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Active, Creative, Effective, and Enjoyable Learning (PAKEM) with the Utilization of Smart TV to Realize Interactive Islamic Education Learning

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ABSTRACT

Purpose of the study: This study aims to analyze the implementation of the Active, Creative, Effective, and Enjoyable Learning (PAKEM) approach integrated with Smart TV technology to create an interactive, collaborative, and student-centered Islamic Religious Education (PAI) learning environment.

Methodology: This study employed a qualitative descriptive research design using a literature review approach. Data were collected from reputable scientific journal articles indexed in SINTA and published between 2016–2026. The study utilized content analysis, thematic data reduction, theoretical categorization based on the TPACK framework, source triangulation, and theoretical synthesis techniques.

Main Findings: The findings indicate that Smart TV functions as a multisensory instructional center that transforms abstract Islamic concepts into dynamic visual and audio learning experiences. The PAKEM approach promotes active participation, collaboration, critical thinking, and student engagement. The integration of Smart TV and PAKEM creates an interactive digital learning ecosystem, enhances motivation, supports real-time feedback, and strengthens meaningful spiritual reflection in Islamic Religious Education.

Novelty/Originality of this study: The novelty of this study lies in the theoretical integration of the TPACK framework with the PAKEM approach and Smart TV technology specifically for Islamic Religious Education. It introduces a digital interactive classroom ecosystem that combines pedagogical strategies and interactive screen technology, providing a new model for enhancing student engagement, collaboration, and meaningful religious learning experiences.

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1. INTRODUCTION

The development of digital technology in the world of education in the current era has brought about major changes in the way students learn. Surveys show that 43% of teenagers want to learn online and not use paper-based materials, 38% prefer blended learning (hybrid learning), and only 16% prefer using books to learn [1], [2]. The current generation of students grew up in a dynamic visual and technological environment, but the reality of classroom learning still often shows a gap between technological developments and ongoing learning practices. In Islamic Religious Education (PAI) learning, the learning process is still often dominated by verbal delivery of material and memorization, so that learning feels monotonous and does not provide space for active

student participation [3]. As a result, PAI learning is often perceived as a normative subject that only emphasizes cognitive aspects, rather than a learning experience that is alive and contextual to the daily reality of students.

These problems indicate that the main challenge in learning lies not in the Islamic Religious Education material, but rather in the learning strategies and media used. Many classes still place the teacher as the center of information (teacher-centered), so that student interaction, collaboration, and creativity have not developed optimally [4]. This condition results in low learning motivation, minimal student emotional involvement, and the underdevelopment of critical thinking and collaboration skills. Recent research shows that less interactive learning contributes to low student engagement and has a direct impact on learning outcomes [5]. Therefore, selecting the right learning methods and media is an urgent need in modern classroom management, especially in Islamic Religious Education learning, which is intended to instill values while building students' spiritual and social experiences.

Ideally, Islamic Religious Education (PAI) learning should be active, dialogic, collaborative, and enjoyable, as stated in the principles of Active, Creative, Effective, and Enjoyable Learning (PAKEM). The PAKEM approach allows students not only to receive information but also to construct understanding through discussion, exploration, reflection, and real-life practice. Various studies have shown that the implementation of PAKEM can increase students' learning engagement, motivation, and conceptual understanding in Islamic Religious Education (PAI) learning because the learning process is centered on students' learning experiences [6]. However, the implementation of PAKEM often faces obstacles when it is not supported by learning media that can facilitate real-life interactions in the classroom.

In this context, the use of Smart TVs is an alternative learning media that is relevant to the characteristics of 21st-century learning. Smart TVs not only function as a tool to display teaching materials visually, but also enable the integration of learning videos, digital applications, and collaborative activities directly in the classroom [7]. This media is able to bridge the PAKEM approach with the needs of digital native students because it presents an interactive multisensory learning experience. A study by Aisyah [8] found that the use of Smart TVs in Islamic Religious Education learning can significantly increase student attention and participation, while Hamka's research [9] shows that interactive screen-based media helps teachers create a more communicative and collaborative classroom atmosphere.

Several previous studies in the last ten years have shown a positive trend towards learning innovation. First, Sari's [10] research shows that the implementation of PAKEM significantly increases the learning activity of Islamic Religious Education students. Second, Suwarni and Fatmawati's [11] research confirms that active learning models have an impact on improving student learning outcomes and motivation. Third, Aisyah's [12] research reveals the effectiveness of Smart TV in increasing interest in learning Islamic Religious Education. Fourth, Hamka's [13] research proves that Smart TV is able to increase learning interactions. Fifth, Anggraini et al.'s [14] research shows that interactive digital media encourages the formation of collaborative learning in modern classrooms. Based on these studies, it can be mapped that previous research moves in three major streams: first, the effectiveness of the PAKEM model or active learning in improving learning outcomes; second, the use of Smart TV or interactive digital media in learning; third, the importance of integrating technology and pedagogy in modern learning.

However, previous research tends to examine the PAKEM approach and the use of Smart TVs only partially. PAKEM research focuses more on improving student learning outcomes or engagement without specifically linking it to the support of interactive screen technology in Islamic Religious Education (PAI) classroom management. Conversely, research on Smart TVs tends to emphasize increasing interest or motivation to learn, but has not explicitly integrated it with specific pedagogical approaches such as PAKEM within a collaborative learning framework. Furthermore, there are few studies that position Smart TVs as a medium for building a collaborative ecosystem in Islamic Religious Education (PAI) learning. However, Islamic Religious Education (PAI) learning not only transmits knowledge but also shapes students' character, social attitudes, and reflective abilities. This is where this research gap lies. Based on the description above, this study aims to analyze the implementation of Smart TV-based PAKEM learning in creating interactive learning in Islamic Religious Education (PAI).

2. THEORETICAL BASIS

2.1. Characteristics and Potential of Smart TV as a Learning Medium

Smart TVs are essentially not a new device in the world of electronics, as this technology has been around for a long time. The development of Smart TVs is currently very rapid, especially with the presence of Android-based systems installed directly on the device and functioning as its main control center [15]. In addition, assistive features such as automatic Wi-Fi connections, various streaming applications, and the ability to connect with other educational devices make Smart TVs increasingly sophisticated and well-functioning. The use of Smart TVs as a replacement for projectors is the latest innovation in the field of education that is expected to make the learning

process more active and more participatory [16]. In the digital landscape of education, this technology transforms conventional classrooms into visual laboratories capable of reproducing abstract realities into concrete components that are easily internalized by students.

Active learning is a teaching process designed to improve the quality of education in schools, where this approach aims to fully engage students in classroom activities so that the learning process becomes effective and efficient [17]. Meanwhile, active learning is an activity that refers to a person's physical and mental involvement, which includes thinking and acting. In the context of learning, student engagement can be measured by how much they participate in the learning process [18]. For example, students participate in discussions, listen to teacher explanations, solve problems, complete assignments alone or in groups, prepare reports, and present their work in front of the class. Furthermore, student participation in active learning plays a very important role because student involvement in the learning process includes their contributions in terms of attitudes, ideas, or actions that they show during these activities [19]. With this participation, learning activities will appear more lively and dynamic, so that the teaching approach becomes more effective and meaningful.

Furthermore, Smart TV also facilitates access to various learning resources, so that learning materials become broader and richer, and remain in line with current developments [20]. Therefore, the use of Smart TV in the teaching and learning process not only helps teachers in delivering materials more effectively, but also plays a role in improving students' digital literacy and skills, which will equip them to face various challenges in the future that are increasingly dependent on technology. The use of Smart TV as a learning tool in the classroom has several strategic advantages. Some of the main benefits that can be obtained in instructional management include; presenting various kinds of audiovisual materials, such as statistical images, films, objects, specimens, and even drama, so that the presentation of content becomes more diverse and interesting, providing students with good and representative learning models and examples [21].

The use of this technology allows for more diverse and engaging material delivery, making the teaching and learning process more effective because television media is a form of technology that can present and disseminate information from various sources and locations. The information displayed can be used as a discussion topic or a way to share ideas and opinions during the learning process. Teachers can also use more innovative and creative learning methods, so that students can be actively involved at every stage of learning [22]. In addition, this digital media provides various types of content, such as PowerPoint presentations, interactive quizzes, and practice questions that help students understand the material better. This improvement in the quality of learning not only affects student learning outcomes, but also helps stimulate 21st-century skills such as communication skills, critical thinking, and teamwork [23].

The interactive features on Smart TVs also have a positive impact on students' enthusiasm for learning because they provide immediate feedback. When students engage in quizzes, discussions, or learning simulations, they receive immediate feedback that can indicate their understanding or help correct any errors that may have occurred [24]. This rapid feedback makes the learning experience more meaningful and enjoyable, thereby helping to increase students' self-confidence and encourage them to continue learning and developing. In classroom practice, the use of Smart TVs is a creative solution in the teaching and learning process because it helps students understand the material more quickly and reduces boredom during learning activities [25]. This media makes the learning atmosphere more exciting and enjoyable, so that children remain enthusiastic and eager to participate in lessons. On the other hand, teachers feel more assisted in explaining material, especially those that require visualization, so that learning does not only use the monotonous conventional lecture method. Through this integration, the use of Smart TV digital media can trigger a massive jump in instructional interest, which encourages students to ask more questions, answer questions, and participate in dynamic class discussions.

In the realm of Islamic Religious Education (PAI), the use of digital-based teaching materials plays an important role in deepening religious understanding through a visual and contextual approach [26]. The digitization of Islamic content, such as stories of the prophets, verses of the Qur'an on specific topics, and video materials on morals, can increase students' interest in studying Islamic Religious Education in schools [27]. The use of digital media such as Smart TVs integrated with open digital materials has proven effective in improving the learning process and student learning outcomes. These devices help create a more interactive, engaging, and relevant learning environment that aligns with students' real-life experiences, thereby encouraging motivation, active participation, and a better understanding of religious values. Through visual stimulation and a variety of content such as animations, instructional videos, and interactive presentations, the essence of Islamic Religious Education teaching can be shifted from traditional teacher-centered methods to more participatory strategies and focus on meaningful learning experiences for students.

2.2. Integration of the PAKEM Approach Based on the TPACK Framework

2.2.1. Integration of Pedagogical Knowledge through the PAKEM Approach

Integration of Pedagogical Knowledge through Active, Creative, Effective, and Enjoyable Learning Approach (PAKEM) is a teaching method that aims to improve the learning process in the classroom by actively

involving students, encouraging them to think creatively, and creating a pleasant learning atmosphere [28]. The PAKEM Learning Model prioritizes students as the center of learning activities (student-centered learning), where they are given the opportunity to participate directly, actively, and creatively in the learning process. In this model, the teacher acts as a facilitator who guides, provides stimulation, and creates an environment that allows students to explore, try, and discover for themselves the knowledge they are learning. By being actively involved, students can understand the material better because knowledge is not only obtained from passive listening, but from reflection on direct experience.

The PAKEM components are supported by four main operational pillars, namely active, creative, effective, and fun [29]. The active component allows students to be directly involved in the learning process through activities such as discussions, group work, presentations, or practical activities with the aim of preparing students to apply the material in everyday life. The creative component encourages students to think innovatively and find new ways to solve problems through stimulating ideas, both independently and in groups. The effective component emphasizes the achievement of clear, structured learning objectives, and measurable indicators of success. Finally, the fun component is designed to foster psychological comfort, spatial comfort, and intrinsic interest in students so that they are more enthusiastic about learning without feeling pressured.

Meanwhile, in the modern framework, one of the main components in the basic knowledge of TPACK is Pedagogical Knowledge (PK), which is a teacher's knowledge of teaching methods and learning processes comprehensively [30]. PK includes teachers' understanding of educational goals in general, knowledge of learning characteristics, classroom management techniques, and methodologies for assessing student learning processes and outcomes. Teachers who have good PK skills will understand how students acquire knowledge and skills, and how they form positive learning mindsets and attitudes. Pedagogical knowledge can be defined as the science that examines the various things needed to guide students in the right direction, so that they can find happiness and independence in facing various problems in everyday life [31]. In the TPACK framework, the PAKEM approach is inherently closely related to PK, making it not just an ordinary teaching method, but a strategic pedagogical competency that represents the professionalism of modern classroom teachers.

2.2.2. Integration of Technological Knowledge through the Utilization of Smart TV

The use of Smart TV as a learning medium aims to increase student motivation in studying Islamic Religious Education, because the visual display helps them understand the material more easily [32]. However, in order for its use to be effective, teachers are required to be creative and need to prepare several important aspects such as learning planning, device readiness, and relevant teaching materials. At the planning stage, teachers adjust the material to the media through the Learning Implementation Plan (RPP) so that the learning process becomes more focused and efficient, where alignment before learning is proven to make the delivery of material clearer and easier for students to understand. Benefits of Smart TV.

In terms of equipment preparation, teachers must ensure the readiness of hardware and software such as Smart TVs, laptops, internet connections, and the availability of learning videos to avoid technical issues, such as slow network connections or device problems, and prepare alternative media as instructional backups. Meanwhile, in preparing teaching materials, teachers align textbook material with supporting videos from digital platforms to improve student concentration, especially on practical materials that require detailed visualization, such as discussions of the Hajj and Umrah pilgrimages.

The use of Smart TV in Islamic Religious Education learning shows how important the ability to master technological knowledge (TK) is in the TPACK framework. The theory of technological mediation states that both teachers and technological components play an active and reciprocal role in creating a conducive learning environment [33]. The need for this technology is recognized as useful by teachers, even teachers can utilize technology in ways different from its initial design in order to achieve learning goals creatively. From this perspective, technological knowledge does not only mean the technical ability to operate the tool, but includes a deep understanding of how the technology is explored professionally to increase students' enthusiasm for learning and substantive understanding in the classroom.

2.2.3. Integration of Content Knowledge through Islamic Religious Education Material

Islamic Religious Education is a conscious and planned effort to help students recognize, understand, feel, and even believe in and fear God, as well as behave well in accordance with Islamic teachings, which are primarily sourced from the Quran and Hadith [33]. The material in the Islamic Religious Education curriculum is designed comprehensively, taking into account aspects of students' internal potential (intellectual, emotional, spiritual, social, and vocational), physical development levels, usefulness, an organized scientific structure, appropriate coverage of the material (the Quran, creed, morals, jurisprudence, and the history of Islamic civilization), and appropriate time allocation. The complexity of this material demands a strong delivery method so that the material does not stop at mere textual memorization.

In the context of TPACK, mastery of this material is represented by the Content Knowledge (CK) component, namely the teacher's in-depth understanding of the substantive subjects taught to students. Knowledge

of this content concerns an educator's ability to understand the structure of science in depth and be able to organize, implement, and connect religious ideas logically in the classroom. Content knowledge includes an understanding of real things, empirical evidence, historical facts, Islamic jurisprudence, and the ability to develop an understanding of this science in students. Therefore, the integration of CK through Islamic Religious Education subjects shows that the depth of material mastered by teachers must be able to be channeled gradually and holistically in order to shape students who have spiritual strength, good morals, and are able to apply Islamic teachings in everyday life.

2.3. Theoretical Basis of Modern Learning

The theoretical basis of this research encompasses three main pillars: social constructivism, behaviorism, and humanism. These three theories were chosen because of their relevance in supporting the implementation of the Smart TV-based PAKEM approach in Islamic Religious Education (PAI) learning. Each theory provides complementary perspectives in understanding student learning processes, the role of instructional media, and the dynamics of classroom interactions scientifically.

2.3.1. Lev Vygotsky's Constructivism Theory

The social constructivism theory developed by Lev Semenovich Vygotsky asserts that knowledge is not simply transferred from teacher to student, but rather is actively constructed by students through social interactions and the support of the classroom environment [34]. Vygotsky introduced the concept of the Zone of Proximal Development (ZPD), which is the distance between a student's actual abilities and the potential abilities they can achieve through teacher guidance or collaboration with more capable peers. This concept underpins the importance of scaffolding, namely the gradual support teachers provide to students throughout the learning process until they become cognitively independent.

The relevance of this theory to the integration of Smart TV-based PAKEM is significant. Learning is designed for students to actively interact, discuss, and share understanding within groups. Smart TVs facilitate discussions based on visual content, simulations, and interactive quizzes that encourage active collaboration among students. The teacher acts as a facilitator, providing scaffolding through visual and contextual stimuli displayed on the screen, enabling students to gradually construct a deeper understanding of religious values through meaningful social interactions.

2.3.2. B.F. Skinner's Behaviorism Theory

Behaviorism theory, specifically the operant conditioning theory developed by B.F. Skinner, views learning as a change in behavior that occurs as a result of a stimulus and a response that is reinforced through reinforcement [26]. In the context of Islamic Religious Education learning, positive reinforcement is given when students respond appropriately to the Islamic material presented, such as answering quizzes, actively participating in discussions, or demonstrating a true understanding of the religious values taught. The application of behaviorism theory in PAI has proven effective in fostering positive behavior and student discipline, although it needs to be balanced with an interactive approach to prevent students from becoming trapped in mere memorization.

In the integration of PAKEM and Smart TV, the principles of behaviorism are realized through the instant feedback mechanism provided by the Smart TV's interactive features. When students answer interactive quizzes or assessment simulations displayed on the classroom's main screen, they immediately receive a response in the form of real-time confirmation of correct or incorrect answers [35]. This kind of digital reinforcement mechanism has been proven to stimulate students' academic adrenaline to continue participating, trying again, and developing better understanding, in line with Skinner's basic principle that positively reinforced behavior tends to be repeated by the learning subject.

2.3.3. The Humanistic Theory of Abraham Maslow and Carl Rogers

The humanistic theory put forward by Abraham Maslow and Carl Rogers emphasizes that the learning process must center on the needs, potential, and life experiences of students. Maslow, through his theory of the hierarchy of needs, explains that students can only achieve self-actualization in learning if their basic needs (physiological, safety, acceptance, and esteem) have been adequately met [14]. In the context of Islamic Religious Education, creating a safe, enjoyable learning environment that respects the participation of each individual is an absolute prerequisite for students to fully, comfortably, and meaningfully engage in the process of absorbing religious values.

Meanwhile, Carl Rogers emphasized the importance of freedom to learn and the concept of student-centered learning, in which teachers act as facilitators who create conducive learning conditions, rather than as the sole authoritarian source of information [29]. This approach aligns closely with the PAKEM principle, which places students as the primary subjects of learning. The implementation of humanistic theory in Islamic Education leads to a learning model that frees students to explore, reflect, and deeply internalize Islamic values according to their respective experiences, uniqueness, and life contexts.

Synthetically, these three learning theories provide a very solid foundation for the integration of PAKEM and Smart TV in Islamic Religious Education learning. Vygotsky's social constructivism emphasizes the importance of collaboration and social interaction in building religious knowledge; Skinner's behaviorism emphasizes the need for positive reinforcement and direct feedback to form adaptive learning behavior; and Maslow and Rogers' humanism emphasizes creating a learning atmosphere that is fun, meaningful, and respects the existence of students. All three are simultaneously combined in the Smart TV-based PAKEM learning design that not only optimizes the cognitive and psychomotor domains, but also touches on the affective aspects and the formation of students' spiritual character.

3. RESEARCH METHOD

This study uses a qualitative descriptive method with a literature review approach. This method was chosen to analyze the concept of integrating PAKEM pedagogy and Smart TV technology in depth through relevant and up-to-date scientific literature. The research data are sourced from secondary documents in the form of reputable scientific journal articles within the last ten years (2016–2026). The data analysis technique uses content analysis which includes data reduction steps, theoretical categorization based on TPACK variables, synthesis of relationships between components, and drawing conclusions. Data validity is tested through triangulation of theoretical sources by comparing the results of previous studies to minimize subjective bias of the interpreter.

4. RESULTS AND DISCUSSION

4.1. Description of the Smart TV-Based PAKEM Learning Method

The PAKEM method in this study is redefined as a hybrid learning model that combines active-dialogic syntax with information technology-based classroom management. The main principle of this method is multisensory engagement, where students not only listen to lectures but also observe, analyze, and practice religious content interactively. Its operational characteristics are characterized by minimizing the dominance of teacher lectures to less than 30% of total effective class time.

The steps for implementing PAKEM based on Smart TV are implemented through three structured stages: 1) An exploratory stimulation stage, where the teacher displays a triggering video clip (for example, about social inequality or incorrect animal slaughtering procedures) on the Smart TV. Students are asked to provide direct responses using their devices connected to the main screen; 2) A group collaboration stage, where students form small groups to discuss problem-solving. The results of the discussion are compiled into infographics or digital concept maps, then presented on the Smart TV screen. and 3) An interactive evaluation stage, where teachers utilize platforms such as Wordwall or Quizizz displayed on Smart TVs to test students' understanding through real-time quiz competitions.

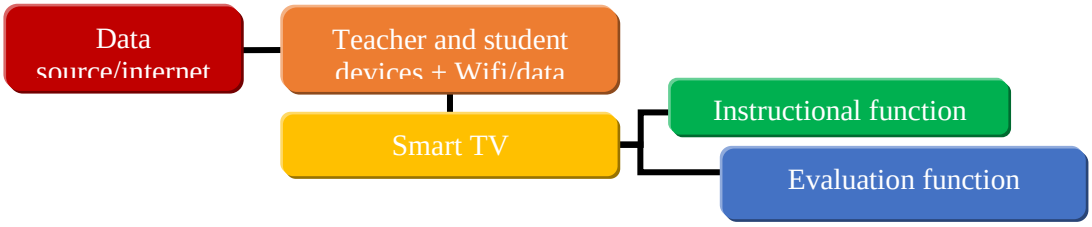


Figure 1. Functional Flowchart for Using Smart TV

The advantages of this method include significantly improving student memory retention due to its visual-kinesthetic nature, strengthening a collaborative climate among students, and increasing teacher time efficiency in demonstrating practical materials. However, the limitations of this method lie in its heavy dependence on the stability of the school's internet network and the need for specific digital competencies (digital literacy) from teachers to prevent classroom management from becoming merely a passive entertainment experience.

4.2. Description of Smart TV Learning Media learning

Smart TVs are categorized as hardware-based digital learning media integrated with open source operating system software. The primary tool used in this innovation is a Smart TV unit measuring at least 55 inches (for optimal text readability in class) with an Android TV-based operating system, equipped with a high-speed local Wi-Fi connection and Google Cast or Miracast features. Supporting application platforms integrated include YouTube Education, Canva for education, interactive quiz platforms (Quizizz/Kahoot), and the Digilife Virtual Quran application.

The primary reason for choosing a Smart TV refers to the limitations of conventional projectors, which require dim room conditions and often experience color degradation. Smart TVs offer high brightness (high lumens), sharp color contrast, and low fan noise, thus optimally maintaining the attention span of Generation Z students throughout long learning sessions.

4.3. Learning Innovation

The main distinction or novelty offered in this article is the structural convergence between the PAKEM pedagogical syntax and the functionality of Smart TV technology, forming a "Digital-Based Interactive Classroom Ecosystem." Table 1 maps the fundamental differences between conventional learning practices and the proposed innovation model:

Table 1. Comparison of Conventional Islamic Education Learning with Smart TV-Based PAKEM

Dimensional Analysis	Conventional Islamic Education Learning	Smart TV-Based PAKEM Innovation
Information Center	Teachers use the lecture method.	Students are assisted with interactive multimedia content.
Media Characteristics	Static (textbook, whiteboard, projector board).	Dynamic (touchscreen/interactive, mirroring).
Interaction Patterns	Vertical (teacher to student) and tends to be individualistic.	Multidirectional (student-student, student-teacher, student-media) collaboratively.
Feedback Mechanisms	Delayed (through written weekly assignment corrections).	Real-time (via live digital quizzes on screen).
Affective Impact	Students tend to be passive and boring.	Students are active, enthusiastic, and experience emotional internalization of values.

The integration between these methods and media has a direct impact on increasing student activeness, as measured by indicators of verbal participation (asking and refuting) and non-verbal participation in digital group work. The theoretical discussion based on TPACK confirms that when technology (Smart TV) no longer stands alone but merges into active strategies (PAKEM), the efficacy of Islamic Religious Education learning will increase linearly, so that learning outcomes will not only touch the low-level cognitive domain (C1-C2) but also rise towards critical analysis and reflection skills (C4-C5).

5. CONCLUSION

The implementation of the PAKEM approach integrated with Smart TV media in Islamic Religious Education learning has been proven theoretically and conceptually capable of changing the paradigm of rigid religious classes into an interactive and enjoyable digital ecosystem. Smart TV successfully overcomes the limitations of space and time by presenting visualizations of abstract Islamic values into concrete multisensory learning experiences for students. The implications of this study indicate that the success of modernizing Islamic Religious Education learning is not determined by partial technology adoption, but rather by the maturity of integration between teacher pedagogical competencies and instructional technology functionality (TPACK framework). It is recommended for schools to start upgrading classroom facilities from analog projectors to interactive Smart TVs, as well as holding regular training for Islamic Religious Education teachers in designing active learning syntax based on widescreen digital media to realize the sustainability of 21st-century Islamic education innovation.

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