Development of TPACK Based Learning Media on Ablution Material to Increase Student Understanding

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ABSTRACT

This research aims to develop TPACK (Technological Pedagogical Content Knowledge) based learning media on ablution material with the aim of increasing students'understanding. TPACK uses an approach that integrates technology, pedagogy and content knowledge to create effective learning experiences. The research method used is development research with the ADDIE model. The subjects in this research were 20 people. Data collection techniques were obtained through validation tests, practicality tests and effectiveness tests by expert people. Data collection instruments using questionnaires and student responses. The results of the research show that the development of TPACK-based learning media on ablution material is effective in increasing students' understanding. Students show improvement in understanding the steps of ablution, the meaning of the associated symbols and the relevance of daily life practices. This research contributes to the development of a learning model that can be adopted in the context of religious education, especially regarding ablution material. This learning media helps students understand the procedures for ablution so that they gain a valid, practical and effective understanding.

INTRODUCTION

Technological advances have fundamentally changed the way we learn and teach. Education is no longer limited to classroom teaching with traditional textbooks. The use of technology has enabled access to a wider range of educational resources, including online learning, learning videos, simulations and others.

According to Marc Prensky, digital native is a term for people who were born inThe digital era began in 1981, aka when technology such as computers and the internet developed (Prensky, 2001). Millennials and generation Z are included in the digital native group. The digital native generation is generally accustomed to

technological developments, so they quickly adapt and feel comfortable using digital tools. In fact, this happens from a young age. Most young children and teenagers today grow up supported by sophisticated computer technology, smartphones and the internet. Digital natives are also not reluctant or awkward when they have to communicate with digital or virtual tools.

A real problem occurs in elementary schools, that currently the school has problems regarding the low development of religious values, even though aspects of the development of religious values have been implemented in the school environment, while the aspect that students still know little about is a lack of understanding regarding ablution procedures. This is proven from the results of observations made by researchers in elementary schools, out of 20 students, only 5 students could perform the correct ablution movements. The actions used by teachers in improving Islamic religious education learning are less precise through familiarization by giving quizzes about ablution procedures so that elementary school students do not understand the process of ablution procedures. This is a problem that must be addressed. From the problems that occurred, several previous researchers also addressed the same problems by (Julfaisal et al., 2018; Wijaya et al., 2020; Amin et al., 2022), namely by providing learning media to help students in the learning process. Providing multimedia learning facilities with movement elements plus visuals to overcome problems is considered more successful, more innovative and more creative in increasing students' understanding.

This is where the TPK concept is adopted, Shulman (1987) states that content and pedagogical knowledge must be combined in learning to create new knowledge. This is defined as Pedagogical Content Knowledge (PCK). Shulman (1986) formulated teacher competency through PCK. This PCK is a combination of two competencies, namely pedagogical knowledge (pedagogical competence) and content knowledge (professional competence). According to Shulman, teacher PCK is very important for creating useful learning for students.

After PCK is combined with technology, it produces TPACK (Technological Pedagogical Content Knowledge), an idea formulated by Mishra and Koehler (Huang, 2018). TPACK combines three types of core knowledge, namely pedagogical knowledge (PK), Content Knowledge (CK), and Technological Knowledge (TK) (Utami et al., 2019). TK involves understanding technology as a tool or resource. PK refers to pedagogical knowledge or planning, process and evaluation in learning. CK includes the content knowledge required by educators in delivering material. With this TPACK concept, a teacher not only delivers material (CK) through a teaching approach or method (PK), but also integrates technology for (TK) along with a teaching approach to convey content.(Anwar, 2023; Warsih, 2021;Parlina et. al, 2023; Saraj et al., 2021; Sintawati & Indriani, 2019).

In this research, the researcher developed a TPACK learning media based on the Snack Video application with animation elements in learning ablution material, aiming to support teachers in conveying the basic concepts of ablution to students and is expected to increase students' understanding of ablution procedures, as well as encourage them to apply them in everyday life. Apart from that, it is hoped that the use of this media will provide a more dynamic feel for teaching and learning activities in the classroom.

RESEARCH METHOD

Researchers use a research and development (R&D) approach with the ADDIE (Analysis, Design, Development, Implementation and Evaluation) model.
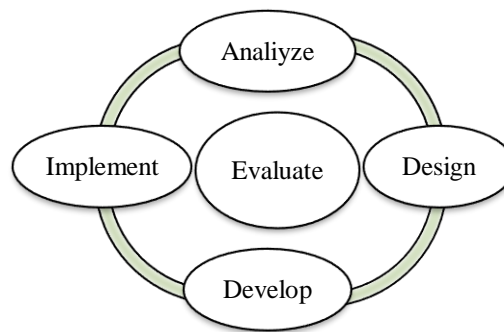
Picture 1.

Research and development Model ADDIE

A comprehensive experiment was carried out at the fifth grade level involving 20 students from elementary schools to test its effectiveness. Meanwhile, the application of TPACK learning media to increase students' understanding of ablution was carried out in class V involving 15 students from other elementary schools.

Data collection instruments include giving student response questionnaires. The data collection technique involved a feasibility test given to three expert validators regarding TPACK-based learning media. The validator consists of one material expert, one media expert, and one language expert who is of course an expert. The material expert is a doctor, the media expert is a professor and the linguist is also a professor, all of whom are lecturers at a university in North Sumatra, details can be found in Table 1.

Table 1.

Guide for Material Experts, Media Experts and Linguistic Experts

Presentase	Criteria	Information
76-100	Valid	No revision is necessary
51-75	Valid quite	Needs a little revision
26-50	Less valid	Lots of revisions
0-25	Invalid	Full revisions

RESULTS AND DISCUSSION

The evaluation process in the research model includes the implementation and assessment of animated video learning media which is carried out using validation sheets, questionnaires to determine student responses and comprehension tests. Below we will describe several steps related to the evaluation of learning media through the Snack Video application regarding ablution procedures, including the analysis stage, design stage, development stage, implementation stage and evaluation stage.

Anlysis

The first step in this development is analysis. This research involved focused observations on classroom teachers who taught Islamic religious education subjects. As a result of these observations, the researcher saw that the learning method in the classroom still depended on one learning source and the learning model used was still conventional, causing a lack of student involvement and inaccuracy in carrying out ablution material practice. Therefore, a need was found to create a more active learning atmosphere in order to have a positive impact on students' abilities.

Design

The Design Stage is the stage of designing animated video products using ablution material and validation sheets, student response questionnaires and comprehension tests. Learning media design with TPACK based animated videos will provide more interesting material content for the learning process. The first design of the media created can be seen in figure 2 below.

Development

The next step in development is the development of learning media using TPACK-based animated videos as products, including ablution materials and assessment sheets. Validation of learning media was carried out by three expert validators, consisting of three lecturers, and the results of the assessment of the feasibility of learning tools can be found in Table 3.

Table 2
Assessment Eligibility Sheet

Evaluation	Product	Appropriateness%
Material expert	Animated videos	92,50 Very High
	The assessment sheet	91,25 Very High
Media expert	Animated videos	95,20 Very High
	The assesmesnt sheet	92,30 Very High
Linguist	Animate vieos	91,60 Very High
	Theassesmesnt sheet	89,50 High

From the data contained in table 2, it can be understood that the learning media in the form of TPACK-based animated videos that have been developed received very

high ratings, namely 92.50% from material experts, 95.20% from media experts, and 91.60% from language experts, so that overall, this learning media is considered very suitable according to the experts' assessment.

Implimentation

The next stage is the Implementation stage, which involves testing learning media with TPACK-based animated videos in the learning process on a limited scale. This trial aims to evaluate the level of practicality and effectiveness of the TPACK learning tool, analyzed through student activities and their ability to understand ablution procedures. The data obtained from the trial includes an increase in students' ability to understand ablution, which is then explained in detail in table 3.

Table 2.
Student Ability Test

Meeting	The Number of Students Who Understand is a Total of 20 Students	Information
1	5 Students	Students who already understand and correctly perform ablution procedures
2	10 Students	Students who already understand and correctly perform ablution procedures
3	20 Students	Students who already understand and correctly perform ablution procedures

From table 3 it can be seen that a total of 20 students can all understand the procedures for performing ablution and practice them properly and correctly.

Evaluation

This stage aims to assess the implementation of Islamic Religious Education learning by utilizing learning media in the form of TPACK-based animated videos that have been prepared. In order to implement learning, the pretest step is carried out before students are involved in activities using animated video media, while the post test step is carried out after students watch the animated video.

Table 3.
Pretest dan Post test

Pretest	Post test
71,40	89

DISCUSSION

The use of the TPACK approach in developing learning media has proven effective in increasing students' understanding of ablution material. The integration of technology, content knowledge and learning strategies is a strong foundation for creating deeper and more memorable learning experiences (Kurnianto & Sarwono, 2023). Thus, the TPACK concept provides a strong foundation for designing relevant and meaningful learning media.

The use of multimedia elements, such as animations, videos, and simulations, not only increases students' interest but also helps them understand concepts that may be difficult to understand through conventional teaching methods. Increased student engagement is a positive indicator that this approach meets contemporary learning needs.

Teacher involvement in the learning media development process proves its importance. Teachers not only provide in-depth content insight but also help ensure that the content presented is aligned with the curriculum and student needs. Collaboration between teachers and multimedia design creates the harmony needed to design effective learning media.

Although the results showed success, several challenges were also identified. In implementing TPACK-based learning media, challenges may arise related to the availability of technological resources, teacher training, and institutional support. Therefore, there needs to be a mature strategy to overcome these obstacles. On the other hand, there are opportunities for further development, such as integration of the latest technology or improvements to the interactive aspects of learning media.

Although this research focuses on ablution material, the results can have wider implications for the development of learning media in the religious field (Widayanti & Juhji, 2023). Further evaluation can be carried out to assess the extent to which TPACK can be applied in other learning contexts.

CONCLUSION

This research makes a significant contribution to the development of TPACK-based learning media on ablution material. Through a Research and Development (R&D) approach with the ADDIE model, a comprehensive trial was carried out at the fifth grade level involving 20 students. Student response questionnaires and feasibility tests by expert validators show that learning media, especially animated videos, receive

very high ratings from material experts, media experts and language experts. The implementation of this media succeeded in increasing students' understanding of ablution procedures, as shown by the results of students' ability tests. Although the research results demonstrated success, challenges related to the availability of technological resources and teacher training were identified. The limitations of the research involve a number of students and focus on ablution material, so that further research can be explored to measure the generalisability of these findings in various learning contexts.

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