

# Needs Analysis of Artificial Intelligence (AI)-Based Digital Comic Media Development in Islamic Religious Education Subjects in Junior High School

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## A B S T R A C T

Islamic Religious Education (IRE) plays an important role in shaping the character of students in the digital era, but many challenges are faced, including low interest and motivation of students in learning. This study aims to analyze students' needs for the development of Artificial Intelligence (AI)-based digital comic media as an innovative solution to improve IRE learning in Junior High School. Using a quantitative descriptive method, this study involved 30 students from grade VII of SMP Negeri 7 Sekayu and used a questionnaire to collect data. The results of the analysis showed that 77.3% of students had difficulty understanding material, with only 35% showing interest in the lesson. This fact is balanced by a very high interest (82.8%) in the use of digital comic media. Only 39% of students feel that learning media is currently effective, signaling the need for a more engaging approach. This research brings hope for the development of AI-based digital comic media that is interactive and relevant to students, although limited to one school and a small sample. The suggestion for future research is to involve more schools and explore various other learning mediums to improve student learning outcomes in the field of religious education.

**Keywords:** *Digital Comic Media, Artificial Intelligence (AI), Islamic Religious Education (IRE)*

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## INTRODUCTION

Islamic Religious Education (IRE) plays an important role in shaping the character of students, especially in today's digital era. The integration of religious values in daily life is a challenge for formal education, especially at the junior high school level, which is the foundation for the morals and morals of the younger generation. However, the challenges faced in IRE learning in junior high school are often related to the low interest and motivation of students to learn. This is due to the lack of innovative and interesting learning media, especially in taking advantage of the increasingly rapid development of digital technology (Hidayat, 2021; Ismail & Rahman, 2020).

In the context of learning, digital technologies and artificial intelligence (AI) offer new opportunities to create interactive and fun learning media. One of the alternatives with great potential is the use of AI-based digital comics. This media can deliver IRE material in a more interesting way and in accordance with the characteristics of students, especially generation Z who are known for their digital skills (Adams et al., 2020; Gölcü, 2021). However, there are still shortcomings in IRE learning media that are contextual and relevant for students in this era.

Based on this background, there are several problems that need to be identified in depth. First, the limitation of IRE learning media that is interactive and in accordance with the needs of students is an obstacle in achieving learning goals. Second, the low student participation in conventional learning shows that the methods currently used have not been able to attract students' attention. Third, the availability of AI-based digital comic media in the context of

IRE in junior high school is still very limited, which can cause students to lack understanding and internalizing religious values.

Innovation in technology-based learning media is an urgent need in the era of Freedom of Learning. The development of AI-based digital comic media for IRE learning is expected to increase student interest and engagement, as well as create a meaningful learning experience. This research is very relevant, because it can provide a basis for developing AI-based media that is right on target, according to the needs of teachers and students, and optimizes IRE learning in junior high schools.

This study aims to analyze the needs of teachers and students for the development of AI-based digital comic media in IRE learning in junior high school. By understanding these needs, it is hoped that the development of learning media can be carried out more effectively and according to the context, so as to be able to improve the quality of IRE learning.

Several previous studies have shown the importance of using digital media in IRE learning. For example, Budiastuti (2020) found that the use of interactive learning media can increase student motivation and understanding of IRE materials. In addition, research by Hidayat (2021) concluded that technology-based digital media is able to create a more relevant and contextual learning experience for students. However, the focus of this research has not included AI elements in the development of comic media, so this research makes a new contribution to the development of more innovative and effective IRE media.

## METHOD

This study uses a quantitative descriptive method, which aims to describe and analyze students' needs for the development of Artificial Intelligence (AI)-based digital comic media in Islamic Religious Education (IRE) learning. The quantitative descriptive method was chosen because it can provide measurable and comprehensive data on students' perceptions of the proposed learning media, as well as to identify aspects that need attention in the development of the media (Creswell & Creswell, 2018). The need analysis approach is used to explore in depth what are the needs of students in the context of IRE learning, so that media development can be carried out more on target (Davis, 2020).

This research was carried out at SMP Negeri 7 Sekayu, which is located in Musi Banyuasin Regency, South Sumatra. This school was chosen because it is one of the educational institutions in the area that has the potential to implement technology-based learning media, and has a diverse student population. The time for the implementation of the research is scheduled for the even semester of the 2024/2025 school year, with the hope of obtaining relevant and up-to-date data related to the needs of students in IRE learning.

The population in this study is all grade VII students of SMP Negeri 7 Sekayu, which totals 130 students. From this population, the research sample consisted of 30 students, which were taken purposively. Purposive sampling was carried out by considering the affordability and representativeness of population characteristics, so it is hoped that the results of the study can represent the views of students as a whole (Etikan et al., 2016).

The instrument used in this study is a questionnaire or closed questionnaire in the format of "yes" or "no". This questionnaire is designed based on indicators of learning media needs, which include visual appearance, interactivity, ease of use, and relevance of the material to the character of students. The questionnaire preparation refers to previous research that discussed the effectiveness of learning media in increasing student motivation and understanding (Huang et al., 2019). The questionnaire will be tested for validity before use to ensure that the data obtained is accurate and accountable.

Data collection was carried out through the distribution of questionnaires directly to a sample of students. The questionnaire is instructed to be filled out honestly and without pressure. In addition, to enrich the data obtained, informal interviews were conducted with IRE teachers. This interview aims to understand the current learning conditions and pedagogical media needs. This triangulation method is expected to provide a more comprehensive picture of the challenges in IRE learning in schools (Merriam & Tisdell, 2015).

The data obtained from the questionnaire will be analyzed using quantitative descriptive techniques. The results of the analysis will be presented in the form of percentages, tables, and diagrams, in order to provide a detailed overview of the needs of learning media development. This analysis includes the comprehensive interpretation of data to describe the situation in the field, as well as to determine appropriate media development steps based on the results obtained (Field, 2018).

Artificial Intelligence (AI) in the subject of Islamic Religious Education (IRE), a questionnaire has been prepared by paying attention to relevant indicators. This questionnaire is designed to identify several important aspects of the learning process, including the difficulties faced by students in understanding the material, the learning process that takes place, and students' interest in media in the form of digital comics.

The table below presents a questionnaire grid that covers various aspects and indicators that will be used as a reference in data collection. Each aspect is divided into several indicators and corresponding question numbers. By using these Grids, it is hoped that the resulting analysis can comprehensively describe the needs of students and provide a solid foundation for the development of effective learning media.

Table 1. Student Needs Analysis Questionnaire Grid

| No. | Aspects               | Indicator                                | Number Question |
|-----|-----------------------|--|-----------------|
| 1.  | Material difficulties | Difficulties of IRE material             | 1,2             |
|     |                       | Interest in IRE subjects                 | 3,4             |
| 2.  | Learning Process      | The use of media in the learning process | 5,6             |
|     |                       | Giving examples                          | 7,8             |
| 3.  | Digital Comedian      | Interest in digital comic media          | 9,10            |

Before developing Artificial Intelligence (AI)-based learning media in Islamic Religious Education, it is important to also understand the needs of teachers as the main users in the learning process. The table below illustrates the teacher needs analysis grid, which is broken down into relevant aspects and indicators. Each aspect is described with the appropriate question item number, so that the data obtained can thoroughly analyze the needs of teachers in the process

## FINDINGS AND DISCUSSION

### Findings

Table 2. Results of the Student Needs Analysis Questionnaire

| No. | Aspects               | Indicator                                | Percentage |
|-----|-----------------------|--|------------|
| 1.  | Material difficulties | Difficulties of IRE material             | 77,3%      |
|     |                       | Interest in IRE subjects                 | 35%        |
| 2.  | Learning Process      | The use of media in the learning process | 39%        |
|     |                       | Giving examples                          |            |
| 3.  | Digital Comedian      | Interest in digital comic media          | 82,8%      |

In an effort to develop Artificial Intelligence (AI)-based digital comic media to improve the learning of Islamic Religious Education (IRE) at the Junior High School level, a questionnaire has been distributed to students to understand their needs and preferences. The results of this questionnaire analysis reveal several important aspects that need to be considered in the development of the media.

First, in the aspect of material difficulty, it was found that 77.3% of students had difficulty understanding the content of IRE material. This data shows that IRE teaching currently still faces challenges in conveying information in a way that is easy for students to understand. This creates opportunities for the use of digital comic media that can simplify and explain complex concepts through attractive images and narratives.

On the other hand, students' interest in IRE subjects only reached 35%. This indicates the need for a more innovative and interesting approach to make IRE learning more enjoyable. The implementation of interactive and AI-based digital comic media has the potential to increase student interest, because it can present material in a more interesting and relevant way according to the demands of the times.

Furthermore, related to the learning process, only 39% of students feel the effectiveness of the media currently used in the learning process. This shows that there are limitations in the teaching methods currently applied. By integrating AI technology into digital comics, the presentation of material can be adjusted to the level of understanding and preferences of each student, so that the teaching and learning process becomes more effective.

In the aspect of digital comics, the results showed very high interest from students, reaching 82.8%. This illustrates the students' strong desire to learn using more modern and interactive media. AI-based digital comic media can not only grab students' attention, but also provide an immersive learning experience, with interactive features that can enrich their understanding of IRE material.

With the results of this questionnaire in mind, it can be concluded that there is an urgent need and a great opportunity to develop AI-based digital comic media that can not only help students overcome difficulties in understanding IRE material, but also increase the interest and effectiveness of learning in junior high school. The implementation of this media will provide innovative, interesting, and relevant solutions to support the development of religious education for students.

## Discussion

Based on the results of a questionnaire conducted to analyze the needs of students in the development of Artificial Intelligence (AI)-based digital comic media in the subject of Islamic Religious Education (IRE) at SMP Negeri 7 Sekayu, there are several key findings that deserve attention.

Data from the questionnaire showed that 77.3% of students had difficulty understanding IRE material. This percentage reflects the significant challenges students face in teaching today. According to Reyes et al. (2020), the use of visual media such as comics can improve students' understanding, especially in complex subjects. Therefore, AI-based digital comic media can simplify difficult concepts in IRE in a more engaging and accessible way for students.

Students' interest in IRE subjects, which only reaches 35%, shows the need for innovation in the delivery of material. The use of interactive digital comics can increase students' motivation and interest. Susanto and Hidayat (2021) mentioned that interactive technology in learning can not only attract students' attention but also make them more involved in the learning process. The high interest (82.8%) in digital comic media reflects that students want to learn using more modern methods, thus reinforcing the need for the development of this media.

The results of the questionnaire showed that only 39% of students felt that they used media in the learning process. This means that the majority of students (61%) do not feel that there is sufficient use of media in the teaching they receive. This shows that there are shortcomings in the use of learning media that can make the learning process more interesting and interactive. According to Alsharif et al. (2022), the use of technology, including AI, in education can provide a more personalized and effective approach. By developing AI-based digital comic media, it is hoped that students can be more actively involved and feel that the learning process becomes more meaningful.

Looking at all these findings, it is clear that there is an urgent need to develop AI-based digital comic media as a tool in IRE learning at SMP Negeri 7 Sekayu. This medium can not only assist students in overcoming learning difficulties but also has the potential to increase interest and overall learning effectiveness. Therefore, the implementation of AI-based digital

comic media is highly expected to be an innovative solution to support the learning process of Islamic Religious Education among students.

## CONCLUSIONS

Based on the results of the questionnaire analysis regarding the needs of students in the development of Artificial Intelligence (AI)-based digital comic media for Islamic Religious Education (IRE) learning at SMP Negeri 7 Sekayu, several important conclusions were obtained. The majority of students (77.3%) have difficulty understanding the content of IRE material, while only 35% show interest in the subject. Only 39% of students felt the effectiveness of existing media in the learning process, indicating a shortcoming in the methods used today. However, the high interest (82.8%) in digital comic media reflects students' desire to learn in a more interactive and modern way. Therefore, the development of AI-based digital comic media has the potential to be an innovative solution to increase students' understanding and interest in IRE learning. Nonetheless, the study has limitations, such as a relatively small sample count and a focus on only one school, which may limit the generalization of the results. For further research, it is recommended to conduct a broader study involving more schools and diverse backgrounds of students, as well as explore various other forms of learning media to find the most effective approach in improving student learning outcomes in the field of religious education.

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