

THE EFFECT OF GENIALLY-BASED INTERACTIVE MEDIA ON FIFTH-GRADE STUDENTS' INTEREST IN IPAS LEARNING

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Abstract

Students' interest in learning IPAS needs to be supported through learning media that can present concepts in a more visual, interactive, and engaging way. This study examined the effect of Genially-based interactive media on fifth-grade students' interest in learning IPAS, particularly on food chain material. A quantitative quasi-experimental design with a nonequivalent control group was employed. The participants were 46 fifth-grade students, consisting of 21 students in the experimental class and 25 students in the control class. The experimental class learned through Genially-based interactive media, while the control class received conventional instruction. Students' learning interest was measured using a 20-item questionnaire administered before and after the intervention. The instrument showed strong internal consistency, with a Cronbach's alpha value of 0.944. Assumption testing indicated that the data were normally distributed and homogeneous. The pretest comparison showed no significant difference between the experimental and control groups, $t(44) = 0.799$, $p = 0.429$, indicating relatively similar initial learning interest. The posttest comparison showed a significant difference between the groups, $t(44) = 4.146$, $p < .001$. These findings suggest that Genially-based interactive media was associated with higher students' learning interest in IPAS. The results should be interpreted within the limits of the nonequivalent group design and the use of questionnaire-based data.

Keywords: Genially; interactive learning media; learning interest; IPAS learning; elementary school

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INTRODUCTION

Natural and Social Sciences, or *Ilmu Pengetahuan Alam dan Sosial* (IPAS), is a distinctive subject in Indonesia's Merdeka Curriculum because it integrates natural and social science perspectives in elementary education. Through IPAS, students are expected to understand natural phenomena, social life, and the relationship between humans and their environment in a more connected way. This integrated character requires learning activities that do not rely only on verbal explanation, but also help students observe, connect, and make sense of concrete phenomena around them. Previous studies on IPAS implementation indicate that teachers need to design learning experiences that are student-centred, contextual, and supported by appropriate media so that students can understand IPAS concepts more meaningfully (Komariah et al., 2023; Marwa et al., 2023).

However, IPAS learning in elementary schools still faces several practical challenges. Students may experience difficulty when the material is presented in a dense, abstract, or monotonous way. Sa'adahh et al. (2023) found that students' difficulties in IPAS learning were associated with several internal and external factors, including low learning motivation, limited use of learning media, inadequate facilities, and less varied teaching methods. These conditions suggest that the quality of classroom interaction and the selection of learning media are important for sustaining students' learning interest. In elementary classrooms, learning interest is not a minor affective issue. It shapes students' attention, willingness to participate, and readiness to follow learning activities. When students are interested, they are more likely to focus on the material and respond positively to the learning process.

Learning media can play an important role in supporting students' interest because it helps teachers present material in a more concrete, visual, and engaging form. Puspitarini et al. (2019) argue that learning media can increase elementary students' motivation when it is selected according to

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learners' characteristics and classroom needs. Similar findings are reported by Yonanda et al. (2024), who show that multimedia-based interactive media can support motivation and learning outcomes in elementary learning contexts. These studies suggest that media should not be treated as decoration in teaching, but as a pedagogical tool that helps students access, process, and respond to learning content.

Interactive digital media is particularly relevant because it allows learning materials to be presented through a combination of text, images, animation, video, sound, navigation buttons, and quizzes. Educational technology research has shown that digital tools may support affective, behavioural, and cognitive engagement when they are integrated with clear instructional purposes (Bedenlier et al., 2020; Bond et al., 2020). At the same time, the use of digital media should be handled carefully. Technology itself does not automatically improve learning interest. Its contribution depends on how the media is designed, how it supports the content, and how students interact with it during learning. This is important in IPAS because students need media that can visualise relationships among concepts, especially in topics such as food chains, ecosystems, and environmental interactions.

One digital platform that has been increasingly used in classroom learning is Genially. Genially-based media allows teachers to design interactive presentations, visual explanations, educational games, and quizzes that can be accessed through digital devices. Several studies have shown the potential of Genially-based media in different learning contexts. Putra and Afrina (2023) developed Genially-based interactive multimedia for elementary students and reported that the product was feasible for classroom use. Delvi et al. (2022) also found that Genially-based interactive media for elementary mathematics was valid and practical, while Cabrera-Solano (2022) reported positive feasibility results for Genially interactive multimedia in social studies-related content. Hermita et al. (2021) further showed that elementary teachers had positive perceptions of Genially learning media. These studies indicate that

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genially is increasingly recognised as a useful platform for developing interactive learning resources.

Recent studies also connect Genially with students' learning interest and engagement. Arum et al. (2025) developed Genially-based interactive multimedia to increase fifth-grade students' learning interest in civics learning. Cabrera-Solano (2022) and Castillo-Cuesta (2022) reported that Genially games supported learning in language education contexts, particularly because game-based and interactive features can make students more involved in learning tasks. These findings are in line with broader research on gamification, which suggests that game-like learning features may have positive effects on motivational and behavioural learning outcomes when they are meaningfully aligned with instructional goals (Sailer & Homner, 2020). Although these studies provide useful support for the use of Genially, many of them focus on media development, feasibility, learning outcomes, or subjects outside IPAS.

This leaves a more specific issue that still needs attention. In elementary IPAS learning, especially on food chain material, students need to understand relationships among living things through visual and sequential representations. Genially may support this need because it enables teachers to present food chain concepts through images, animations, interactive navigation, and short quizzes. However, the relevant question in this study is not whether Genially improves all aspects of learning. The focus is narrower: whether the use of Genially-based interactive media is associated with higher students' interest in IPAS learning compared with conventional learning. This distinction is important because learning interest is an affective-motivational variable and should not be confused with conceptual understanding or learning achievement.

Based on this background, the present study examines the effect of Genially-based interactive media on fifth-grade students' interest in IPAS learning. The study was conducted using a quasi-experimental nonequivalent

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control group design, with pretest and posttest measurements of students' learning interest. The study focuses on the topic of food chains because this topic requires students to understand the connection between organisms and their roles in an ecosystem. The research question guiding this study is: Does the use of Genially-based interactive media significantly affect fifth-grade students' interest in IPAS learning? By answering this question, the study is expected to provide empirical evidence on the use of interactive media to support students' learning interest in elementary IPAS classrooms, while keeping the interpretation limited to the data collected in this study.

LITERATURE REVIEW

Learning interest is an affective orientation that shapes how students attend to, enjoy, and sustain participation in learning activities. In elementary classrooms, interest is particularly important because young learners' engagement is often influenced by the way material is presented and how far the activity allows them to interact with content. Al-Said (2023) shows that students' motivation during technology-supported learning is affected not only by the presence of digital tools, but also by how teachers structure opportunities for interaction. This means that digital media should be understood as part of instructional design, rather than as a separate technical addition to the lesson.

Interactive media may support learning interest by combining visual, verbal, and action-based elements. Lubis (2023), in a review of digital media in elementary science learning, reports that digital media can stimulate motivation and engagement when it presents scientific concepts through videos, animations, and multimedia displays. Similarly, Hafis et al. (2022) argue that interactive multimedia can help elementary students access science content because it combines science literacy, character values, and visual representation. These findings are relevant to IPAS learning, where students need to recognise relationships among natural and social phenomena through

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concrete and meaningful representations.

The interactive quality of digital media is also important. It allows students to move from passive reception to active response. Abdullah et al. (2022) found that Nearpod improved elementary students' learning motivation because the platform enabled more active participation during learning. Bintoro et al. (2024) also found that Nearpod, with its multimedia and interactive features, had a positive effect on elementary students' motivation and academic achievement. Although Nearpod and Genially are different platforms, both studies support the broader argument that interactive digital features can strengthen students' affective involvement when they are aligned with the lesson objective.

In elementary science and IPAS learning, interactive media is often used to make abstract or sequential processes easier to follow. Darnawati and Yulianto (2024), for example, developed Nearpod-based learning media for Grade V IPAS and showed its relevance for improving learning outcomes. Oktania et al. (2025) also found that educational game-based interactive multimedia improved students' motivation in elementary science learning. These findings suggest that digital media may be particularly useful for topics requiring visualisation and sequence, including food chains, because students can see relationships among organisms rather than only listening to verbal explanation.

However, the effectiveness of interactive media depends on pedagogical use. Sekarwangi et al. (2021) show that problem-based interactive multimedia can support elementary learning when it is connected to meaningful tasks. Sudrajat et al. (2023) similarly indicate that digital flashcards can create more varied learning experiences for elementary students. Chen and Liu (2023) adds that game-based learning can support motivation, but the learning design matters because playing and designing generate different learning experiences. Therefore, Genially-based media should not be viewed as automatically effective. Its potential contribution lies

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in how its visual, clickable, and quiz-based features are used to support attention, enjoyment, and willingness to participate in IPAS learning.

Based on this literature, the present study positions Genially-based interactive media as a pedagogical resource that may strengthen students' learning interest. The focus is limited to students' interest scores because the available data measure affective response, not conceptual understanding, classroom behaviour, or long-term achievement.

METHOD

This study used a quantitative quasi-experimental design with a nonequivalent control group. This design was selected because the study was conducted in intact elementary school classes where random assignment of students was not practically possible, a condition commonly found in classroom-based intervention research (Handley et al., 2018; Miller et al., 2020). The participants were 46 fifth-grade students, consisting of 21 students in the experimental class and 25 students in the control class. Both groups studied the same IPAS topic, namely food chains. The experimental class received instruction using Genially-based interactive media, while the control class was taught through conventional instruction. To measure students' learning interest, a 20-item questionnaire was administered before and after the treatment. The pretest was used to identify students' initial learning interest, while the posttest was used to examine differences after the intervention.

The quality of the questionnaire was examined before hypothesis testing. Internal consistency was analysed using Cronbach's alpha, which is widely used to assess the reliability of educational and psychological instruments (Taber, 2018). Construct evidence was explored through Bartlett's test of sphericity and exploratory factor analysis, following recommended procedures for examining the internal structure of survey instruments (Watkins, 2018). The data were analysed using Jamovi version

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2.7.12. Before comparing the two groups, Shapiro-Wilk tests were conducted to examine normality, and Levene's tests were used to examine homogeneity of variance. Since the assumptions were met, independent-samples t-tests were applied to compare the pretest and posttest learning interest scores of the experimental and control groups. This procedure was used to determine whether students who learned through Genially-based interactive media showed significantly different learning interest scores from those who received conventional instruction (Kim, 2019).

FINDINGS AND DISCUSSION

Instrument Evidence for Measuring Students' Learning Interest

The first analysis examined whether the learning interest questionnaire was sufficiently reliable for use in the study. The questionnaire consisted of 20 items. The reliability test produced a Cronbach's alpha value of 0.944, indicating very strong internal consistency among the items. This suggests that the questionnaire items worked consistently in measuring students' learning interest. The correlation heatmap also showed a generally positive relationship among the items, which supports the internal consistency of the instrument.

Table 1. Instrument Evidence for the Learning Interest Questionnaire

Analysis	Result	Interpretation
Number of questionnaire items	20	Learning interest instrument
Cronbach's alpha	0.944	Very strong internal consistency
Bartlett's test	$\chi^2 = 1076$; $df = 190$; $p < .001$	Suitable for factor analysis
Scree plot	One dominant factor indicated	Initial support for one main construct

Bartlett's test of sphericity showed a significant result, $\chi^2 = 1076$, $df = 190$, $p < .001$. This indicates that the item correlations were adequate for

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exploratory factor analysis. The scree plot suggested one dominant factor, which supports the use of the questionnaire as a measure of one main construct, namely learning interest. However, this evidence should be interpreted carefully because the current results do not report KMO value, factor loadings, eigenvalue, or variance explained. Therefore, the instrument can be considered sufficiently reliable for this classroom-based study, but the claim of construct validity should remain modest.

Assumption Testing and Initial Group Condition

Before comparing the control and experimental groups, normality and homogeneity tests were conducted. The Shapiro-Wilk test showed that both pretest and posttest data were normally distributed. The p-value was 0.314 for the pretest and 0.474 for the posttest. Levene's test also showed that the variance between groups was homogeneous, with $p = 0.640$ for the pretest and $p = 0.308$ for the posttest. These results indicate that the assumptions for using an independent-samples t-test were met.

Table 2. Assumption Testing Results

Test	Statistic	p-value	Interpretation
Shapiro-Wilk pretest	W = 0.971	0.314	Normally distributed
Shapiro-Wilk posttest	W = 0.977	0.474	Normally distributed
Levene's test pretest	F = 0.222	0.640	Homogeneous
Levene's test posttest	F = 1.063	0.308	Homogeneous

The pretest comparison showed no significant difference between the experimental and control groups, $t(44) = 0.799$, $p = 0.429$. This result suggests that both groups had relatively similar learning interest before the intervention. This is important because it gives a reasonable basis for comparing the post-test scores after the use of Genially-based interactive media in the experimental class.

Post-test Difference After the Use of Genially-Based Interactive Media

The main finding appeared in the post-test comparison. The independent-samples t-test showed a significant difference between the experimental and control groups, $t(44) = 4.146$, $p < .001$. This indicates that students who learned IPAS through Genially-based interactive media had higher learning interest scores than students who received conventional instruction.

Table 3. Independent-Samples T-Test Results

Measurement	t	df	p-value	Interpretation
Pretest	0.799	44	0.429	No significant difference
Post-test	4.146	44	<.001	Significant difference

This result suggests that the use of Genially-based interactive media was associated with higher students' interest in IPAS learning. The finding is consistent with studies showing that interactive digital media can support students' motivation and engagement when the media is used with clear instructional (Bedenlier et al., 2020; Bond et al., 2020; Hillmayr et al., 2020). In this study, Genially was used to present food chain material, a topic that requires students to recognise sequences and relationships among organisms. The visual and interactive format of the media may have helped students experience the topic in a more engaging way than conventional instruction.

Figure 1. Genially-Based Interactive Media on Food Chain Material



The original figure of the Genially media should be retained because it helps readers see the form of the treatment used in the experimental class. The media presents food chain material through visual and interactive elements. These features are relevant to IPAS learning because students often need concrete representations to understand relationships between living things and their environment. Multimedia learning studies show that visual and interactive materials can help students access learning content more easily when they are connected to the lesson objective (Abdulrahman et al., 2020; Castro-Alonso et al., 2021).

The finding also supports previous research on Genially and interactive learning media. Studies on Genially-based media have reported that the platform can be used to create interactive presentations, quizzes, educational games, and visual learning materials that may support students' engagement and interest (Arum et al., 2025; Cabrera-Solano, 2022; Castillo-Cuesta, 2022; Delvi et al., 2022; Hermita et al., 2021; Putra & Afrina, 2023). However, the

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present study should not be interpreted as evidence that Genially improves all aspects of learning. The data only measure students' learning interest. Therefore, the finding should be read as evidence of higher interest scores, not as proof of improved conceptual understanding, learning achievement, or observed classroom participation.

Interpreting the Finding Within the Scope of the Data

The significant posttest difference may be explained by the nature of Genially as an interactive medium. Its clickable features, animation, visual display, and quiz-based activities can make learning less dependent on one-way teacher explanation. These features may support students' attention and willingness to follow the lesson. This interpretation is consistent with recent studies on gamification and interactive digital learning, which suggest that interactive and game-like features can support motivation, interest, and engagement when they are meaningfully aligned with learning goals (Khaldi et al., 2023; Li et al., 2023; Sailer & Homner, 2020).

At the same time, the interpretation needs to remain cautious. The study used a nonequivalent control group design, so the results cannot be treated as fully equivalent to a randomised experiment. If the experimental and control groups came from different school contexts, factors such as teacher style, school facilities, classroom culture, or student background may also have influenced the posttest difference. Therefore, the safest conclusion is that Genially-based interactive media showed a positive association with students' learning interest scores in this classroom context.

In practical terms, the findings suggest that elementary teachers may use Genially as an alternative medium for IPAS topics that require visualisation and sequence, such as food chains. In theoretical terms, the study supports the view that students' learning interest can be responsive to media design that combines visual clarity, interaction, and task variation. Nevertheless, future studies should report group means, standard deviations, effect size, and,

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where possible, additional evidence such as observation or learning outcome data to strengthen the interpretation of educational impact.

CONCLUSION

This study found that Genially-based interactive media was associated with higher fifth-grade students' interest in IPAS learning. The learning interest questionnaire showed strong internal consistency, and the assumption tests supported the use of independent-samples t-tests. The pretest result indicated no significant difference between the experimental and control groups before the intervention, while the posttest result showed a significant difference after the use of Genially-based media. These findings suggest that interactive media with visual, clickable, and quiz-based features may support students' affective engagement in learning food chain material.

The findings should be interpreted within the limits of the study design and available data. Since the study used a nonequivalent control group design and measured learning interest through a questionnaire, the results should not be extended to claims about learning achievement, conceptual understanding, or observed classroom participation. Practically, Genially may be considered as an alternative medium for presenting IPAS topics that require visualisation and sequence. Further studies should include effect size, fuller descriptive statistics, and additional evidence such as observation or learning outcome data to provide a stronger account of its educational impact.

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