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# The Effectiveness of Gimkit-Based Interactive Learning Media in Enhancing Students' Learning Interest and Learning Outcomes in Integrated Science and Social Studies (IPAS) Among Fifth-Grade Students at SDN Pare 2, Kediri Regency

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**Abstract**

*This study examines the effectiveness of Gimkit interactive learning media in improving the learning interest and learning outcomes of fifth-grade students in Science and Social Studies (IPAS). The research applied a quantitative approach with a quasi-experimental design of the nonequivalent control group type. The population and sample comprised 70 fifth-grade students of SDN Pare 2, Kediri Regency, selected through total sampling, with class VA (36 students) as the experimental group and class VB (34 students) as the control group. The experimental group learned the topic Indonesia Kaya Raya through Gimkit, while the control group received conventional instruction. Learning interest was measured with a validated 15-item Likert questionnaire and learning outcomes with a validated 20-item multiple-choice test administered as pretest and posttest. Data were analyzed using descriptive statistics, normality and homogeneity tests, paired sample t-test, independent sample t-test, normalized gain (N-Gain), and effect size (Cohen's d). The paired sample t-test showed a significant increase in the experimental group for interest (t = 24.216; p = 0.000) and outcomes (t = 37.575; p = 0.000). The independent sample t-test confirmed significant differences between groups for interest (t = 4.642; p = 0.000) and outcomes (t = 7.451; p = 0.000). The effect sizes were large, namely 1.110 for interest and 1.782 for outcomes. The findings indicate that Gimkit effectively improves learning interest and learning outcomes and outperforms conventional instruction in IPAS learning at the elementary level.*



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**Keywords: Gimkit; Gamification; Learning Interest; Learning Outcomes; Science and Social Studies (IPAS).**

## INTRODUCTION

The Merdeka Curriculum positions learners as active participants who construct meaning through relevant and enjoyable experiences (Nabilah et al., 2023). Science and Social Studies, known in Indonesia as IPAS, integrates natural and social science concepts and requires learning that connects abstract material with the everyday lives of students. Elementary students at the concrete operational stage need contextual and interactive presentations to grasp such integrated content. This demand places learning interest at the center of instructional design because interest drives the attention, participation, and persistence that lead to meaningful understanding.

Classroom observation at SDN Pare 2 Kediri Regency showed that IPAS learning still relied heavily on lectures with limited use of the available digital facilities. Although each classroom was equipped with a projector, a SMART TV, and internet access, these resources were not optimized, so the learning atmosphere remained monotonous. This condition weakened student interest and, in turn, lowered learning outcomes on the topic Indonesia Kaya Raya, which covers natural resources, cultural diversity, and the link between geography and social life. The gap between the readiness of the infrastructure and the low use of interactive media became the starting point of this study.

Gamification offers a response to this problem by embedding game elements such as points, competition, and immediate feedback into learning activities (Fithriyah, et al., 2025). A meta-analysis by Sailer and Homner (2020) reported a significant positive effect of gamification on cognitive, motivational, and behavioral outcomes, while Bai, Hew, and Huang (2020) confirmed a positive effect on learning outcomes that depends on the quality of the design. More recent syntheses reinforce this pattern, with Zeng, Sun, Looi, and Fan (2024) reporting a medium to strong effect on academic performance and Lampropoulos and Sidiropoulos (2024) showing the advantage of gamified learning over online and traditional formats. These results indicate that gamification functions as an instructional strategy rather than mere entertainment.

Gimkit is a game-based quiz platform in which students answer questions, receive instant feedback, and use virtual currency to build strategies during play. Studies in Indonesia have documented its benefits across levels and subjects (Suttrisno, et al., 2026). Agustina, Rienovita, and Emilzoli (2024) found that Gimkit improved student learning outcomes, and Amelia (2024)



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reported an increase in the learning interest of fifth-grade students who used Gimkit as an interactive evaluation tool. Jaya, Harjanto, and Elvadola (2023) and Nabilah, Nanda, and Mirnawati (2023) developed Gimkit-based instruments for IPAS and obtained positive engagement within the Merdeka Curriculum. These works establish the relevance of Gimkit for IPAS learning.

Prior research nevertheless leaves a gap. Most international studies rest on meta-analyses across mixed platforms and higher levels, while Indonesian studies tend to be development or classroom-action research focused on a single domain. Few quasi-experimental studies simultaneously test learning interest and learning outcomes in elementary IPAS using Gimkit with confirmation through between-group comparison together with N-Gain and effect size. This study addresses that gap by providing quantitative evidence on both the affective and cognitive domains within one controlled design. The objectives are to determine whether Gimkit improves learning interest and learning outcomes and whether it is more effective than conventional instruction in fifth-grade IPAS learning.

## RESEARCH METHODS

This study used a quantitative approach with a quasi-experimental design of the nonequivalent control group type. The design was selected because the participants could not be randomly assigned to groups, since the classes had been formed at the start of the academic year. Intact classes served as the experimental and control groups, and equivalence of initial conditions was examined empirically through pretest comparison and prerequisite tests rather than through randomization (Sugiyono, 2019). Both groups received a pretest, a treatment, and a posttest, so the difference in gains could be attributed to the difference in the learning media.

**Table 1. Nonequivalent Control Group Design**

| Group | Pretest | Treatment | Posttest |
|---|---|---|---|
| Experimental (VA) | O1 | X (Gimkit) | O2 |
| Control (VB) | O3 | - (Conventional) | O4 |

Note: O1 and O3 are pretests; O2 and O4 are posttests; X is the Gimkit-assisted treatment; and the dash denotes conventional instruction without Gimkit.

The research was conducted at SDN Pare 2 Kediri Regency from January to March 2026. The population and sample comprised all 70 fifth-grade students, selected through total sampling, with class VA (36 students) as the experimental group and class VB (34 students) as the control


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group. The independent variable was the use of Gimkit, and the dependent variables were learning interest and learning outcomes in IPAS. The experimental group learned the topic Indonesia Kaya Raya through Gimkit across two meetings, while the control group learned the same material through lectures, questioning, and assignments with equal time allocation and objectives.

Two instruments were used. Learning interest was measured with a 15-item Likert questionnaire covering five aspects, namely enjoyment, attention, curiosity, active participation, and willingness to learn, with a theoretical score range of 15 to 75. Learning outcomes were measured with a multiple-choice test aligned with the indicators of the topic within Phase C of the Merdeka Curriculum. Content validity was assessed by expert validators, and empirical validity used the corrected item-total correlation with a threshold of 0.361. All 15 questionnaire items were valid, and 19 of the 20 test items were valid and retained. The Cronbach's Alpha reached 0.940 for the questionnaire and 0.820 for the test, indicating high internal consistency.

Data analysis proceeded in stages. Descriptive statistics summarized the minimum, maximum, mean, and standard deviation. Normality was tested with Kolmogorov-Smirnov and Shapiro-Wilk, and homogeneity with the Levene test, both at the 0.05 level. Hypothesis testing used the paired sample t-test to examine gains within the experimental group and the independent sample t-test to examine differences between groups at posttest. The normalized gain (N-Gain) followed the Hake categories to assess the quality of improvement, and the effect size (Cohen's d) followed the Cohen categories to assess the strength of influence, so effectiveness could be judged through statistical significance and practical significance together.

## RESULTS AND DISCUSSION

The descriptive statistics show a higher gain in the experimental group for both variables. The mean interest score in the experimental group rose from 45.47 to 62.50, while the control group rose from 46.50 to 55.53. The mean outcome score in the experimental group rose from 54.44 to 83.06, while the control group rose from 53.24 to 66.47. The similar pretest means support the assumption of comparable initial conditions, so the wider posttest gap in the experimental group points to the effect of the treatment.


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**Table 2. Descriptive Statistics of Learning Interest and Learning Outcomes**

| Variable / Group | N | Min | Max | Mean | SD |
|---|---|---|---|---|---|
| Interest Exp. Pretest | 36 | 31 | 60 | 45.47 | 7.30 |
| Interest Exp. Posttest | 36 | 50 | 75 | 62.50 | 6.07 |
| Interest Con. Pretest | 34 | 24 | 62 | 46.50 | 7.80 |
| Interest Con. Posttest | 34 | 41 | 68 | 55.53 | 6.50 |
| Outcome Exp. Pretest | 36 | 40 | 65 | 54.44 | 6.41 |
| Outcome Exp. Posttest | 36 | 65 | 100 | 83.06 | 8.97 |
| Outcome Con. Pretest | 34 | 35 | 75 | 53.24 | 9.45 |
| Outcome Con. Posttest | 34 | 45 | 85 | 66.47 | 9.66 |

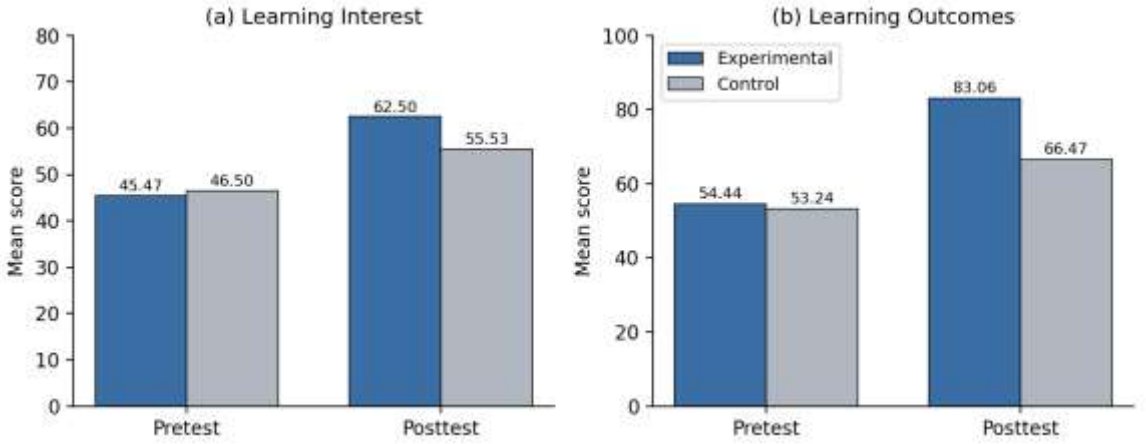



Figure 1. Mean Pretest and Posttest Scores of Learning Interest and Learning Outcomes by Group

The prerequisite tests were satisfied. All eight data groups were normally distributed, since



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the significance values of the Kolmogorov-Smirnov and Shapiro-Wilk tests exceeded 0.05. The Levene test also produced significance values above 0.05 for both posttest variables, so the variances were homogeneous. These results justified the use of parametric tests for hypothesis testing.

**Table 3. Results of Normality and Homogeneity Tests**

| Data / Variable | K-S Sig. | S-W Sig. | Levene Sig. | Conclusion |
|---|---|---|---|---|
| Interest posttest (both groups) | > 0.05 | > 0.05 | 0.710 | Normal & Homogeneous |
| Outcome posttest (both groups) | > 0.05 | > 0.05 | 0.758 | Normal & Homogeneous |

Hypothesis testing confirmed significant improvement within the experimental group. The paired sample t-test showed that interest increased significantly, with a t value of 24.216 and a significance of 0.000, and that outcomes increased significantly, with a t value of 37.575 and a significance of 0.000. The null hypotheses were rejected, so Gimkit produced significant gains in both the affective and cognitive domains.

**Table 4. Results of the Paired Sample t-Test (Experimental Group)**

| Variable | Mean Pretest | Mean Posttest | t | df | Sig. | Decision |
|---|---|---|---|---|---|---|
| Interest | 45.47 | 62.50 | 24.216 | 35 | 0.000 | H0 rejected |
| Outcomes | 54.44 | 83.06 | 37.575 | 35 | 0.000 | H0 rejected |

The independent sample t-test confirmed the advantage of Gimkit over conventional instruction. The posttest interest mean of the experimental group (62.50) exceeded that of the control group (55.53), with a t value of 4.642 and a significance of 0.000. The posttest outcome mean of the experimental group (83.06) exceeded that of the control group (66.47), with a t value of 7.451 and a significance of 0.000. Both differences were significant, so the experimental group outperformed the control group on both variables.



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**Table 5. Results of the Independent Sample t-Test (Posttest)**

| Variable | Mean Exp. | Mean Con. | t | df | Sig. | Decision |
|---|---|---|---|---|---|---|
| Interest | 62.50 | 55.53 | 4.642 | 68 | 0.000 | H0 rejected |
| Outcomes | 83.06 | 66.47 | 7.451 | 68 | 0.000 | H0 rejected |

The effectiveness analysis reinforced these results. The N-Gain of the experimental group was higher than that of the control group on both variables, and the effect sizes were large. For interest, the N-Gain reached 0.577 (medium) in the experimental group against 0.317 (medium) in the control group. For outcomes, the N-Gain reached 0.628 (medium) in the experimental group against 0.283 (low) in the control group. The Cohen's d values of 1.110 for interest and 1.782 for outcomes exceeded the 0.80 threshold, which indicates a strong practical effect.

**Table 6. N-Gain and Effect Size (Cohen's d)**

| Variable | Group | N-Gain | Category | Cohen's d | Category |
|---|---|---|---|---|---|
| Interest | Experimental | 0.577 | Medium | 1.110 | Large |
| Interest | Control | 0.317 | Medium | | |
| Outcomes | Experimental | 0.628 | Medium | 1.782 | Large |
| Outcomes | Control | 0.283 | Low | | |

**The Effect of Gimkit on Learning Interest**

The increase in learning interest can be explained through the ARCS Motivation Model of Keller (2010). The competition, the virtual currency, and the immediate feedback of Gimkit capture and sustain attention, while the freedom to choose strategies builds confidence and satisfaction when correct answers yield rewards. This enjoyable experience shifts the perception of IPAS from a monotonous activity into an anticipated one. The finding aligns with Amelia (2024), who reported a real increase in the learning interest of fifth-grade students who used Gimkit as an interactive evaluation tool.

Self-Determination Theory (Ryan & Deci, 2020) strengthens this explanation through the satisfaction of autonomy, competence, and relatedness. Gimkit grants autonomy when students decide their own moves, fosters competence through measurable scores, and builds relatedness


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in the team mode. The meta-analytic synthesis of Li, Xia, Chu, and Yang (2024) confirms that gamification most consistently improves intrinsic motivation, perceived autonomy, and relatedness, which matches the pattern observed in this study. Ratinho and Martins (2023) add that gamified strategies raise motivation while cautioning that the effect may decline over time, so sustained variation in the game modes is needed.

**The Effect of Gimkit on Learning Outcomes**

The improvement in learning outcomes can be analyzed through the Cognitive Theory of Multimedia Learning of Mayer (2021). The theory holds that people process information through visual and verbal channels, so a presentation that combines text, color, and graphics helps learners build a more complete mental representation. The concise question format of Gimkit, supported by instant visual feedback, reduces extraneous load and directs attention to the core material, while repeated rounds strengthen retention. Agustina, Rienovita, and Emilzoli (2024) provide congruent evidence that Gimkit improves student learning outcomes.

Constructivist principles offer a complementary account. Students do not receive knowledge passively but construct understanding through active interaction with the challenges of the game, which demand rapid decision-making. The cycle of answering, receiving feedback, and revising strategy places the learner as an active subject, consistent with the demands of IPAS learning. Zainuddin, Shujahat, Haruna, and Chu (2020) show that gamified e-quizzes drive engagement and achievement through continuous formative feedback, which supports the gains recorded in the experimental group.

**The Superiority of Gimkit over Conventional Instruction**

The difference in achievement between the groups confirms the advantage of Gimkit-assisted learning. The control group that learned through lectures obtained more limited gains because the presentation involved less active interaction and immediate feedback. Krath, Schurmann, and von Korflesch (2021) emphasize that the success of gamification rests on the alignment of game elements with learning goals and learner characteristics, and the fit between the topic Indonesia Kaya Raya and the quiz format supported the large effect observed here. The pattern is consistent with Zeng, Sun, Looi, and Fan (2024) and Lampropoulos and Sidiropoulos (2024), who report the advantage of gamified learning on academic performance.

The interpretation of the effect size requires attention to context. The medium N-Gain reflects the relatively short treatment of two meetings, which limited the room for improvement


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to reach the high category, a caution also raised by Ratinho and Martins (2023) regarding the novelty effect. At the same time, the readiness of the technological infrastructure at SDN Pare 2 and the responsiveness of the students to the game enlarged the effect. The finding should be read as strong evidence within its context rather than a universal claim, and replication with a longer duration and a broader sample would strengthen the conclusion.

The relationship between interest and outcomes appears as a single system in which the affective and cognitive domains support each other. Interest directs attention, attention enlarges active engagement, and engagement strengthens the cognitive processing that yields retention (Suttrisno, 2025). Ryan and Deci (2020) stress that high-quality motivation drives persistence that supports achievement, which explains why the group with the larger gain in interest also showed the larger gain in outcomes. The results indicate that a single intervention through Gimkit produced a dual effect because it operated on attention and on information processing at the same time.

## CONCLUSION

This study demonstrates that Gimkit interactive learning media effectively improves the learning interest and learning outcomes of fifth-grade students in IPAS. The paired sample t-test confirmed significant gains in the experimental group for interest and outcomes, and the independent sample t-test confirmed that the experimental group outperformed the control group on both variables. The N-Gain of the experimental group was higher than that of the control group, and the effect sizes of 1.110 for interest and 1.782 for outcomes fell in the large category, which shows a strong practical effect. These results position Gimkit as an effective medium that unites the growth of interest and the improvement of outcomes within one learning process.

The findings carry theoretical, practical, and policy implications. Theoretically, they reinforce the application of the Cognitive Theory of Multimedia Learning, the ARCS Motivation Model, Self-Determination Theory, and constructivism in elementary IPAS learning. Practically, they provide teachers with a basis for designing quizzes aligned with learning goals and for using instant feedback as formative assessment. In terms of policy, they support the provision of infrastructure and teacher training to sustain gamified digital learning. Future research should extend the sample, lengthen the treatment, and combine quantitative and qualitative approaches to capture the dynamics of interest and outcomes more fully.


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