Literature Review: Interactive Media of PAI Learning Based on Android Games Using the Game Development Life Cycle (GDLC) Method

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A B S T R A K

penelitian ini mempelajari keefektifan media pembelajaran interaktif berbasis *game* Android yang dirancang khusus untuk pendidikan Islam, dengan memanfaatkan pendekatan Game Development Life Cycle (GDLC). Hasil kajian literatur terhadap artikel 2021-2024 menunjukan bahwa media ini dapat meningkatkan motivasi belajar, menyediakan pengalaman yang interaktif dan menarik, serta memperdalam pemhaman materi. Pendekatan GDLC memastikan pengembangan media dilakukan secara terstruktur dan efisien. Kesimpulannya, *game* berbasis Android mampu meningkatkan kulitas pembelajaran Pendidikan Agama Islam (PAI) dan relevan dengan kebutuhan pendidikan di era digital.

A B S T R A C T

This study explores the effectiveness of interactive learning media based on Android games tailored for Islamic education, employing the Ganes Development Life Cycle (GDLC) approach. A literature review of publications from 2021 to 2024 reveals that this media enhances student's learning motivation, provides engaging and interactive learning experiences, and deepens comprehension of the material. The structured methodology of GDLC ensures efficient development of the media. In conclusion, Android-based educational games significantly improve the quality of Islamic Education (PAI) learning and align with the demands of modern digital education.

1. INTRODUCTION

The word "education" comes from the root word "didik", which has the prefix "pe-" in front and the suffix "-an" in the back, making it a very strong word. One way is to view education as an organized process with the aim of instilling knowledge and value in individuals (Jamaludin et al., 2021; Majid, 2024).

Education is an important and effective way to teach norms, instill values, and strengthen work ethics in society. In addition, education serves as a tool to develop the nation's character, strengthen national identity, and build confidence as a nation. In addition, education also plays a strategic role in increasing national awareness by strengthening social relations, promoting awareness of religion, culture, and national laws and customs (Rahmani et al., 2023).

The term educating is based on the many activities that aim to help students understand information and the surrounding environment. The process is not just introducing ourselves to friends and family, but also developing our knowledge, skills, and abilities. Action is seen as the most important element in fostering students' social skills and character so that they are able to adapt and interact well with the general public in daily life (Busthan, 2022).

Islamic education provides many aspects of a person's life, with the main focus on understanding and learning the principles contained in Islamic education. The purpose of this process is to form the principles of morality, ethics, and faith that become a guideline for

everyone in living a life in accordance with the teachings of Islam (Hasmawati & Muktamar, 2023).

In general, education in Indonesia is based on complex challenges, especially in smaller areas. With technological advancements, this problem can become more significant. As one of the crucial aspects of human life, education also has the ability to adapt to changes brought about by technological advances in relation to the social order of society in general (Maulido et al., 2024).

In the learning process, educational technology is a very structured and analytical approach. In this context, educational technology also highlights the challenges of teaching and learning as problems that must be immediately overcome using impartial and accurate methods. Therefore, every method and strategy used in education must be based on a comprehensive and empirical analysis in order to produce more effective and efficient learning outcomes (Abidah et al., 2022).

Smartphones are not only used for business purposes, but are also used as educational tools. Today, there are a variety of educational apps available to help students understand various subjects in an engaging way. It is hoped that by harnessing this potential, students can use technology effectively to enhance their learning experience (Charis Noija et al., 2023).

Educational games are a type of game designed to hone a player's critical thinking skills and increase their attention span. Because it has advantages over other visual media, the use of game-based technology is considered effective in the world of education. In addition to making learning easier to understand, educational games also make the learning process more interesting and able to increase student motivation (Zahwa & Syafi'i, 2022).

Based on the explanation above, it is necessary to analyze previous research which discusses "Interactive Media of PAI Learning Based on Android Games Using the Game Development Life Cycle (GDLC) Method as an initial process in determining future research topics.

2. METHOD

This research uses a qualitative approach combined with the concept of literature research. The data used is secondary data, which includes articles, journals, books, and other materials relevant to the research topic. Data collection was carried out descriptively, with ten articles used as the main reference in this study. The steps taken in this study are (1) Search for 10 articles related to the topic through Google Scholar. (2) Analyze the content of the 10 articles that have been selected. (3) Download the articles for further examination. (4) Analyze the results of the article analysis to draw conclusions from the research.

3. RESULTS AND DISCUSSION

In the first stage of the research, articles related to the variables in the research title were collected, namely a literature review: "Interactive Media of Android Game-Based PAI Learning Using the Game Development Life Cycle (GDLC) Method." This literature review managed to identify ten articles published between 2021 and 2024. The relevant articles are listed in Table 1 below.

Tabel 1. Analysis of research topics

No	TITLE	AUTHOR	YEAR	JURNALS
1.	Rancang Bangun Media Pengenalan Huruf	Nova Noor Kumala Sari	2020	Jurnal Teknologi Informasi Jurnal Keilmuan dan Aplikasi

No	TITLE	AUTHOR	YEAR	JURNALS
	Hijaiyah untuk Anak Usia Dini Berbasis Android			Bidang Teknik Informatika, vol 14, No 2.
2.	Pengembangan Media Pembelajaran Tajwid *Berbasis Aplikasi Android*	Hilyatun Nadawiyah, Dewi Anggraeni	2021	*Jurnal Inovasi Teknologi Pendidikan*, Vol 8, No 1.
3.	Rekayasa Game Edukasi Adab dalam Bersikap untuk Anak Kelas 1-3 Sekolah Dasar Berbasis Android	Rohada Tull Aisy, Numan Ridwan A. Kambau	2021	Agents Jurnal Of Artifical Intelegence dan Data Seince, Vol 1, No 2.
4.	Pengembangan Aplikasi Android "NURKIDS" Tentang Asmaul Husna pada Pembelajaran PAI di kelas IV SD	Triandi Sugih Hartandi, M Ramadhan, Misbahudin Nur Fazri, Ani Nur Aeni	2024	Jurnal Pendidikan Tambusai, Vol 8, No 1.
5.	Aplikasi Game Edukasi untuk Merangsang Otak Anak-Anak dalam Mengenal dan Belajar Pendidikan Agama Islam Menggunakan Concurt 2 Berbasis Android	Erma Sova	2023	*JTS Jurnal Teknik dan Science,* Vol 2, No 2.
6.	*Game* Multi-Platform untuk Adab dan Akhlak Anak Muslim Menggunakan Metode *Game Development Life Cycle* (GDLC)	Anisatun Nasyiah	2022	*Jurnal Informatika dan Rekayasa Perangkat Lunak (Jatika)*, Vol 3, No 3.
7.	Rancang Bangun Game " Alpha Master" Berbasis Android Sebagai Media Pembelajaran Membaca Dan Menulis Kelas 1 SDIST Ibnu Qoyyim Sukarta	Catur Wijayanto, Anita Trisiana, Yudhistiro Pandu Widhoyoko	2024	*AKADEMIKA Jurnal Manajemen Pendidikan Islam,* Vol 6, No 1.
8.	Pembuatan Game Edukasi Pengenalan Kebudayaan Indonesia Menggunakan Metode Game Development Life Cycle (GDLC) Berbasis Android	Ahmad Agung Saputra, Fatra Nonggala Putra, Rizqi Darma Rusdian Yusron	2022	Information System, Vol 2, No 1.

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No	TITLE	AUTHOR	YEAR	JURNALS
9.	Pembuatan Game Edukasi Pembelajaran Kata Imbuhan untuk Tingkat Sekolah Dasar (Studi Kasus SD Negeri Karang Sari Lampung Utara)	Arsy Berlian Adnin, Yuri Rahmanto, Ajeng Savitri Puspaningrum	2022	Jurnal Informatika dan Rekayasa Perangkat Lunak (JATIKA), Vol 3, No 2.
10.	Pengembangan Media Pembelajaran Interaktif Materi Bahasa Isyarat Hijaiyah Berbasis Android (Studi Kasus : Organisasi Gerkatin Solo)	Cahyo Setyono, Ina Sholihah Widiati, Muhammad Setiyawan	2024	Jurnal of Computer Science and Informatin Technology (JCSIT), Vol 1, No 4.

Based on research (Sari, 2020) Black Box testing, which includes the alpha and beta stages, can be concluded that the application functions optimally and produces outputs that are aligned with the planned functional objectives. In addition, the results of the questionnaire used to assess aspects of the usability, compatibility, and reliability of the software showed that the majority of respondents who gave the survey "strongly agreed," indicating that the software successfully met user expectations. Research (Nadawiyyah & Anggraeni, 2021) This shows that based on the analysis of student needs, curriculum, materials and media, the design of learning media is tailored to the characteristics of students. Based on the results of formative and summative evaluations, Android application-based tajweed learning is very useful for improving the PAI learning process. Research (Nurman, 2021) This resulted in an Android-based educational application designed to teach adab interactively. This application functions as a teaching tool that strengthens the learning process about adab. It can be concluded that this android-based educational game can effectively teach students about manners, make the learning process easier and help them understand relevant concepts. Research from (Hartandi et al., 2024) that this application can increase the enthusiasm of students and teachers and be effective in helping students understand Asmaul Husna. This innovation shows that the integration of technology can improve the process of religious education in a more interesting and dynamic way. As a result, NURKIDS makes a meaningful contribution to improving the quality of religious education at the academic level.

As a result of the research (Erma Sova, 2023) This is a *game* app focused on Islamic education that provides a fun and engaging learning experience for children aged 5 to 10 years. The teaching method used, i.e. learning while playing, is very popular with children because it is supported by a variety of features, including attractive illustrations and graphics. According to (Nasyiah, 2022) Based on the results of the trial conducted on 14 respondents, the application met the criteria of "Successful" with a percentage of 95.24%. In terms of *Portability* on various platforms, such as Android smartphones and Windows desktops, a well-functioning application can be installed and run smoothly, thus obtaining the "Successful" test criteria with a percentage of 100%. From research (Catur Wijayanto et al., 2024) The results showed that the Android-based game "Alpha Master" was effective as a learning tool for 1st grade students of SDITS Surakarta. Based on media analysis, this game has a feasibility level of 80%, which is quite high in the category of "very feasible," SDITS 1st grade teacher Ibnu Qoyyim Surakarta gave a feasibility level assessment of 90% for the same category.

Based on research (Saputra et al., 2022) The results of beta testing conducted by 20 respondents, the overall usability score is 83.7%, which shows that this educational game

application meets all categories. Research results (Sutarman et al., 2022) showed that the learning motivation threshold measured with ARCS before using *the Game* was 63.84%. After the use of *the Game,* students' learning motivation measured by ARCS increased to 87.29%. In addition, an average percentage of 92.33% was found in beta testing. Research (Setyono et al., 2024) Results for teachers and students showed that the app scored 96% from teachers and 93% from students, with an "excellent" rating. This application is effective in improving interactive learning for deaf users and making it easier to learn iqro and hijaiyah letters through Android. The addition of features such as quizzes and blends was also suggested in the study, along with the publication of the app on the Google play store to reach more users.

4. CONCLUSION

Based on the results of the analysis of each article, it can be concluded that Android game-based learning media makes a significant contribution to improving educational standards in Islamic Religious Education (PAI) schools. Applications that use *the Game Development Life Cycle* (GDLC) method have proven to be very effective in increasing students' motivation to learn and making the learning process more interactive. In addition, the use of technology in the teaching process and supports modern education, especially in presenting material in an interesting way and in accordance with the needs of students. Continuous development and improvement of game features are believed to be able to increase their usefulness in various educational contexts.

5. BIBLIOGRAPHY

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