potential development within school-based learning activities. Instead, the capacity of teachers to impart knowledge and skills to students to enhance their personal development constitutes professional competence. According to the Teacher and Lecturer Law, teachers are recognized as professional educators whose primary duties include educating, teaching, guiding, directing, training, assessing, and evaluating students in formal education, including early childhood, kindergarten, primary, middle, and high school. A teacher must eager to enhance professionalism to attain national educational goals, and it is reasonable for the government to enhance their professional competence. Professional competencies primarily relate to those closely associated with the teaching profession. Teachers are expected to fulfill professional competencies in the following areas: mastery of effective teaching methods, creation of the model lesson unit, understanding of the curriculum, classroom teaching competence, role modeling for students, provision of useful guidance, proficiency in guidance and counseling approaches, as well as designing and implementing procedures for assessing learning abilities. Hence, every teacher must possess professional competence to improve student learning outcomes.

Understanding teacher competencies has become a crucial component of Indonesia's education program to prepare teachers to utilize technology in the classroom to address current issues [5]. A favourable framework for understanding how educators can integrate technology into classroom instruction is the Technological Pedagogical Content Knowledge (TPACK) approach [6]. In addition to a new type of knowledge, TPACK has evolved into a framework that can be utilized to analyze teachers' knowledge of instructional integration. Since the COVID-19 pandemic, TPACK has gained fame, with its implementation observed in various school levels and *Madrasah* (Islamic junior high schools) from early childhood education, kindergarten, primary schools, middle schools, and high schools, as well as tertiary institutions across Indonesia. Currently, SMP Muhammadiyah 1 Gondangrejo, Karanganyar, employs TPACK-based learning to develop teacher competencies and improve classroom learning facilities. These competencies include pedagogical and professional competence, which are vital for teachers in this era. As the frontline of education, teachers must possess strong competencies and be capable of providing meaningful learning experiences for their students. Current quality education is significantly influenced by teacher competence, which plays a crucial role and significantly affects the learning process and fosters stronger competencies to realize an excellent and reputable *Madrasah*. In addition to their essential role and fundamental position, teachers are responsible and committed to carrying out education in *Madrasah*s. Therefore, their professionalism as the primary agents and facilitators in the learning process greatly influences the realization of various educational programs in schools. SMP Muhammadiyah 1 Gondangrejo is one of several formal educational institutions in the Gondangrejo Sub-district of Karanganyar District. The facilities and

infrastructure for learning activities are adequate and the teaching media used at SMP Muhammadiyah 1 are also satisfactory. Teachers possess varying levels of competence in the teaching and learning process, but this study specifically focuses on Islamic education (PAI) teachers, aiming to analyze their pedagogical and professional competencies in teaching Islamic education by utilizing TPACK. The researcher was interested in conducting this study at SMP Muhammadiyah 1 Gondangrejo because the Islamic education teachers have demonstrated proficiency in implementing technology-based instructional processes and have a highly competent utilization of technology. It is particularly fascinating as the teachers at SMP Muhammadiyah 1 who not only serve as Islamic education teachers but also hold additional roles such as Head of Curriculum and DAPODIK (Basic Education Data) Operator. Based on the background mentioned above, the researcher conducted a study entitled "Analysis of Pedagogical and Professional Competencies in Utilizing Technological Pedagogical Content Knowledge (TPACK) of Islamic Education Teachers at SMP Muhammadiyah 1 Gondangrejo, Karanganyar".

2 Theoretical Framework

2.1 Literature Review

Adrian and Agustina (2019:175–181) conducted a study that focuses on four competencies that teachers need to possess as agents of change in the era of Industry 4.0. The study emphasizes the proactive role of teachers in utilizing technological advancements in conjunction with the four identified competencies. While this study shares similarities with the present research in terms of examining pedagogical and professional competencies, it did not specifically explore the utilization of TPACK.

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Rochaendi et al. (2021:20) researched the pedagogical and content competencies of public and private elementary school teachers in Cimahi, West Java. The study emphasizes teachers' need for creative content and pedagogical knowledge to manage engaging learning experiences effectively. While this study aligns with the present research in exploring pedagogical competencies within the TPACK framework, it did not focus on the professionalism of Islamic education instruction using TPACK.

Nursiah Sappaile (2017:66) conducted a study on the influence of pedagogical and professional competencies on teachers' professional attitudes and performance assessment in primary schools in East Jakarta. The study found a positive influence of pedagogical and professional competencies on teachers' professional attitudes. This study aligns with the present research in investigating pedagogical and professional competencies; however, it did not explore the use of TPACK concerning these competencies.

Fitri Indriyani et al. (2021:705) studied the improvement of teachers' pedagogical competencies through training in developing thematic teaching plans based on TPACK. The training enabled teachers to create subject-specific pedagogy (SSP) plans based

on TPACK, including using TPACK-based lesson plans, digital teaching materials, and interactive media to support thematic teaching. This study shares similarities with the present research, focusing on pedagogical competencies and their enhancement through TPACK-based teaching. However, it did not examine professional competencies in teaching.

2.2 Theoretical Review

2.2.1 Pedagogical Competence

The efforts of teachers to manage learning programs that involve the ability to collaborate with students are referred to as pedagogical competence. It involves designing and implementing learning programs and evaluating them [7, 8]. The ability to manage learning activities and understand the characteristics of students to realize their various potentials is recognized as pedagogical competence [9, 10]. According to Sumardi [11], pedagogical competence is the continuous ability to assist students in understanding and managing the learning process, evaluating learning outcomes, and developing their various potentials. The pedagogical competencies listed in the teacher competency standards of the Minister of National Education Regulation No. 16 of 2007 are as follows:

1) Comprehending students' physical, moral, spiritual, social, cultural, emotional, and intellectual characteristics.
2) Understanding learning theories and their foundations.
3) Organizing educational instruction.
4) Facilitating students' realization of their various potentials through facilitative methods.

2.2.2 Professional Competence

The ability related to the mastery of instructional materials in a broad and in-depth field of study is considered professional competence. It includes mastery of the school curriculum, instructional materials expertise prioritized over the curriculum, and the addition of knowledge as a teacher [12]. Educators' capability also includes creating comprehensive and extensive teaching materials that help students fulfill competency standards and demonstrate a commitment to continuous personal development [13, 14]. The intended professional competencies for achieving specific goals are as follows:

1) Expertise in the relevant instructional materials taught comprehensively.
2) Expertise in understanding various general fields of study related to their expertise.
3) Experience in curriculum development [12].

Through guidance, teaching, training, and experiential learning, Islamic religious education is a deliberate and planned effort to prepare students to recognize, understand, believe in, commit taqwa (Islamic Piety), and apply the teachings of Islam based on the primary sources of the Quran and Hadith. Thus, Islamic education is an interactive process where educators and students work together to acquire knowledge and believe in, internalize, and practice Islamic teachings. Educators need to master not only the instructional materials, teaching strategies, and methods but also the media and learning tools to carry out the teaching activities. Additionally, educators must create situations

and conditions to ensure that the teaching and learning process proceeds as planned and achieves the desired goals. To ensure effective student learning, teachers play a crucial role in the learning process by continuously developing a learning environment and fulfilling their responsibilities in the classroom to the best of their abilities.

Technological Pedagogical Content Knowledge (TPACK) is a method of mastering technological, pedagogical, and material aspects of connected knowledge if combined [15]. By considering various content applied to education in solving problems encountered by students and in building knowledge to improve new epistemologies or strengthen the existing ones, TPACK can also be interpreted as a design of teachers' needs when proportionally using technology [16]. Therefore, integrating these aspects aims to provide recommendations to teachers in creating educational content using the teaching methods that are effective and using technology-based media.

3   Research Method

3.1   Research Type

Technological Pedagogical Content Knowledge (TPACK) is a method of mastering the aspects of technology, pedagogy, and integrated content knowledge [15]. By considering various educational content applied to solving students' problems and building knowledge to enhance new epistemology or strengthen existing ones, TPACK can also be interpreted as the design requirements for teachers when using technology proportionally [16]. Therefore, integrating these aspects aims to provide recommendations to teachers for creating educational content using effective and technology-based media and teaching methods. The head of the *Madrasah* and Islamic education teachers for the academic year 2021/2022 provided the initial information to implement this research. The depth of information obtained is determined by using the following data sources:

a. Primary Data: Important information was collected by researchers with the specific purpose of addressing the research problem. The researcher collected data directly from primary sources or the location where the research was conducted. Data were obtained through interviews with Islamic education teachers at SMP Muhammadiyah 1 Gondangrejo, Gondangrejo Sub-district, Karanganyar District.
b. Secondary Data: The collected data were to solve the problem, and they can be promptly established through literature research. Literature, articles, journals, and the internet related to the research topic served as secondary data sources in this study. The collected data through observations at SMP Muhammadiyah 1 Gondangrejo, Gondangrejo sub-district, Karanganyar district, were improved and complemented by these secondary data.

3.2   Research Approach

The term "data sources" in this research refers to the subjects from whom the data were obtained. The researcher used questionnaires or interviews for data collection, so the data sources referred to as respondents. Additionally, the researcher utilized observation techniques, where the data sources can be moving objects or processes. Documentation was also used, where documents or records served as data sources [19].

3.3 Sources and Data Collection

The sources of data used to determine the depth of information obtained are as follows:

a. Primary Data: Data were collected by the researcher with the specific purpose of addressing the research problem. The researcher collected data directly from primary sources or the location where the research was conducted. Data were obtained from interviews with Islamic education teachers at SMP Muhammadiyah 1 Gondangrejo, Gondangrejo Sub-district, Karanganyar District.

b. Secondary Data: Data were collected to solve the problem which can be promptly established through literature research. Secondary data sources include relevant literature, articles, journals, and internet sites related to the research topic. These secondary data enhance and complement the information collected through observations at SMP Muhammadiyah 1 Gondangrejo, Gondangrejo Sub-district, Karanganyar District.

3.4 Data Collection Technique

a. Interview: It is a communication technique between the interviewer and the interviewee. Structured interviews are used in this research to provide optimal answers to the researcher's questions regarding the research topic and to strengthen observational findings. The researcher conducted structured interviews with Islamic education teachers and the school principal as supplementary informants related to the pedagogical and professional competence of teachers in utilizing TPACK in Islamic education lessons, as well as identifying supporting and inhibiting factors in teaching and learning at SMP Muhammadiyah 1 Gondangrejo.

b. Observation: It is an excellent method for analyzing human behavior. It is used to understand further teachers' pedagogical and professional competence in using TPACK in Islamic education lessons and the factors that support and inhibit teachers at SMP Muhammadiyah 1 Gondangrejo from effectively using TPACK.

c. Documentation: It is a method to find evidence and collect data and information. One form of documentation is photographs. Photographs serve as a source of information as they can depict and illustrate the circumstances. In this case, documentation was carried out to complement the data and served as evidence for the research. School notes and teacher profiles were collected in SMP Muhammadiyah 1 Gondangrejo in Gondangrejo Sub-district, Karanganyar District.

3.5 Data Validity

In this research, the author employed the triangulation technique to ensure data validity. Triangulation is cross-checking data from various sources using different methods and at different times [21]. The widely used triangulation technique involves multiple sources. There are three types of triangulation as an investigation technique: Source Triangulation, Method Triangulation, and Theory Triangulation. In this study, Source Triangulation was utilized. Source triangulation involves comparing and cross-checking the degree of truthfulness of the information obtained through different periods and tools in qualitative research. According to Patton, cited by Moleong [22], it can be achieved by:

1. Comparing observational data with interview data.

2. Comparing interview results with the content of relevant documents.
3. Comparing a situation with respondents' perspectives and different opinions and views.
4. Comparing what is said in public with what is said in private.

3.6 Data Analysis

According to Sugiyono [23], data analysis in qualitative research can be conducted simultaneously with the data collection process. It involves three main steps: data reduction, presentation, and conclusion.

a. Data reduction: this process involves selecting and focusing on simplifying, abstracting, and transforming raw data in field notes.
b. Data Presentation: Once data reduction is complete, the researcher presents the data using various matrices, graphs, or charts designed to integrate the organized information into a readable and easily understandable format.
c. Drawing Conclusions/Verification: In drawing conclusions and verification, the researcher seeks the meaning behind the collected data, notes patterns and regularities, and explains the research propositions. The researcher then derives meaning from the gathered data and concludes to answer the research questions.

4 Result and Discussion

4.1 Pedagogical Competence of Islamic Education Teachers in Utilizing TPACK in Islamic Education Instruction at SMP Muhammadiyah 1 Gondangrejo

Based on the observations in this research, it is discovered that Islamic Education teachers at SMP Muhammadiyah 1 have implemented a learning process that is reflective of the student's characteristics. It indicates that the pedagogical competence of the teachers reflects their capacity to manage learning for students. The Islamic Education teachers at SMP Muhammadiyah 1 Gondangrejo should be able to directly observe the students' learning based on evaluations and their daily experiences in school, as mentioned in the interview with the headmaster, Abdul Rahman Aly [24]. The characteristic of guidance in on-the-job training teachers is a program or direct guidance provided by the headmaster or educational institution where they work. Forms of guidance include 1. Direction from the principal or institution's board executives regarding national education policies, institutional policies, programs, and school activities. 2. Activities related to the duties and obligations that teachers should carry out. 3. Providing experiences in carrying out tasks during the teaching and learning process, both inside and outside the classroom, to improve teachers' competencies, whether individually or in groups. Assigning tasks related to educational and administrative aspects, such as being a homeroom teacher, serving on school activity committees, coordinating subject areas, or guiding student activities. Fundamentally [25], teachers are responsible for providing understanding to their students. The Islamic Education teachers at SMP Muhammadiyah 1 should be capable of direct observation during the learning process based on evaluations and students' daily lives. Furthermore, regarding Islamic education instruction at SMP Muhammadiyah 1 Gondangrejo, teachers are expected to have

prepared the necessary instructional resources beforehand to initiate the actual learning process. These preparations include instructional materials, teaching media to encourage students' active involvement in learning, and technology to deliver the material that aligns with students' characteristics and serves as a medium of instruction.

Furthermore, during the interview, Endang Sulastri, an Islamic Education teacher at SMP Muhammadiyah 1 Gondangrejo, mentioned that teachers' pedagogical competence in Islamic Education includes mastery of the teaching process, planning, implementation, and evaluation of learning outcomes. She observed her students in the classroom and engaged in question-and-answer sessions with parents to better understand their characteristics. She modified the learning approach to suit the student's needs. The learning objectives used are evaluated to measure the final outcomes of the ongoing learning process. According to the interview with Endang Sulastri [26], in Islamic education instruction, teachers use various models and methods that reflect the student's needs. Each lesson plan created by Endang Sulastri includes a combination of different models and teaching methods. In Islamic education instruction, teachers utilize technology to visually demonstrate the instructional materials. Additionally, addressing students with diverse characters requires the use of various approaches, such as group discussions, question-and-answer sessions, and a scientific approach to observing the students' surrounding environment. Endang Sulastri evaluates her students' understanding using written tests. Psychologically, social media is two sides of a coin. With abundant information, it can have positive and negative effects on students' learning achievements. Social media can potentially enhance or hinder academic performance, depending on its usage. Research suggests that social media can negatively impact learning achievements by increasing apathy among this digitally exposed generation, especially in the context of academic performance. Uncontrolled use of social media can lead students to neglect their primary responsibilities at school and immerse themselves in the virtual world. The virtual world offers limitless information, both supportive and detrimental to students [27].

4.2 Analysis of Pedagogical Competence of Teachers in Utilizing TPACK in Islamic Education Instruction at SMP Muhammadiyah 1 Gondangrejo

Teachers must possess pedagogical competence, personality competence, social competence, and professional competence to fulfill their responsibilities related to teaching performance [28]. Law No. Also confirms this. Payong and Marselius [29], paragraph 1 of Law no [29], paragraph 1. Professional teachers must also fulfill the four competency standards based on Law No. 14 of 2005, which apply to teachers and lecturers: professional competence, personality competence, and pedagogical competence, social competence; an instructor at the instructional level is an individual responsible for educational competency issues. Specialists will choose educational competencies, one of the four educator skills, to explore more deeply according to the target plan problem. Pedagogical competence is a teacher's capacity to manage student learning, including understanding students, designing and implementing learning, and evaluating learning outcomes to help students reach their full potential [30]. The following are important indicators that provide a more comprehensive understanding of the nature of pedagogical competence [31]:

1. Understanding Students: In SMP Muhammadiyah 1 Gondangrejo, teachers must understand their students' characteristics as part of the learning process. It can be completed by observing students at school or by directly asking parents about their children.

2. Design and Implementation of Learning: Pedagogical competence of teachers in Islamic education instruction at SMP Muhammadiyah 1 Gondangrejo, if included in the ability to manage learning activity in pedagogical competence, operationally, Islamic education teachers have accomplished three managerial functions: planning, implementing, and controlling learning activities. Teachers at SMP Muhammadiyah 1 Gondangrejo plan on what includes in learning objectives. These learning objectives measure the learning activity to limit the required assessment. Teachers always adapt to the students' conditions during implementation, reflected in preparing lesson plans (RPP) to determine the learning model, media, and evaluation of learning outcomes. Teachers use different strategies to accommodate different students, such as creating groups for different cases in one class. Meanwhile, in Islamic education instruction, teachers at SMP Muhammadiyah 1 Gondangrejo apply additional learning theories based on students' characteristics or mindsets. These theories include prioritizing children's mental development based on constructivism. Secondly, the mental hypothesis, which allows children to try tests to find out data. Thirdly, Bruner's theory is suitable for discovery learning in Islamic education instruction as it involves a lot of practice or problem-solving. Meanwhile, instructors arrange or organize the classroom space to encourage student concentration on learning.

3. Implementation of Learning Evaluation: Some methods used by Islamic education teachers at SMP Muhammadiyah 1 Gondangrejo to evaluate the learning outcomes of their students include using knowledge assessment techniques such as visual quizzes, written tests, and question-and-answer sessions. Students, on the other hand, practice or perform during skills assessments. Besides, there are also assessments of social attitudes, appreciation, sincerity, discipline, and student responsibility.

4. Recognizing the Potential of Students: Respondents reported from various sources that students have academic and non-academic talents. As an educator, you can identify students by observing their daily learning activities and their learning outcomes in the classroom. Teachers' oral questions can help them observe or understand the child during Q&A sessions. Through student assessments and surveys, educators can determine the abilities of each student.

4.3 Professional Competence of Teachers in Utilizing TPACK in Islamic Education Instruction at SMP Muhammadiyah 1 Gondangrejo

In terms of the professional competence of Islamic education teachers at SMP Muhammadiyah 1 Gondangrejo, based on information from Abdul Rahman Aly [24], the principal of SMP Muhammadiyah 1 Gondangrejo, obtained from an interview, Islamic education teachers in SMP Muhammadiyah 1 Gondangrejo deliver instructional materials by explaining them repeatedly to students, adapting to the students' characteristics. The teacher observes the student's abilities while providing instructional materials and also extracts perception from the students' direct experiences. Furthermore, according to Abdul Rahman Aly's interview information [24], Islamic education teachers at SMP

Muhammadiyah 1 Gondangrejo do not focus exclusively on one material or one reference source; they can also gather references from the Internet or other books to relate the material to the learning context. Additionally, using media in teaching should also be considered, as students are more enthusiastic about learning when the teacher uses engaging media. SMP Muhammadiyah 1 Gondangrejo is well-equipped with facilities such as LCD projectors for instructional support. Moreover, the instructional strategies employed by teachers at SMP Muhammadiyah 1 Gondangrejo aim to identify students' talents through observation during ongoing learning or by evaluating their performance in class.

Furthermore, according to Endang Sulastri [26], an Islamic education teacher at SMP Muhammadiyah 1 Gondangrejo, in an interview, stated that the professional competence applied in Islamic education instruction by utilizing technology includes providing an initial understanding of the instructional materials to students using easily understandable language, using instructional media, or observing instructional videos adjusted to the student's character. Students prefer or are enthusiastic when the material is delivered through video lessons. Moreover, according to the interview with Endang Sulastri [26], in Islamic education instruction, teachers not only use materials from textbooks but also expand them with new ideas or concepts they have. In Islamic education instruction, many examples can be derived from visual sources on the Internet, which teachers can use to provide an understanding of the environment within the *Madrasah* for learning purposes. Additionally, textbooks are used to reinforce references, and the selection of materials adheres to the learning objectives through core competencies, basic competencies, and their indicators. Endang Sulastri, as an Islamic education teacher, directly observes students during the learning process to identify their talents, which can be communicated to parents or guardians to guide students further toward relevant extracurricular activities within the *Madrasah.* The presence of FGM (Muhammadiyah Teachers' Forum) as a professional organization for Muhammadiyah teachers reflects a growing awareness among educational managers and providers of Muhammadiyah education. This awareness indicates that to become a qualified or at least a premium-type school, improvements in the governance of its teachers are necessary. At the same time, Muhammadiyah teachers also realize that enhancing professionalism can only be achieved through collaboration and learning from other Muhammadiyah teachers and different schools. Regarding the establishment of FGM, there is only one recognized professional organization for teachers within Muhammadiyah educational institutions, FGM [32].

4.4 Analysis of the Professional Competence of Islamic Education Teachers in Using TPACK in Islamic Education Instruction at SMP Muhammadiyah 1 Gondangrejo

Professional competence is the ability to educate students following the competency standards contained in the National Education Standards (Law No. 67–1) by mastering various instructional materials extensively and comprehensively [33] stated that a teacher who performs his duties as an entrepreneur and requires skills and abilities to meet educational quality standards must have and master certain knowledge, skills, and

behaviors to be considered competent. In addition, the standard of professional competence for teachers is personal skill competency along with technological, social, and spiritual knowledge, which enables educators to do their best as educators. Meanwhile, the Minister of National Education Regulation of the Republic of Indonesia No. 16 of 2007 [34] defines professional competence for teachers in several aspects aligned with core competencies, including 1) Mastery of content, structure, ideas, and knowledge; a mindset that supports the subject taught. 2) Authority of essential subject skills and abilities. (3) Developing innovative teaching materials. 4) Improving professionalism over time and utilizing information and communication technology for personal growth. Based on the above description of professional content, some content must be mastered by an educator to improve their competence, which is the main reason for the significance of the professional competence of teachers. The researcher will investigate the professional competence of teachers in Islamic education instruction by utilizing TPACK at SMP Muhammadiyah 1 Gondangrejo according to the five components outlined in the Minister of National Education Regulation No. 16 of 2007 [34].

1. Knowledge of the instructional materials, their structure, ideas, and a scientific mindset. At SMP Muhammadiyah 1 Gondangrejo, students are directed according to competency standards with excellent mastery of the instructional materials, concepts, or scientific mindset that supports the Islamic Education subject taught by the teachers. Starting with how the instructors understand the Islamic Education material for students with different personalities and mentalities, the instructors also repeatedly explain the material so that students can understand it. Teaching strategies and media are also related to the student's circumstances.

2. Knowledge of the basic subject and mastery of competency standards. In this regard, the teachers at SMP Muhammadiyah 1 Gondangrejo employ techniques suitable for the student's character before learning activities to provide religious knowledge and skills so that the students have mastered the predetermined competency standards. It shows that Islamic Education teachers use standard mastery of competency standards and basic competencies as references in creating lesson plans, starting from the material selection stage and continuing with the evaluation stage at the end of the learning process.

3. Developing educational materials creatively. Islamic Education teachers at SMP Muhammadiyah 1 Gondangrejo have methods of delivering instructional materials development in Islamic Education. Islamic Education teachers have a lot of insights into religious knowledge, especially in teaching Islamic Education. According to observations, in preparing for teaching, teachers must be creative and innovative. They are also capable of delivering various interesting lessons to their students. From an educational perspective, they have integrated technology into several facilities, including the Internet and infrastructure in each *Madrasah*.

4. Developing professionalism regularly. Teacher competence is continuously developed step-by-step or in line with the necessity to improve professionalism. Self-development aimed at improving individual and group performance is the strategy for Islamic Education teachers at SMP Muhammadiyah 1 Gondangrejo to develop professionally. In this case, teachers are noticed as active learners who are expected to participate in concrete tasks such as teaching, assessment, and observation.

5. Self-development through information and communication technology (ICT). Teachers at SMP Muhammadiyah 1 Gondangrejo have implemented IT-based learning or utilized integrated learning media with technology, demonstrating their competence in utilizing information and communication technology. In fulfilling the required competencies, teachers must be prepared to adapt to a changing era and learn about ICT. It has become a necessary competency for teachers to support their teaching responsibilities.

4.5 Factors Supporting and Inhibiting the Pedagogical and Professional Competence of Islamic Education Teachers in Using TPACK at SMP Muhammadiyah 1 Gondangrejo

According to discussions led by Endang Sulastri [26], the supporting factors for the academic and teaching expertise in using TPACK at SMP Muhammadiyah 1 Gondangrejo are connected to the elements that support TPACK utilization. Supporting variables in Islamic Education, besides utilizing materials from books, include utilizing web-based resources and various references from the library. Teachers play a vital role as a supporting factor in professional competence. All learning indicators of a teacher can be fulfilled if the teacher is active, creative, and enjoys teaching. On the other hand, the inhibiting factors mentioned by Endang Sulastri [26] regarding academic and teaching expertise in using TPACK include difficulties due to changing conditions and unexpected obstacles after each learning session, especially from students who may lack enthusiasm and concentration, resulting in their failure to comprehend the material presented by the teachers. Furthermore, if teachers lack creativity or are not actively engaged in teaching, students may not achieve their desired outcomes.

4.6 Comparative Analysis of the Supporting and Inhibiting Factors for the Pedagogical and Professional Competence of Islamic Education Teachers in Utilizing TPACK

In general, the availability of IT-based learning infrastructure aimed at facilitating students' understanding through engaging learning media is one of the supporting factors for implementing teachers' pedagogical and professional competence in utilizing TPACK in Islamic Education at SMP Muhammadiyah 1 Gondangrejo. Starting with technology-based media and other teaching aids, SMP Muh 1 provides adequate facilities. Every year, in addition to providing learning media resources, all teachers are invited to workshops to enhance their teaching skills. However, obstructions to teachers' pedagogical and professional competence in utilizing TPACK in Islamic education at SMP Muhammadiyah 1 Gondangrejo include students who struggle with reading instructions and a lack of motivation and direct support from parents. Additionally, time constraints for teachers to complete their tasks, along with ineffective teaching models for continuous learning, hinder the utilization of TPACK. For instance, when using LCD projectors for video-based learning, there may be a limited and unstable electricity supply, which slows down the teaching and learning process. The research reveals teachers' pedagogical and professional competence in TPACK utilization for Islamic education. These competencies include understanding students' learning, designing the implementation of Islamic

education instruction, and utilizing ICT to develop classroom learning. The analysis demonstrates the characteristics of SMP Muhammadiyah 1 Gondangrejo, which has diverse educators and students but has made progress in integrating technology-based learning.

5   Conclusion

In conclusion, the availability of IT-based learning infrastructure aimed at facilitating students' understanding through engaging learning media is one of the supporting factors for implementing teachers' pedagogical and professional competence in utilizing TPACK in Islamic Education at SMP Muhammadiyah 1 Gondangrejo. Starting with technology-based media and other teaching aids, SMP Muh 1 provides adequate facilities. Every year, in addition to providing learning media resources, all teachers are invited to workshops to enhance their teaching skills. However, obstructions to teachers' pedagogical and professional competence in utilizing TPACK in Islamic Education at SMP Muhammadiyah 1 Gondangrejo include students who struggle with reading instructions and a lack of motivation and direct support from parents. Additionally, time constraints for teachers to complete their tasks, along with ineffective teaching models for continuous learning, inhibit the utilization of TPACK. For instance, when using LCD projectors for video-based learning, there may be a limited and unstable electricity supply, which slows down the teaching and learning process. The research reveals teachers' pedagogical and professional competence in TPACK utilization for Islamic education. These competencies include understanding students' learning, designing the implementation of Islamic education instruction, and utilizing ICT to develop classroom learning. The analysis reveals the characteristics of SMP Muhammadiyah 1 Gondangrejo, which has diverse educators and students but has made progress in integrating technology-based learning.

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