

The Effect Game Based Learning Model Using Educaplay on Elementary School Students' IPAS Learning Outcomes

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ABSTRACT

This study aims to determine whether there is an effect of the IPAS learning model on learning outcomes in the subject of Indonesian cultural heritage using a game-based learning model supported by Educaplay media for fourth-grade students at SD Negeri 55 Prabumulih. This study employed a quasi-experimental design with a nonequivalent control group design. The study population consisted of all 41 fourth-grade students at SD Negeri 55 Prabumulih. The sample comprised Class IV A as the control group (21 students) and Class IV B as the experimental group (20 students). Data collection was conducted using tests. Data analysis techniques included normality tests, homogeneity tests, hypothesis testing, and N-Gain tests. The results showed a calculated t-value of 5.139, which was greater than the critical t-value of 2.023, with a significance level of 0.00 (less than 0.05). The calculated N-Gain score for the experimental class was 0.70, which falls into the high category, and the N-Gain percentage was 70.94%, which is considered sufficiently effective for use in learning activities. Therefore, it is concluded that there is an effect of the game-based learning model assisted by Educaplay media on improving IPAS learning outcomes regarding Indonesian cultural heritage material among fourth-grade students at SD Negeri 55 Prabumulih.

Informasi Artikel

Kata Kunci:

Model Game Based Learning; Media Educaplay; Hasil Belajar IPAS.

ABSTRAK

Penelitian ini bertujuan untuk mengetahui ada atau tidak pengaruh peningkatan hasil belajar IPAS pada materi kekayaan budaya Indonesia dengan menggunakan model pembelajaran *game based learning* berbantuan media *educaplay* siswa kelas IV SD Negeri 55 Prabumulih. Penelitian ini menggunakan metode eksperimen desain *quasi experimental*, dengan bentuk desain *nonequivalent control group design*. Populasi penelitian adalah seluruh siswa kelas IV SD Negeri 55 Prabumulih berjumlah 41 siswa dengan sampel. Sampel penelitian yaitu kelas IV A sebagai kelas kontrol yang berjumlah 21 siswa dan IV B sebagai kelas eksperimen yang berjumlah 20 siswa. Teknik pengumpulan data menggunakan tes. Teknik analisis data menggunakan uji normalitas, uji homogenitas, uji hipotesis dan uji N- Gain. Hasil penelitian ini diperoleh nilai t hitung 5,139 > t tabel yaitu 2,023 dengan nilai signifikan 0,00 kurang dari 0,05. Hasil perhitungan N – Gain skor kelas eksperimen 0,70 yang berada pada kategori tinggi dan hasil N - Gain persen sebesar 70,94% yang tergolong cukup efektif untuk digunakan dalam kegiatan pembelajaran. Maka disimpulkan bahwa ada pengaruh peningkatan hasil belajar IPAS pada materi kekayaan budaya Indonesia menggunakan model pembelajaran *game based learning* berbantuan media *educaplay* siswa kelas IV SD Negeri 55 Prabumulih.

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1. Intruduction

A curriculum is a plan of learning activities followed by teachers and students to achieve desired educational goals. The Indonesian government has introduced the “Merdeka” curriculum, which gives teachers and schools the freedom to design lessons. According to [1], the “Merdeka” curriculum was created to give teachers full freedom in designing learning processes tailored to each student’s individual characteristics. In line with [2], the “Merdeka” curriculum is designed to create a meaningful and effective learning process that strengthens students’ faith, devotion to God Almighty, and good moral character. Additionally, this curriculum aims to hone students’ creativity, emotions, and determination as individuals who possess a spirit of lifelong learning and embody the values of Pancasila.

One aspect of the “Merdeka” curriculum reform at the elementary school level is the introduction of the IPAS subject. This statement is supported by [3], which notes that one of the impacts of implementing the Merdeka Curriculum in elementary schools (SD)/MI is the integration of the Natural Sciences (IPA) and Social Sciences (IPS) subjects into Natural and Social Sciences (IPAS). IPAS is a combination of the Natural Sciences (IPA) and Social Sciences (IPS) subjects. At the elementary school level, IPAS plays a crucial role in enhancing students’ understanding of natural and social phenomena in their environment [4]. However, to this day, many students still face difficulties or obstacles in learning IPAS in elementary school due to low motivation, a lack of variety in teaching methods, and minimal use of digital learning media.

Based on research conducted by [5], the challenges students face in learning IPAS in the fourth grade of elementary school are caused by several factors—both internal and external—including low interest in learning IPAS, a tendency for students to focus on only one subject (such as science), and low motivation to learn due to a lack of encouragement from parents at home. Meanwhile, external factors include monotonous teaching methods and instructional models that are still not entirely appropriate.

Based on observations at SD Negeri 55 Prabumulih in the IPAS subject, student learning outcomes on the Mid-Semester Exam (UTS) were still relatively low, with only 6 out of 20 students achieving a passing grade. Classroom instruction lacked variety and tended to rely on conventional methods such as lectures and question-and-answer sessions, and some students were still found to be unfocused while the teacher was explaining. Furthermore, the use of digital media in the classroom remains very limited, even though the school has adequate facilities, such as laptops and projector.

Given the issues outlined above, solutions are needed in the learning process, as these issues will continue to impact students’ learning outcomes. Such solutions may include the use of instructional models and media tailored to the needs of elementary school students. One alternative model that can be

used is Game-Based Learning (GBL). The Game-Based Learning model is a game-based instructional approach designed to make the learning process more engaging; through this approach, students can better understand the concepts being taught [6].

Several previous studies that have examined the game-based learning (GBL) model—including the study conducted by [7] indicate that the GBL model helps students understand complex concepts. This makes students more motivated to learn and participate actively, and enables them to grasp IPAS material more easily. The study conducted by [8] shows that the use of the GBL model can effectively improve learning outcomes, participation, and enthusiasm in IPAS classes.

On the other hand, the use of learning media that keeps pace with the advancements of the 21st century is crucial to incorporate into learning activities so that students can more easily understand the material[9]. One interactive digital medium that can be utilized is the Educaplay website. Educaplay is an online platform that offers various forms of interactive educational media, such as quizzes, matching games, puzzles, and so on[10]. Previous research, such as that conducted by [11], indicates that students who use Educaplay find it easier to understand concepts and are more motivated compared to students who do not use the platform [12]. Before the implementation of Educaplay, IPAS learning outcomes were typically low, and learning activities were less engaging. Following its implementation, a significant improvement was observed in both academic performance and student participation during the learning process.

Given the low student achievement in IPAS and the limited use of digital learning models and media, this study was conducted to examine in greater depth the effect of a game-based learning model supported by Educaplay media on the IPAS achievement of elementary school students.

2. Method

This study employs a quantitative research approach, and the method used is an experimental method with a quasi-experimental design. Specifically, a nonequivalent control group design was used. The focus of this study is the impact of a game-based learning model using the Educaplay platform on IPAS learning outcomes. The study was conducted at SD Negeri 55 Prabumulih. The population of this study consisted of all 41 fourth-grade students in the 2025/2026 academic year. The sample comprised Class 4A, serving as the control group with 21 students, and Class 4B, serving as the experimental group with 20 students. Data collection techniques included tests and documentation. The test included 10 questions that had been validated through expert judgment by two lecturers from PGRI University of Palembang and one teacher from SD Negeri 55 Prabumulih. Data analysis was performed using normality tests, homogeneity tests, hypothesis testing, and the N-Gain test.

3. Results And Discussion

3.1 Results

The results of the study indicate an improvement in student learning outcomes in the experimental class after the implementation of a game-based learning model supported by Educaplay media, as measured by students' IPAS scores in elementary school. The following table shows the pretest and posttest scores for the experimental class:

Table 1 Pretest and Posttest Learning Outcomes

Class	Number of Students	Pretest Average	Posttest Average
Experiment	20	54	85
Control	21	55,23	63,33

Table 1 shows that the average posttest scores in the experimental class were higher than those in the control class. This indicates that the use of a Game-Based Learning model supported by the Educaplay platform has a positive impact on student learning outcomes.

Table 2 Normality Test Table

Tests of Normality		Shapiro-Wilk		
Value	Class	Statistic	Df	Sig.
	Pretest (Control)	.931	21	.144
	Posttest (Control)	.933	21	.159
	Pretest (Experiment)	.911	20	.067
	Posttest (Experiment)	.908	20	.058

a. Lilliefors Significance Correction

Based on the above calculations, the p-values for both the control and experimental groups are greater than 0.05. Based on the homogeneity test criteria, the data for the experimental and control groups are normally distributed.

Table 3 Homogeneity Test

Test of Homogeneity of Variance					
Value	Based on	Levene Statistic	df1	df2	Sig.
	Mean	.208	1	39	.651
	Median	.135	1	39	.715
	Median and with adjusted df	.135	1	32.376	.716
	Based on trimmed mean	.214	1	39	.646

Based on the calculation results, the significance value of 0.651 is greater than 0.05. Based on the homogeneity test criteria, the variances of the control and experimental groups can be considered equal or homogeneous.

Table 4 hypothesis test

Independent Sampel T Test	T- Value	Sig (2- Tailed)
Value	5,139	0,00

Based on the calculation results, the calculated t-value of 5.139 is greater than the critical t-value of 2.023, and the significance level of 0.00 is less than 0.05; therefore, H_0 is rejected and H_1 is accepted. Therefore, it can be concluded that "The game-based learning model supported by Educaplay has an effect on the IPAS learning outcomes regarding the subject of Indonesian cultural heritage among fourth-grade students at SD Negeri 55 Prabumulih." Based on the calculation results, the calculated t-value of 5.139 is greater than the critical t-value of 2.023, and with a p-value of 0.00 (less than 0.05), H_0 is rejected and H_1 is accepted. Therefore, it can be concluded that "The game-based learning model supported by Educaplay media has an effect on the IPAS learning outcomes regarding the subject of Indonesian cultural heritage among fourth-grade students at SD Negeri 55 Prabumulih."

Table 5 N- Gain Test

	Experiment Class	Control Class
Mean N – Gain score	0,70	0,19
Mean N – Gain persen	70,94	19,76
N	20	21

Based on the results of the N-Gain test for the experimental class with 20 students, the mean N-Gain score was 0.70, which, according to the N-Gain test classification, falls into the "high" category. The mean N-Gain percentage was 70.94%; based on the N-Gain effectiveness criteria, this falls into the "moderately effective" category. It can be concluded that the game-based learning model supported by Educaplay media demonstrated a significant improvement in learning outcomes and is moderately effective for use in IPAS learning activities for fourth-grade elementary school students.

The control class, consisting of 21 students who learned using conventional methods without the aid of Educaplay, achieved a mean N-Gain score of 0.19; based on the N-Gain test criteria, this falls into the low category. The mean N-Gain percentage was 19.76%; based on the N-Gain effectiveness criteria, this falls into the "ineffective" category. There was a significant difference between the mean N-Gain scores of the experimental and control classes, amounting to 0.51. The difference in the mean N-Gain percentages between the experimental and control classes was 51.18.

3.2 Discussion

Motivated by the IPAS learning outcomes on the midterm exam (UTS) for fourth-grade students at SD Negeri 55 Prabumulih, which were still relatively low—only 6 out of 20 students achieved a passing score. After the intervention was implemented, the students' IPAS learning outcomes showed improvement, with the average posttest score of 85 representing an increase compared to the average pretest score of 54.

Based on the Shapiro-Wilk normality test, the significance values for the control class were 0.144 for the pretest and 0.159 for the posttest. Meanwhile, the significance values for the experimental class were 0.067 for the pretest and 0.58 for the

posttest. It can be concluded that the data from both the control and experimental classes are normally distributed because these values are greater than 0.05. In the homogeneity test, the value based on the mean was 0.208 with a significance value of 0.651 > 0.05, meaning that the sample variances for both the control and experimental classes were homogeneous. In the hypothesis test, the calculated t-value was 5.139, which is greater than the critical t-value of 2.023, with a significance level of 0.00 less than 0.05. The N-Gain score for the experimental class was 0.70, which falls into the "high" category, and the N-Gain percentage was 70.94%, which is considered sufficiently effective for use in learning activities. It can be concluded that "There is an effect of the game-based learning model supported by Educaplay on improving IPAS learning outcomes in the subject of Indonesian cultural heritage among fourth-grade students at SD Negeri 55 Prabumulih."

Based on several previous studies, such as the research conducted by [13] on "The Effect of the Educaplay-Assisted Game-Based Learning (GBL) Model on the IPAS Learning Outcomes of Fifth-Grade Elementary School Students," it was shown that after receiving the treatment using the Educaplay-assisted game-based learning model, IPAS learning outcomes on the topic of the human respiratory system improved. A study conducted by [14] on the Effect of Game-Based Learning (GBL) Assisted by Educaplay on Digital Literacy and Learning Outcomes of Seventh-Grade Students at SMP Negeri 2 Samarinda stated that Game-Based Learning (GBL) assisted by Educaplay is effective in improving students' cognitive learning outcomes as well as their digital literacy skills. In line with [15], it is revealed that educational games are a type of game designed to achieve learning objectives, helping students understand subject matter in a more enjoyable and meaningful way.

Based on the discussion above and several previous studies, it can be concluded that the game-based learning model supported by Educaplay media has a positive impact and improves the IPAS learning outcomes of fourth-grade elementary school students.

4. Conclusion

Based on the results of a study conducted on "The Effect of a Game-Based Learning Model Assisted by Educaplay Media on Elementary School Students' IPAS Learning Outcomes." A significant value of $0.00 < 0.05$ was obtained. The N-Gain score calculation for the experimental class showed a value of 0.70, which falls into the high category, and the N-Gain percentage was 70.94%, which is considered quite effective for use in learning activities. It can be concluded that "There is an effect of improved IPAS learning outcomes on the subject of Indonesian cultural heritage using the game-based learning model supported by Educaplay media for fourth-grade students at SD Negeri 55 Prabumulih."

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