



RECONSTRUCTION OF FARAIID LEARNING THROUGH INTERACTIVE EDUCATIONAL GAMES: AN EXPERIMENTAL STUDY ON ISLAMIC HIGHER EDUCATION INSTITUTIONS (PTKI)

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Abstract

Theoretical and memorization-based approaches still dominate Faraid Science instruction at PTKI, so students struggle to relate concepts to mathematical and contextual inheritance calculation practices. This research aims to describe learning conditions and teaching material needs, develop teaching materials for Faraid HIWAR Science based on interactive educational games, and analyze their feasibility, practicality, attractiveness, effectiveness, and implications in learning. This research uses the Research and Development (R&D) method with the Dick and Carey model, which is carried out through ten systematic stages, ranging from goal identification to summative evaluation. Data were obtained through observation across several universities, validity tests conducted by three experts, questionnaires administered to lecturers and students, and effectiveness tests using independent-samples t-tests and N-gain analysis. The study's results showed that the developed teaching materials were deemed highly feasible, with an average validity of 92%. Practicality obtained an average of 88.25%, while attractiveness reached 90.7%. The effectiveness test showed a significant difference between the experimental and control classes ($0.024 < 0.05$), with the experimental class's N-gain score of 86.71 (effective) and the control class's 21.87 (ineffective). Faraid Science teaching materials based on interactive educational games are declared valid, practical, interesting, and effective, and relevant to the learning needs of Faraid Science at PTKI. Its use has positive implications for improving understanding, calculation skills in inheritance, and student motivation for learning.

Keywords: Digital Teaching Materials, Faraid Science, Educational Games, Counting of Inheritances, PTKI

INTRODUCTION

Faraid, as part of Islamic inheritance law, has a complex structure, involving the concepts of proportions, the division of each heir, and the principles of *ashabul furud* and *ashabah*. However, many students have difficulty understanding basic concepts such as kinship relationships, inheritance rights, and the calculation of each heir's share. Recent R&D research and teaching modules highlight the need to integrate math materials (fraction concepts) with faraid contexts and the use of teaching materials/technologies to clarify processes (e.g., integrated modules, educational games, digital tools) (Sulistiono, 2025). Faraid science has a complex structure, involving the analysis of kinship relationships, the identification of heirs, and the calculation of inheritance shares in accordance with sharia principles. However, in learning practice, the media used is still dominated by texts and lectures. Research by Nudin and Ahmad (2024) in the journal *Celik Faraid* shows that learners have difficulty connecting theories to real cases due to the absence of visual aids such as genealogy diagrams, inheritance calculators, or interactive simulations. When students are faced with case studies (including inheritance problems) involving many variables, they tend to become confused and unable to apply them appropriately (Kolar et al., 2023). The knowledge of Faraid is a must to be understood by the Muslim community because death is certain, and the distribution of inheritance

must be carried out. Indonesia, with the world's largest Muslim population, should serve as a barometer for the inheritance distribution system. If it refers to the distribution of inheritance according to Sharia, there is no difference between countries, as they both refer to the Quran and Sunnah. But the world community is highly pluralistic, and each country has its own method of distributing inheritance.

The difficulty in applying inheritance calculations is also because traditional methods of faraid learning tend to be textual and non-contextual. Many students are unable to apply Faraid formulas in real-world cases due to a lack of simulation-based exercises or case studies. Journal *Muara Education* revealed that *Faraid learning is still dominated by memorization and lecture approaches, which do not encourage deep conceptual understanding*. As a result, students tend to avoid these topics because they are perceived as complicated and confusing. The limitations of the learning media in Faraid Science make it difficult for students to apply the concept of inheritance in real case studies, especially due to the lack of visualization, simulation, and interactivity that support applied understanding.

The limitations of the media also contribute to students' low cognitive and affective involvement. Rustina Nurdin (2024) in *the Journal of Hadith Studies and Islamic Education*, highlighting that *Faraid learning that is not contextual and has minimal interaction makes students feel this topic is boring and difficult to master*. Without media that can present inheritance cases dynamically and realistically, students cannot develop the analytical skills needed to solve inheritance problems independently. This has implications for the low literacy of Inheritance Science among the younger generation of Muslims, which can ultimately lead to injustice in the practice of inheritance distribution.

Game Education has great potential as a solution to increase active involvement and understanding of inheritance calculation in Faraid Science, especially among students who have difficulty understanding the mathematical and practical aspects of inheritance in Islam (Crestani et al., 2025). Digital-native generation students need learning media that are interesting, interactive, and aligned with their characteristics to understand the concept of faraid in depth and its applicability. The digital-native generation grew up in a technology-laden environment, so their learning style tends to be visual, interactive, and self-exploratory. In the context of Faraid Science learning, approaches such as lectures and static texts are no longer effective for building deep understanding. Interactive digital learning media significantly increase engagement and conceptual understanding in cross-disciplinary learners. They emphasized that simulation-, animation-, and gamification-based media can bridge the gap between theory and practice in complex learning, such as inheritance calculation (Elsawah, 2025; C. Y. Lee et al., 2025; Coelho & Abreu, 2025).

The need for media aligned with digital-native learning styles is also reflected in several studies that identify that digital learning media is not only complementary but a key pillar of modern

education (Lazou & Tsinakos, 2025; Brunetti et al., 2020). In Faraid Science, students need tools that can visualize kinship relationships, automatically calculate inheritances, and present case studies dynamically. Media such as interactive apps, educational games, and web-based platforms allow students to learn flexibly, iteratively, and at their own pace.

Furthermore, articles from *Deepublish Store* (2025) classify digital learning media into several types relevant to Faraid Science: visual, audio, multimedia, and computer-based. The combination of these types can be used to design faraid learning media that is adaptive to native digital learning styles (Zhu, 2025; Dong et al., 2025). For example, interactive videos to explain inheritance genealogy, algorithm-based inheritance calculators, and game-based quizzes to test understanding. With this approach, inheritance science is no longer a complicated and boring topic, but rather an interesting, applicable, and appropriate learning experience for the times.

The substance and structure of the teaching materials in the curriculum and syllabus are the main components that affect the success of the learning program. Furthermore, the syllabus and curriculum are presented as teaching materials (Yin et al., 2025; Xiao et al., 2025). Increased knowledge of how to create more effective, efficient, and engaging learning methods and media can improve the quality of learning (Piankarnka, 2025; Ba et al., 2025; Muskhir et al., 2024). By utilizing learning resources, meaning development in learning is traced to its relationship with learning resources—interaction with a variety of learning resources that must be designed and managed well to achieve learning objectives.

Learning is a system composed of parts that interact to achieve a goal (Sipone et al., 2025; W. Zhang et al., 2025; Eapen et al., 2025). Learning means that students use learning resources to interact with them and achieve their goals. Students interact with a variety of learning resources during the learning process, not just with teachers. They also interact with all other learning resources to achieve the desired outcome (Wen et al., 2025; H. Zhang et al., 2025; Rivaz, 2025).

Technology and media should be the basis for known learning (Özergün-Köse, 2025; Hadžiomerović et al., 2025; Stuttgart & Stuart, 2025). One of the learning elements that requires attention is media and technology-based learning resources. This is because media- and technology-based learning resources can make learning easier for students (Yen et al., 2025; Software et al., n.d.). Learning media functions as a teaching aid, helping teachers use teaching methods (Supriadi, 2025), Bossetta & Bossetta, 2025, Roe et al., 2024). One of them is a learning media based on *games*, mobile phones, and computers, which can be used as a more interactive means of learning. Hungry educators can turn learning materials into quite interesting teaching materials. By using technology design in education, themed learning media *games* can be created (Toan et al., 2025; Zviel-G, Ghavami et al., 2025).

Game Interactive Education is a game that aims to engage students in learning about the subject while they play. It is hoped that by playing happily, students can better understand the subject matter

(T. Lu et al., 2025; Lin & Lu, 2024; Vinhal et al., 2024). One of the themes of the game is *game education*, which aims to provide educational value in games so that games, which initially only function as entertainment, can also be used as a learning or training tool (Ansari & Rosnelly, 2020; Rebollo et al., 2021; Padilla et al., 2021).

Interactive educational games can change the way lessons are taught. *Games* provide an effective and engaging way to encourage deep and meaningful learning. Interactive educational games can be a powerful tool for empowering students, preparing them for a successful future, and making learning an enjoyable and rewarding experience when designed and used correctly.

METHOD

In this study, the Dick and Carey model of Development Research (R&D) is used, specifically an experimental design with a pretest-posttest approach, to measure the effectiveness of Faraid Science teaching materials based on interactive educational games in improving students' ability to calculate inheritance in the Islamic Religious Education study program. This research will involve two groups of classes: the experimental class, which receives treatment with educational game-based Farid Science teaching materials, and the control class, whose learning process uses conventional methods.

The research stage begins with a pretest to assess students' ability to calculate their inheritance before treatment. Then, students in the experimental class will receive treatment with digital teaching materials based on educational games for a set period, while the control class will receive materials using a conventional learning model. After the intervention ended, a posttest was carried out to re-measure students' ability to calculate inheritance. The difference between the pretest and posttest scores is then analyzed to obtain a gain value with the formula:

$$g = \frac{\text{skor posttest} - \text{skor pretest}}{\text{skor maksimum} - \text{skor pretest}}$$







Data analysis used a *t-test* to compare the average gain score between the experimental and control groups. The selection of *the t-test* is based on its ability to determine whether there is a significant difference between two independent groups. In addition, a gain score analysis was carried out to assess the effectiveness of the intervention, using the method developed by Richard R. Hake, which categorizes gain values into low, medium, and high levels. Through this procedure, this study is expected to present empirical evidence on the effectiveness of educational game-based Faraid Science teaching materials in improving PAI students' ability to calculate inheritance.

RESULTS AND DISCUSSION

The development of Faraid Science teaching materials based on interactive educational games is an effort to transform pedagogy to overcome the stagnation of Islamic inheritance learning in many

religious universities. Faraid science is known to have complex characteristics because it contains mathematical formulas, fiqh rules, and multi-layered family case analysis. This condition often makes it difficult for students to understand the concept of inheritance because the dominant learning method still relies on lectures and linear theory delivery. Therefore, the use of *interactive game-based education is an innovative alternative that not only enhances conceptual understanding but also increases student motivation and participation through a more engaging, contextual learning experience* (Irabor et al., 2025).

The display of teaching materials consists of four options: guidelines for the operation of teaching materials; inheritance learning materials/inheritance theory in Islam; inheritance calculation procedures, which are the main menu in the process of automatic inheritance distribution; and game menus that contain problem-solving games for inheritance cases. Examples of the display of Faraid Science teaching material products are as follows:

 <p>Figure 1. Initial display of Faraid teaching materials</p>	 <p>Figure 2. The initial step in the inheritance calculation process is filling in information about the inheritance assets</p>	 <p>Figure 3. The second step in the inheritance calculation is filling in information about the spouse of the deceased</p>
 <p>Figure 4. Third step, filling in information about the children of the deceased</p>	 <p>Figure 5. Fourth step: filling in information about the grandchildren of the son</p>	 <p>Figure 6. Fifth step: filling in information about the parents of the deceased</p>

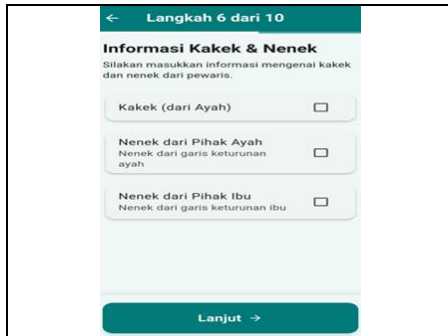


Figure 7. Sixth step: filling in information about the grandparents of the deceased



Figure 8. Seventh step: filling in information about siblings



Figure 9. Step eight: Entering information about the male nephews

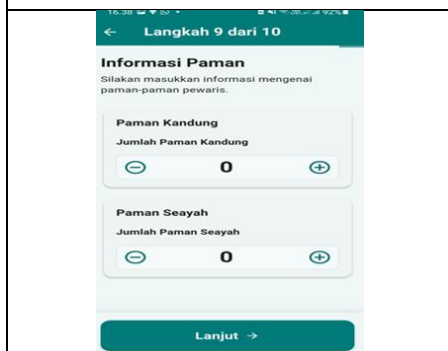


Figure 10. Step nine: Entering information about the uncles.



Figure 11. Step ten: Entering information about the cousins, then clicking "Calculate Inheritance" to view the final result

Next, the researcher determined the experimental and control classes, each consisting of 30 students, to test the ability to calculate inheritance before and after treatment.

Table 1: Number of Faraid Science Learning Students

College	Number of Students		Total
	Experimental Classes	Control Class	
UIN Sultan Maulana Hasanddin Banten	30	30	60

The researcher conducted field tests for eight meetings, including pretest activities, the implementation of Faraid Science learning in experimental and control classes, and posters. The results of the learning effectiveness test were then presented based on pretest, posttest, and N-Gain calculation data for the inheritance calculation material. Pretest and Posttest Data for Experimental Classes and Faraid Science Learning Control Classes. The results of the pretest and posttest of Faraid Science learning are presented as follows:

Results of the Faraid Science learning pretest in experimental classes and control classes. The pretest was conducted to identify the initial condition or level of students' ability to calculate inheritance in both the experimental and control classes before the application of educational game-based teaching materials. After the pretest results are obtained, the data is then analyzed to produce the average score, minimum score, maximum score, and standard deviation. The data is then presented in the following table.

Table 2. Experimental class and control class pretest results

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Pretes Kelas Kontrol	30	20	45	32.53	7.080
Pretes Kelas Eksperimen	30	25	60	41.83	9.671
Valid N (listwise)	30				

Based on Table 2, the average pretest score for learning Faraid Science in the experimental class was higher than in the control class.

Results of Faraid Science Learning Posts

The posttest was conducted to determine students' ability to calculate inheritance in the experimental and control classes after receiving treatment using Faraid Science teaching materials based on educational games. After the data on the ability to calculate inheritance are collected, data analysis is carried out, including the calculation of the average, minimum, maximum, and standard deviation. The results of the processing are presented in the following

Table 3. Results of the experiment class and control class posts

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Postes Kontrol	30	50	100	76.07	13.099
Postes Eksperimen	30	70	100	85.07	9.652
Valid N (listwise)	30				

Table 3. Shows that the average post-inheritance ability score in the experimental class is higher than in the control class.

Test of the Difference in Average Pretest and Posttest Scores of the Control Class and Experimental Class. After the researcher obtains the average pretest and posttest results, the next stage is to analyze the effectiveness of game-based Faraid Science teaching materials in improving students' ability to calculate inheritance. The test was carried out using N-Gain analysis and the independent-samples t-test. The results of the N-Gain calculation obtained are as follows:

Table 4. N-Gain Score Test Results

Classes	N-Gain Score	N-Gain Percent	Interpretasi
Experimental Classes	.7515	75.1490	Highly Effective
Control Class	.6450	64.5029	Ineffective

Table 3 shows that the N-Gain percentage in the experimental class reached 75, placing it in the effective category. This shows that applying Faraid Science's educational game-based teaching materials in experimental classes is effective in improving students' ability to calculate inheritance distribution. Meanwhile, the N-Gain percentage in the control class was 64, which was interpreted as being in the ineffective category.

The findings show that the learning media commonly used by lecturers in the control class have not improved students' ability to calculate inheritance effectively. Thus, it can be emphasized that the application of Faraid Science teaching materials, based on interactive educational games, is highly effective in improving students' ability to calculate inheritance in the PAI Study Program at Islamic religious universities.

Furthermore, an independent-samples t-test was performed to determine whether the average difference between the two groups was statistically significant. Before the test is carried out, the data is first tested to ensure the fulfillment of the analysis assumptions, namely through normality tests and homogeneity tests. Normality and homogeneity testing were performed using IBM SPSS Statistics 21. The results of the normality test are presented as follows:

Table 5. Normality Test of Gain Data

Tests of Normality						
Kelompok	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
NGain_Score						
Eksperimen	.112	30	.200 [*]	.941	30	.100
Kontrol	.112	30	.200 [*]	.967	30	.455

*. This is a lower bound of the true significance.
 a. Lilliefors Significance Correction

Based on Table 5, the significance values for *the control and experimental class gain data from* the Kolmogorov–Smirnov test are 0.200 and 0.200, respectively, which are greater than 0.05, so H_0 is accepted. In the Shapiro–Wilk test, the p-values are 0.100 and 0.455, both greater than 0.05, so H_0 is accepted. Because the sample size in this study is relatively small ($n < 2000$), the normality test used as a reference is the Shapiro–Wilk model (Shapiro & Wilk, 1965). Thus, it can be concluded that *the gain data* in both the control and experimental classes came from normally distributed populations.

In addition, the results of the homogeneity test on the pretest, posttest, and N-Gain scores of inheritance calculation ability in the experimental class and the control class are presented in the following table:

Table 6. Homogeneity Test Results of Pretests and Posttests of Experimental and Control Classes

Test of Homogeneity of Variances			
NGain_Score			
Levene Statistic	df1	df2	Sig.
1.723	1	58	.195

Table 6 shows that the significance level of 0.195 is greater than 0.05. Based on the test results, the variances of the gain data in the control and experimental classes showed uniformity (homogeneity).

Next, the researcher conducted a test of the mean difference. This test used an independent sample t-test with a significance level of 0.05. The results of the N-Gain average difference test for critical thinking skills are presented as follows:

Table 7. Average Difference in Inheritance Ability Test Results

		Independent Samples Test								
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper	
NGain_Persen	Equal variances assumed	1.723	.195	2.320	58	.024	10.64611	4.58959	1.45905	19.83318
	Equal variances not assumed			2.320	54.794	.024	10.64611	4.58959	1.44759	19.84464

Based on Table 7, the results of the independent t-test in *Levene's Test for Equality of Variances* show a significance value of $0.195 > 0.05$, so it can be concluded that the data variance is homogeneous (Sujarweni, 2015:14). Therefore, the *independent t-test* testing refers to *Equal Variances Assumed*. Based on the output table, the Sig. (2-tailed) value is $0.024 < 0.05$, indicating a significant difference in average learning outcomes between students who use game-based Faraid Science teaching materials and those who do not.

The effectiveness of Faraid Science's teaching materials based on interactive educational games lies in their ability to overcome several key problems that have been obstacles to faraid learning in Islamic religious universities. Faraid learning requires mastery of fiqh concepts, family analysis, and mathematical skills in calculating inheritance. Conventional teaching models, which emphasize lectures and memorization, often fail to provide an immersive learning experience, making it difficult for students to apply concepts to real-world cases (Suryadinata, Fatma, Nindiawati, 2025). *Games* Interactive education is present as a pedagogical solution that allows students to learn through simulation, exploration, and repetitive exercises in an engaging environment.

Theoretically, the effectiveness of educational games in learning is influenced by their ability to create *high engagement* and combine cognitive, affective, and psychomotor aspects. Constructivist learning theory states that learners build understanding through direct experience and active interaction with the material (Vygotsky, 1978). In the context of Faraid Science, educational games provide a learning experience that allows students to analyze cases, choose heirs, determine shares, and see the immediate consequences of their decisions. This activity triggers *deep learning*, a conceptual understanding that is more durable than simply listening to lecturers' explanations. The increase in gain scores aligns with Gagne's theory that gradual practice and feedback strengthen

retention, suggesting that the implementation of educational games provides significant cognitive reinforcement.

The effectiveness of game-based teaching materials is also supported by digital media's ability to provide *immediate feedback*. Mayer (2009) explained that instant feedback in multimedia learning improves students' ability to correct mistakes, understand logical flows, and strengthen concept retention. In faraid educational games, this feedback feature allows students to identify errors in the inheritance calculation process or in the determination of heirs, enabling quick, repeatable corrections. This process makes learning more effective than conventional evaluations, which are often delayed.

The effectiveness of educational games can also be seen from their ability to increase students' intrinsic motivation. Game elements such as challenges, rewards, levels, and narrative increase learning satisfaction and curiosity (Li et al., 2024). In the context of faraid learning, elements of the game, such as *Levels* that represent the difficulty of the family case, scoring based on calculation accuracy, and virtual badges for certain achievements, encourage students to keep trying. This motivation is what makes educational games more effective than static methods, as students tend to study longer, focus more, and enjoy the process more.

In addition to increasing motivation and understanding, the effectiveness of game-based faraid teaching materials can be seen in improving problem-solving skills. Faraid learning is an analytical process that requires the ability to integrate postulates, rules, and calculations. Research in educational technology shows that educational games can improve students' problem-solving abilities by providing opportunities to try, fail, learn, and discover patterns. In faraid games, students are presented with simulations of family cases with different structures. They must reason, compare the provisions of fiqh, and make systematic calculations. Thus, games are not only effective for mastering materials but also for developing applicative competencies.

From a learning evaluation perspective, game-based teaching materials have been proven to provide better results than traditional methods. Trials across various studies show that educational games can improve cognitive learning outcomes by 20–40% compared with conventional methods (Coelho et al., 2025). In the context of Faraid Science, this improvement can be measured through tests of the ability to identify heirs, determine shares, and solve complex cases. Students who learn to use games generally show higher accuracy and faster problem-solving. This happens because the game provides intensive training with a variety of cases that are difficult to achieve in lecture learning.

The effectiveness of Faraid Science's teaching materials, based on interactive educational games, stems from their ability to increase student engagement, motivation, conceptual understanding, material retention, and problem-solving skills. By providing a contextual, dynamic, and engaging learning experience, educational games can bridge the gap between fiqh theory and the realities of inheritance cases in society. Therefore, game-based teaching materials are not only an alternative

learning medium, but also an effective pedagogical approach to revitalize Faraid learning in Islamic religious colleges.

Usage of Game-Interactive education in learning Faraid Science has been proven to increase student learning motivation. This media provides a fun, non-monotonous learning environment, making students more enthusiastic about participating in learning. According to research (Linayanti et al., n.d.), game-based interactive media can significantly increase learners' engagement, as they feel challenged and motivated to complete each level or task.

The implementation of Faraid Science teaching materials based on interactive educational games in the learning process can be seen from users' responses, both students and lecturers, to the practicality and attractiveness test. Faraid Science's teaching materials, based on interactive educational games, are well received by users as very practical for the learning process. Likewise, in terms of attractiveness, it is considered very interesting. This means that Faraid Science's teaching materials, based on interactive educational games, are very interesting to implement in the learning process.

In terms of understanding concepts, *interactive game-based education helps students grasp complex inheritance structures through easy-to-understand simulations and visualizations. Games* This allows students to try out various inheritance distribution scenarios firsthand, so they not only memorize the theory but also apply it. Simulation-based approaches in learning design can strengthen understanding of abstract concepts through hands-on, interactive experiences (Manligoy et al., 2025).

In addition, educational game-based teaching materials can increase students' active participation in the classroom. Students who were previously passive or shy become more daring in their interactions because this media provides a space for exploration without pressure. *Game Education* creates an inclusive and supportive learning environment. Game-based learning media catalyze to increase student engagement and social interaction (Putra et al., 2025).

The use of Faraid Science teaching materials based on interactive educational games has a significant impact on the learning process and outcomes, especially in motivation, involvement, and student understanding of the concept of mawaris fiqh, which has been considered difficult and abstract. Faraid science, which requires analytical skills to determine heirs and perform mathematical calculations, is often a burden for students when taught through conventional methods. By integrating interactive approaches through educational games, HIWAR creates a more enjoyable learning environment, thereby reducing learning anxiety and increasing students' cognitive readiness to participate in learning. This condition aligns with Prensky's (2010) findings, which stated that game media can increase intrinsic motivation and make students more excited to engage with challenging material.

Another ability resulting from the use of Faraid Science teaching materials is increased *student engagement* or active involvement during the learning process. In educational games, students not

only receive information but also interact with the material through dialogue, case scenarios, problem-solving, and decision-making. *The interactive dialogue model of hiwar* in Islam is pedagogically believed to stimulate students' critical thinking skills and reflective abilities in addressing fiqh problems (Ahmad, 2018). When this dialogical approach is applied through the game interface, students also experience participatory learning. Deterding et al. (2011) show that game elements such as missions, points, levels, and instant feedback can increase the intensity of student involvement and extend the duration of their engagement in learning activities.

From a cognitive perspective, teaching materials based on interactive educational games have been proven to improve understanding of concepts and knowledge retention. Mayer (2009) emphasized that multimedia learning strengthens information processing by coordinating text, visuals, animations, and user activities. In the context of Faraid, students not only understand the theory but also practice it through realistic, family-case-based simulations. This allows students to see the relationship between fiqh theory and its application in real situations. This finding is consistent with Rahman's (2019) research, which states that students tend to understand the mechanism of inheritance distribution more easily when accompanied by visual simulations rather than just theoretical delivery.

CONCLUSION

Based on the research findings, it can be emphasized that the application of Faraid Science teaching materials through interactive educational games is effective in improving PAI students' ability to calculate inheritance distributions. This is evident in the average posttest score in the experimental class, which reached 85.07, higher than the control class's 76.07. In addition, the N-Gain value in the experimental class (0.75, 75%) was in the very effective category, while the control class obtained an N-Gain value of 0.64 (64%), which was in the ineffective category.

The results of the independent-samples t-test showed a significance value of 0.024, which was smaller than 0.05, so it can be concluded that there was a significant difference between the average of the experimental group and the control group. This finding confirms that the use of Faraid Science teaching materials based on educational games statistically significantly improves students' ability to calculate inheritance.

This educational game-based Faraid Science teaching material is developed interactively, drawing on the multimedia learning theory proposed by Richard E. Mayer. The product includes text, animation, audio, and reflective activity features in the inheritance calculation application. These features have been proven to encourage student participation and deepen their understanding of the concepts learned.

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