

DEVELOPMENT OF GAME-BASED LEARNING MEDIA EDUCAPLAY IN PAI LESSONS ON THE MATERIAL OF HAJJ WORSHIP IN ELEMENTARY SCHOOLS

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Abstract

This study aims to develop and test the effectiveness of Educaplay game-based learning media on the subject of Hajj worship in Islamic Education learning in elementary schools. The research method used is Research and Development (R&D) with the ADDIE model, which includes the stages of analysis, design, development, implementation, and evaluation. Data collection was carried out through questionnaires, interviews, observations, and tests. The validation results by media and content experts showed percentages of 94% and 93.3%, both of which fall into the very good category. Student learning outcomes were analyzed by comparing pretest and posttest scores. The average pretest score was 74.50, increasing to 91.50 in the posttest. Based on the N-Gain test, a score of 0.66 or 66% was obtained, categorized as medium. This indicates that the Educaplay game-based learning media is effective in improving student learning outcomes in the subject of Hajj worship.

Keywords: Educaplay; Learning Media; Islamic Religious Education

Abstrak

Penelitian ini bertujuan untuk mengembangkan dan menguji efektivitas media pembelajaran berbasis game *Educaplay* pada materi ibadah haji dalam pembelajaran Pendidikan Agama Islam di Sekolah Dasar. Metode penelitian yang digunakan adalah Research and Development (R&D) dengan model ADDIE, meliputi tahap analisis, desain, pengembangan, implementasi, dan evaluasi. Pengumpulan data dilakukan melalui angket, wawancara, observasi, dan tes. Hasil validasi oleh ahli media dan materi menunjukkan persentase 94% dan 93,3%, keduanya masuk dalam kategori sangat baik. Hasil belajar siswa dianalisis melalui perbandingan nilai pretest dan posttest. Nilai rata-rata pretest sebesar 74,50 meningkat menjadi 91,50 pada posttest. Berdasarkan uji N-Gain, diperoleh skor sebesar 0,66 atau 66% dengan kategori sedang. Hal ini menunjukkan bahwa media pembelajaran berbasis game *Educaplay* efektif dalam meningkatkan hasil belajar siswa pada materi ibadah haji.

Kata Kunci: *Educaplay*; Media Pembelajaran; PAI

Introduction

The development of digital-based learning media has become very important in overcoming the limitations of conventional methods, such as the continuous use of chalk and blackboards. This is reflected in the challenges faced by several educational institutions, such as MIN 2 Indramayu, where learning that relies solely on conventional methods is considered ineffective in conveying complex or abstract concepts (Zahra & Karim, 2023). In addition, case studies related to the development of education that focuses on character-based learning also

show the limitations of learning media as one of the obstacles in the teaching and learning process in Madrasah (Nofhendri & Fadhlurrahman, 2024). In this context, the development of digital learning media not only helps visualize material more interactively and interestingly but also increases student participation and prepares them for the digital age (Muslim, 2021). Therefore, innovation in technology-based learning media needs to be encouraged in order to address various problems in the field and improve the overall quality of education.

Research on game-based learning media has been extensively conducted, as seen in several previous studies. Research published in the Pioneer Journal of Education and the Education Journal focuses on the use of digital platforms such as Kahoot and Wordwall to improve learning outcomes and student engagement (Darmiah, 2023). These studies discuss the use of educational games to increase learning motivation (Wigati, 2019), classroom interactivity (Janattaka et al., 2023), and material absorption through technological approaches (Rahmat et al., 2019). However, research specifically addressing the development of game-based learning media is limited. Educaplay. The use of Islamic Religious Education in elementary schools is still very limited (Mutohar & Eka, 2022). Religious education requires learning methods that are not only informative but also capable of instilling deep moral and spiritual values (Daulay et al., 2023). The use of Educaplay as an interactive learning medium can provide innovative solutions to increase students' interest in learning (Lamada et al., 2021), facilitate understanding of religious concepts, and address the challenge of low student participation in conventional learning (Prasetyo & Wijaya, 2019).

Previous research findings that discuss game-based learning media Educaplay can be categorized into three main trends: First, the use of game-based media to improve learning outcomes. In this context, research shows that the application of gamification can improve student motivation and engagement, which in turn improves their learning outcomes (Prahmana, 2023). Second, the use of technology in interactive learning, especially during the pandemic, has become a focus, where game-based learning media such as Kahoot and Quizizz have been shown to increase interaction between students and the material (Syuhada et al., 2023). Third, there is a positive influence of gamification methods on student enthusiasm and engagement in the learning process, where research shows that gamification successfully creates a more interesting and enjoyable learning atmosphere (Fakhrunnisa et al., 2023). Although various studies have examined the use of game-based learning media in various subjects and educational levels, there is still a gap in discussing the development of game-based learning media. Educaplay is especially used in Islamic Religious Education subjects in Elementary Schools. Therefore, this research aims to fill this gap by developing game-based learning media. Educaplay is relevant and effective in supporting Islamic Religious Education learning in elementary schools, which can strengthen previous research findings and provide practical contributions to technology-based learning innovation in elementary education environments (Sun'iyah, 2021). In line with that, the research problem is formulated as follows: (1) How to Develop Game-Based Learning Media Educaplay in Islamic Religious Education Subjects in Elementary Schools? (2) What are the student learning outcomes before and after using game-based learning media? Educaplay in Islamic Religious Education Subjects in Elementary Schools? (3) How effective is the use of game-based learning media? Educaplay in Islamic Religious Education Subjects in Elementary Schools?

Development of game-based learning media Educaplay in Islamic Religious Education (PAI) subjects in Elementary Schools, is a phenomenon worthy of research through the framework of B.F. Skinner's Behaviorist Learning Theory, because this approach is very relevant in measuring changes in student learning behavior through a systematically reinforced stimulus-response mechanism. Behaviorist theory emphasizes that behavior can be formed and maintained through reinforcement, and in the context of interactive learning.

The development of Educaplay game-based learning media in Islamic Religious Education (PAI) subjects in elementary schools is a phenomenon worth studying through the

framework of B.F. Skinner's Behaviorist Learning Theory, as this approach is highly relevant in measuring changes in student learning behavior through a systematically reinforced stimulus-response mechanism. Behaviorist theory emphasizes that behavior can be shaped and maintained through reinforcement, and in the context of interactive learning, such as Educaplay games, students are given stimuli in the form of questions, challenges, or learning activities that trigger them to respond with certain answers or actions. When students give the correct response, the system provides positive feedback, such as scores or virtual praise animations, which serve as positive reinforcement. This process is in line with Skinner's principle of operant conditioning, which states that behaviors accompanied by reinforcement are more likely to be repeated in the future (Dewi et al., 2020). In PAI learning, this approach can be effective in increasing students' motivation, engagement, and perseverance in memorizing and understanding religious material such as prayers, creeds, and moral values. Therefore, the application of behaviorist theory in the development of Educaplay game media has great potential to significantly improve student learning outcomes through structured practice and continuous reinforcement (Barokah et al., 2023).

Instructional Media

Learning media are all things used to convey messages or information in the teaching and learning process, with the aim of clarifying material and increasing learning effectiveness. Nugraha stated that learning media, in the educational context, includes various teaching aids used to support the learning process, including videos accessible on internet platforms like YouTube (Nugraha et al., 2021). Hermawan and Hadi (Hermawan & Hadi, 2024) added that modern technology, such as Augmented Reality, can enhance students' learning experiences and help visualize difficult concepts, which in turn increases students' interest in learning. Furthermore, Arsyad (Arsyad, 2020) explained the importance of adapting teaching methodologies to the context of time and situation to improve students' understanding of the material. The use of technology in education is not limited to hardware but also software, as expressed by Kemp and Dayton (Nugraha et al., 2021), who emphasized the important role of media in the learning process. Thus, learning media functions not only as visual or audio aids but also as an integral part in improving students' understanding and absorption of the material.

Learning media is a crucial component of the modern educational process. In education, learning media plays a crucial role because it facilitates the delivery of information from educators to students, particularly in presenting abstract material more concretely and understandably (Pamungkas & Koeswanti, 2022). The primary purpose of using learning media is to increase learning effectiveness, clarify message presentation, and arouse students' interest and attention in the subject matter (Wao et al., 2022). The benefits of learning media include increasing learning motivation, clarifying concepts, providing a more immersive learning experience, and helping students remember and understand information more effectively (Mardan et al., 2024). However, the effectiveness of learning media is influenced by several factors, such as the suitability of the media to the learning objectives, student characteristics, teacher ability to operate the media, the quality of the media design, and adequate infrastructure and technology support (Purba et al., 2022; Husna & Supriyadi, 2023). Therefore, the selection and use of learning media must be carried out carefully to have a positive impact on student learning outcomes.

Educaplay Game

Educaplay is an interactive learning platform that utilizes game elements to enhance the teaching and learning process. The Educaplay game can be defined as a technology-based educational medium that combines game concepts with learning objectives so that students are more motivated and actively engaged in the subject matter. The use of gamification in education can indeed help students develop critical thinking and problem-solving skills, as well as increase

their motivation to learn. This is in line with the findings of Puspitasari and Arifin, which show that the gamification model can be an effective solution for educators in increasing student motivation (Puspitasari & Arifin, 2023). Educaplay is also in line with Piaget's constructivist theory, in which students build knowledge through direct experience and exploration. As stated by Zambrano and Bowen, Educaplay functions as a digital educational tool that allows teachers to create various interactive activities such as quizzes and puzzles, which support a more active learning process (Zambrano and Bowen, 2024). Thus, Educaplay not only provides information but also encourages students to interact, experiment, and apply the concepts learned in real contexts. This platform is suitable for use at various levels of education due to its flexibility and ability to be adapted to the applicable curriculum.

EducaPlay games as a learning medium have a high urgency in the modern world of education, especially in today's digital era. Its presence is an innovative solution to increase student engagement in the learning process, given the learning style of the younger generation, which is increasingly oriented towards interactive technology. The main purpose of using EducaPlay as a learning medium is to create a fun, interactive, and effective learning environment so that the subject matter is easier for students to understand and remember. By utilizing EducaPlay, which integrates game-based learning elements, educators report an increase in cognitive outcomes and motivation among students, as shown in research discussing its application in conjunction with the Problem-Based Learning strategy (Rambe et al., 2025). The function of this game is as a tool to assist teachers in delivering subject matter through various educational activities such as quizzes, puzzles, and interactive games tailored to the curriculum.

Research has shown that interactive media such as EducaPlay can improve understanding of subject matter when used with the right learning methods, with results showing higher student engagement compared to conventional methods (Dewi, 2025). The benefits of using EducaPlay include increasing learning motivation, strengthening concept understanding through visual and interactive approaches, and increasing student active participation in learning. Several studies show that EducaPlay media not only increases student interest in learning but also contributes positively to their cognitive learning outcomes (Kumalasari et al., 2024). Several factors need to be considered for EducaPlay to function effectively, including the suitability of game content to learning objectives, ease of platform access for students, and teacher involvement in supervising and guiding its use. Teacher involvement in the process of using EducaPlay plays an important role in facilitating learning and ensuring that students derive maximum benefit from their learning experience (Hidayat et al., 2023). Considering these aspects, EducaPlay has the potential to become a learning medium that is not only attractive but also capable of significantly improving learning outcomes.

Islamic Education

Islamic Religious Education is an integral part of the national education system, aiming to shape students into individuals who are faithful, pious, and have noble morals in accordance with Islamic teachings. Research shows that Islamic Religious Education can integrate religious values with local cultural contexts, thereby strengthening students' cultural and spiritual identities (Haluti et al., 2024). Furthermore, the transformation of Islamic values through Islamic boarding school education is also necessary to face modern challenges, with an emphasis on curriculum strengthening and parental involvement (Triyono & Mediawati, 2023). In the same framework, Islamic education is not merely academic teaching, but also includes moral and social dimensions that need to be considered in the curriculum (Olfah, 2024). The formation of religious character can be facilitated through systematic teaching and programs that combine cognitive, affective, and psychomotor values (Puspitasari et al., 2022). Therefore, the emphasis on *Akhlakul Karimah* and the spirituality of students in the context of education is not only instructional but also transformational, changing mindsets and behaviors in accordance with Islamic teachings.

The subject of Islamic Religious Education has a very high urgency in shaping the character and morals of students. Amidst the rapid development of the times, religious education has become an important foundation in instilling values of faith and devotion to Allah SWT. The main objective of this subject is to improve the understanding, appreciation, and practice of Islamic teachings correctly and consistently, so that students are able to live in society, nation, and state based on Islamic values (Mulyadi, 2023). As an integral part of the national education system, the function of Islamic religious education is not only limited to the transfer of knowledge, but also to shape the personality of Muslims who are noble, responsible, and tolerant (Khotimah & Sutarmen, 2023). The benefits of this learning are also very broad, such as helping students understand religious teachings in depth and fortifying themselves from the negative influences of globalization (Hyangsewu, 2019), as well as creating a religious and virtuous generation. The success of Islamic Religious Education subjects is greatly influenced by several factors, including teacher competence in delivering the material, innovative and interactive learning methods, support from the family and school environment, and active student participation in the learning process (Saufi & Muslimah, 2023). With this combination of factors, Islamic religious education can be effective and achieve its intended goals.

Hajj Lesson Material

The Hajj is one of the five pillars of Islam and is obligatory for every Muslim who meets the requirements, such as being physically, financially, and mentally able. This pilgrimage takes place at several holy sites in Saudi Arabia, namely Mecca, Arafat, Muzdalifah, and Mina, and is specifically scheduled for the month of Dhul-Hijjah. In the Islamic Religious Education (PAI) material for fifth-grade elementary school students, the Hajj is taught as part of character building and strengthening faith. Students are not only introduced to the meaning of the Hajj but also learn its pillars, obligatory requirements, and the procedures for its implementation sequentially and correctly (Aisy & Muzakki, 2024). Furthermore, they will learn about various prohibitions during ihram, the tawaf (circumambulation), sa'i (circumambulation), standing at Arafat, stoning the devils, and the final stages of the pilgrimage. This material is crucial because it helps students understand one of the greatest acts of worship in Islam, which involves both spiritual and physical journeys. Furthermore, this learning aims to instill noble values such as patience, submission to Allah SWT, and a sense of brotherhood among fellow Muslims who come from all over the world to perform the Hajj (Hanun et al., 2023). In this regard, Hajj education is crucial for children, as it strengthens their spiritual heritage and understanding of various important aspects of the Hajj process itself.

Hajj material for fifth-grade elementary school students is quite complex because it encompasses many concepts and stages that must be understood sequentially. Therefore, teachers require appropriate learning strategies to deliver the material effectively and easily. One approach that can be used is the use of interactive learning media such as educational games. Educational games have been shown to increase student interest and motivation in learning, as well as make learning more enjoyable and interactive (Novianti et al., 2024). This media presents Hajj concepts in the form of educational games, thus making students more interested and active in learning. Several studies have shown that game-based methods can improve student understanding and create a more dynamic learning experience (Rahmatunnisa & Ragil, 2024). Through interactive simulations or quizzes, students can learn the stages of the Hajj visually and engagingly, without feeling burdened by purely theoretical information. The use of educational games also helps improve students' memory, as they more easily retain information presented through fun, interactive activities (Yasin, 2024). Thus, learning about the Hajj is not only informative but also applicable and in-depth, which is crucial in the context of Islamic Religious Education (PAI) to foster a comprehensive and positive understanding of the Hajj from an early age.

Research Methods

This study employed a Research and Development (R&D) method with the ADDIE (Analysis, Design, Development, Implementation, Evaluation) approach to produce the Educaplay game-based learning media for the Hajj pilgrimage. The ADDIE approach was chosen because it provides systematic stages in developing valid, practical, and effective educational products, as evidenced by various researchers who have applied this model to develop technology-based teaching and training materials (Adeoye et al., 2024). The study subjects consisted of one Islamic Religious Education teacher and 20 fifth-grade students at SDN Sangubanyu 02. Data collection techniques included questionnaires and interviews to obtain information on teacher needs and input, observations to assess student activity during media use, and tests to measure student learning outcomes before and after media use. The test data were then analyzed using the N-Gain score to determine the effectiveness of the Educaplay game learning media, which supports the implementation of ADDIE in the educational evaluation process (Tolla, 2023).

Research Results and Discussion

Development of Educaplay Game-Based Learning Media for Islamic Religious Education Subjects in Elementary Schools

Analysis Phase

The initial stage in the development of the Educaplay game-based learning media was a needs analysis. This analysis was conducted through interviews with the Islamic Religious Education teacher and two fifth-grade students at SD Negeri 02 Sangubanyu Batang. The purpose of this activity was to identify needs and expectations for the game-based learning media to be developed. Input from teachers and students served as a crucial basis for determining the media design to ensure it was appropriate to the learning context and optimally enhanced student motivation and learning outcomes.

Based on observations of the implementation of Islamic Religious Education lessons on the Hajj pilgrimage in fifth-grade students at SD Negeri 02 Sangubanyu Batang, it was discovered that the curriculum used was the 2013 Curriculum (K13). In its implementation, learning is more student-centered, necessitating an interactive and participatory approach. Therefore, the use of innovative learning media, such as internet-based games, is highly relevant to supporting student learning activities. It is hoped that this media will help students understand the material concepts in a more enjoyable and meaningful way, in accordance with the principles of active learning.

Student characteristic analysis is a crucial step in developing learning media. This stage aims to understand the ability levels, interests, and learning styles of students as the primary users of the media. By understanding student characteristics, researchers can design media that align with their needs and psychological development. Effectively designed learning media is expected to enhance students' understanding of Islamic Religious Education material while creating a more interactive, creative, and enjoyable learning environment.

Next, a media analysis was conducted through discussions with learning media experts. This activity included an evaluation of the strengths and weaknesses of the Educaplay Game media to be developed. The goal was to ensure that the media align with learning objectives and meet students' needs during the teaching and learning process. The analysis results indicate that the Educaplay Game is an internet-based learning media with significant potential for use in Islamic Religious Education lessons. This media is deemed feasible and effective in supporting more innovative, engaging, and competency-oriented learning.

Design Phase

The next stage in the process of developing Educaplay game-based learning media for Islamic Religious Education lessons is the design stage. The purpose of this design phase is to determine learning objectives and design Educaplay game-based learning media for the Hajj Pilgrimage material in the fifth-grade Islamic Religious Education subject at SDN Sangubanyu 02. The steps taken in the design phase include:

1. Designing learning materials

The researcher determined the Learning Outcomes (CP) related to the Hajj Pilgrimage material, then formulated learning objectives according to the curriculum and student characteristics, and developed the learning materials.

2. Designing Educaplay-based learning media

The researcher selected the Froggy Jump template from 18 available options and then filled the media with 10 HOTS story-based questions and answers created by the researcher. The final stage was testing and checking the suitability of the game and the questions.

Development Phase

The next stage in the game-based learning media development process is the development stage. During this stage, several activities are carried out to design the learning media to be created. At this stage, researchers begin to implement the product designed in the previous stage.

Implementation Phase

The implementation phase is carried out after the developed media has gone through validation by several validators. Game media trial activities of *Educaplay*. The test was conducted on 20 fifth-grade students of SD Negeri 02 Sangubanyu Batang. Before conducting the media trial, the researcher gave pretest questions to all students, which aimed to determine students' initial understanding of the Hajj pilgrimage.

Evaluate Phase

The evaluation stage is the stage where researchers evaluate the entire model at each stage. The developed product is evaluated to determine its feasibility. Therefore, at this stage, researchers analyze validation data, student pretest and posttest scores, and comments and suggestions from various parties. If the evaluation concludes that the media is still unsuitable for use, the researcher must make improvements.

The validity of a developed product can be determined through validation activities conducted by media experts and subject matter experts. The validity of the Educaplay Game media was also obtained through quantitative and qualitative assessments by the validator team using a questionnaire previously prepared by the researchers. The following is a presentation of the results of the validation stage conducted by the validator team or expert team. The results of the media expert validation are as follows:

Table 1. Media Expert Validation Results

No	Rated aspect	Percentage	Category
1	The media developed can be used effectively and efficiently	80%	Good
2	Learning media can be operated easily	80%	Good
3	Instructions for use are provided in a clear	100%	Very good
4	The selection of the template used is appropriate	100%	Very good

5	The balance of the image proportions used appropriately	100%	Very good
6	Selection of sound effects used in accordance	80%	Good
7	The media design used is neat	100%	Very good
8	The media is designed in an attractive way	100%	Very good
9	Game-based learning media <i>Educaplay</i> , according to students in elementary schools/Islamic elementary schools	100%	Very good
10	Game-based learning media <i>Educaplay</i> is easy to use for students	100%	Very good
Amount		94%	Very good

Based on the validation test results by media experts, the percentage reached 94%, which is in the very good category. These results indicate that game-based learning media is effective. Educaplay. The developed media have met quality standards as an effective and suitable learning medium for use. Furthermore, material validation was conducted to assess the suitability and accuracy of the learning content contained in the media. The data from the material validation results were obtained through analysis using a specific formula, and an average score of 93.3% was obtained. Based on the validity table criteria, this score also falls into the very good category. Thus, it can be concluded that both in terms of media design and learning material content, this product is very adequate and does not require comprehensive revision. The development of Educaplay game-based learning media on the Hajj pilgrimage material, which has been validated by material experts and media experts, is declared suitable for use in the classroom learning process.

Comparison of Student Learning Outcomes Before and After Using Educaplay Game-Based Learning Media

To evaluate the impact of the use of Educaplay game-based learning media on student learning outcomes, a pretest and posttest were conducted on 20 fifth-grade students of SD Negeri 02 Sangubanyu Batang. The pretest results showed an average score of 74.50, while the posttest results increased to 91.50. In addition, the median increased from 70 to 90, and the mode also experienced a similar increase. The range of scores in the pretest of 50 (from 50 to 100) narrowed to 20 in the posttest, indicating better homogeneity of learning outcomes. The standard deviation and variance also decreased significantly, proving that the variation in results between students was smaller after the use of the media. This indicates that game-based learning media is effective in improving students' understanding of the Hajj material. This success is supported by attractive visual displays, media interactivity, and HOTS questions designed to train in-depth understanding. Thus, it can be concluded that the use of this learning media has a positive contribution in significantly improving student learning outcomes. The summary results of the pretest and posttest data can be seen in the following table:

Table 2. Data results of pretest and posttest

STATISTICS	PRETEST	POSTTEST
Number of Students	20	20
Average (Mean)	74.50	91.50
Median	70	90
Mode (Mode)	70	90
Minimum Value	50	80

Maximum Value	100	100
Range	50	20
Standard Deviation	≈ 11.6	≈ 6.6
Variance	≈ 134.5	≈ 43.2

The Effectiveness of Using Educaplay Game-Based Learning Media in Islamic Religious Education Subjects in Elementary Schools

The effectiveness of the Educaplay game-based learning media was measured using the N-Gain statistical test to determine the increase in student learning outcomes before and after the media was used. The analysis results showed an average N-Gain value of 0.66 or equivalent to 66%, which is included in the moderate category according to Cohen's classification. Although not yet reaching the high category, the increase is quite significant because it shows a consistent improvement in learning outcomes across the entire study sample. This proves that the implementation of game-based media has a positive impact on improving student understanding of the Hajj material. During implementation, student responses were positive; they appeared more active, enthusiastic, and motivated to participate in learning. Factors such as attractive visual design, media interactivity, and ease of access also support student engagement in the learning process.

Validation results by media and material experts also indicate that this learning media is highly suitable for use in Islamic Religious Education (IS) learning in elementary schools. Its ease of use, attractive appearance, and suitability to students' age characteristics are the main advantages of this medium. The use of HOTS (Higher Order Thinking Skills) questions in the form of stories in the game helps students practice critical thinking and problem-solving skills, which are important for their cognitive development. With this combination of features, although in the moderate effectiveness category, the Educaplay game-based learning media has been proven to significantly increase student engagement and learning outcomes. Therefore, this media can be used as an alternative, effective and enjoyable, and innovative learning approach for elementary school students.

Conclusions and Recommendations

This study evaluates the effectiveness of utilizing game-based learning media. Educaplay in improving student learning outcomes in Islamic Religious Education, particularly the Hajj pilgrimage, in elementary schools. The results showed a significant increase from the average pretest score (74.5%) to the posttest (91.5%), with an N-Gain of 66%, and a media feasibility level of 94% for the media aspect and 93.3% for the material aspect. Educaplay has been shown to clarify the concept of the Hajj pilgrimage visually and interactively, thereby increasing student understanding, interest, and engagement. However, this study has limitations, such as its limited scope to one school and a small sample size (20 respondents), which reduces the representativeness of the data. For further development, it is recommended to expand the research location, increase the sample size, and use more varied data collection methods. Overall, this research provides a practical contribution to digital learning innovation that aligns with technological developments and the learning styles of today's generation.

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