Steam inquiry learning model with cartoon film media on indonesian language learning outcomes for fifth-grade students

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Keywords:	Abstract
steam; inquiry learning; indonesian language	*This study assessed the effectiveness of incorporating the STEAM-Inquiry Learning model, supplemented with cartoon film media, on the learning outcomes of fifth-grade students in the Indonesian Language class. The lack of innovative learning media has resulted in low student engagement in Indonesian language lessons. This research employed a quantitative approach with a quasi-experimental design. The STEAM-Inquiry Learning model was implemented over three learning periods, utilizing cartoon film media to enhance student engagement and academic performance. Two groups of students were compared: an experimental group (N=14) receiving the STEAM-Inquiry Learning model with cartoon film media, and a control group (N=18) utilizing the contextual learning model. Data were collected through validated learning outcome tests and reliable instruments. Data analysis revealed significant differences in learning outcomes between the two groups. Students exposed to the STEAM-Inquiry Learning model with cartoon film media demonstrated significantly improved Indonesian Language learning outcomes. These findings highlight the importance of integrating innovative learning models to enhance the effectiveness of Indonesian language education, particularly in improving students' literacy skills.*

INTRODUCTION

Background of the Study

The digital era necessitates innovative approaches to education. A key factor in fostering educational innovation is the preparedness of human resources (HR). As responsiveness to changing circumstances is crucial for adapting to the current landscape. This development compels the education sector to prepare for the implementation of internet-based digital learning systems. These systems typically involve the use of modern technology such as LCD projectors, laptops, smartphones, and internet access (Prasrihamni et al., 2022). The digital era drives innovative approaches in education, one of which is leveraging technology to enhance learning quality. For example, the use of digital media such as videos and films can provide more interactive and engaging learning experiences for students. In this context, the application of the STEAM-Inquiry Learning model becomes relevant, as it allows students to integrate technology into an inquiry-based learning process. This encourages deeper understanding through active exploration, particularly in Indonesian language learning.

Inquiry-based learning provides space for students to actively engage in the learning process, which in turn creates more meaningful learning experiences (Husni, 2020). In this dynamic environment, a shift towards student-centered strategies becomes crucial. Quality education remains the cornerstone of an educator's responsibility (Rafliyanto & Mukhlis, 2023). To prepare students for success in a world characterized by increasing interconnectedness and complexity, educators must equip them with essential 21st-century skills such as digital literacy, cross-cultural cooperation, and critical thinking (Amelia, 2023). Student-centered teaching strategies are essential in today's era. The STEAM-Inquiry Learning model offers an approach that facilitates students' active participation in learning, for instance, through the exploration of concepts involving elements of science, technology, arts, and mathematics. Using cartoon film media, this model not only captures students' interest but also fosters collaboration and critical thinking skills, creating a dynamic and participatory learning environment.

While avant-garde pedagogies offer innovative approaches, their limitations can hinder the development of analytical reasoning skills and academic performance if they over-rely on unconventional methods, neglecting established best practices (Tunggadewi, 2021). The STEAM-Inquiry Learning model addresses this concern by encouraging innovation within a framework. This framework incorporates elements

like internet videos and discussion-based independent inquiry (Nong et al., 2022). By fostering social interaction and cross-disciplinary exploration, the model aims to provide students with a deeper understanding of knowledge (Suryonegoro et al., 2024). This combination embodies a 21st-century learning approach, where readily available information empowers students to actively participate in classroom activities (Dwiputra et al., 2023). In an increasingly complex and interconnected world, students need to develop 21st-century skills, such as critical thinking, digital literacy, and collaboration. The STEAM-Inquiry Learning model with cartoon film media provides an effective learning framework to nurture these skills. This approach not only simplifies students' understanding of difficult concepts but also encourages their active engagement in meaningful learning activities.

The Problem of The Study

Most learning still relies on conventional teacher-centered methods, with students remaining passive. Activities that enhance critical thinking are rarely implemented (Siahaan et al., 2022). Furthermore, research suggests that educators struggle to effectively cultivate critical thinking skills within the current learning paradigm (Nahak & Bulu, 2020). Selecting appropriate instructional designs for teaching materials remains a challenge for teachers (Fransiska & Ain, 2022). Observations also revealed that students were rarely given opportunities to develop 21st-century skills, such as critical thinking and collaboration, as the learning process remained dominated by teacher-centered methods.

Initial observations conducted at Mentari II Elementary School on September 27, 2023, revealed several concerns regarding the learning process. The classroom environment appeared to favor teacher-centered approaches. Furthermore, teacher implementation of literacy activities lacked the desired level of engagement and creativity. These factors appear to contribute to the relatively low learning outcomes observed in the Indonesian Language class at the school. The Mid-Semester Assessment (PTS) results for grade V illustrate this challenge. Only 7 students achieved the minimum competency standard (KKM) of 75, with an overall class score of 8. Conversely, 11 students failed to meet the KKM, resulting in an overall score of 6. These findings indicate that 61% of grade V students did not achieve the KKM based on the PTS results.

Research's State of the Art

The STEAM-Inquiry Learning model has been the subject of numerous scientific studies, including recent work by Syahmani et al. (2023). This model

immerses students in a rich, multidisciplinary scientific learning process. Through collaborative learning, engaging scientific activities, and catering to individual student interests, the model fosters the development of various student abilities. The STEAM (Science, Technology, Engineering, Art, and Mathematics) framework equips students with the ability to analyze problems from diverse perspectives, making it a valuable strategy for success in today's complex world (Dewi, 2023). Nuragnia et al. (2021) identify several key aspects of STEAM learning implementation, including the pedagogical approach (student-centered vs. teacher-centered), instructional strategies, inquiry-based learning, problem and project-based learning, collaborative learning, integrated learning, adaptation to student needs, and evaluation and reflection. This study also highlights that the STEAM-Inquiry Learning model is more effective than traditional methods in improving student engagement and learning outcomes, particularly in Indonesian Language subjects.

Inquiry-based learning is a pedagogical framework that cultivates students' ability to systematically, responsively, rationally, and deeply identify and examine phenomena. This approach empowers them to confidently interpret their discoveries (Junaidi et al., 2020). Inquiry-based learning fosters and strengthens students' critical thinking skills. Unlike passive recipients of teacher explanations, students actively engage in searching, discovering, and drawing conclusions from information, either individually or collaboratively (Prasetiyo & Rosy, 2021). Educators play a crucial role in inquiry-based learning by supporting, facilitating, and motivating students throughout the learning process (Damayanti & Anando, 2021). In the context of Indonesian Language learning, this approach can motivate students to develop critical thinking and self-reflection skills through discovery-based activities.

Social learning theory posits that individuals acquire knowledge and values through observing established models (Risdiany & Lestari, 2021). Films hold particular value as learning tools due to their ability to convey information through engaging visual and auditory channels. This multimodal approach enhances comprehension and memorization compared to purely oral or written materials (Rindawati et al., 2022). Films encompass various formats, including theatrical releases, documentaries, and animations. With the rise of internet accessibility, educators can leverage platforms like YouTube to access a vast library of educational animations. In line with the growing emphasis on technology

integration in education, cartoon films emerge as engaging tools with the potential to significantly support the implementation of the STEAM-Inquiry Learning model.

Novelty, Research Gap, & Objective

Nong et al. (2022) highlight the innovative potential of the STEAM-Inquiry Learning model, citing its use of internet videos and discussion-based inquiry to motivate student engagement. These findings align with research by Wahyuni & Rusnilawati (2024), Suryonegoro et al. (2024), Dwiputra et al. (2023), and Rachmah et al. (2022) who demonstrate the model's effectiveness in enhancing student academic achievement. Hairina et al. (2020) further emphasize the positive student reception towards the STEAM-Inquiry Learning model. However, this study faces limitations in local contexts, such as the lack of resources to support digital tools in schools.

While existing research supports the model's ability to maximize student achievement, further exploration is necessary to gain a deeper understanding. Future studies should investigate the effectiveness of the STEAM-Inquiry Learning model across diverse subjects, instructional media formats, and educational levels. This current study utilizes cartoon film media to support lesson content, specifically assessing the impact of the model on elementary school students' learning outcomes. We aim to contribute a strong foundation for further analysis of the STEAM-Inquiry Learning model's application with cartoon film media across various educational levels. This study also aims to address the research gap regarding the integration of cartoon media into STEAM-Inquiry Learning within the local Indonesian context, particularly in enhancing creativity and media literacy among elementary school students.

METHOD

Type and Design

This study employed a quantitative approach with an experimental design. Specifically, we utilized a quasi-experimental non-equivalent control group design. This approach strengthens the validity of the quasi-experiment by comparing the learning outcomes of the experimental group to those of the control group. The intervention involves the STEAM-Inquiry Learning model supported by cartoon film media. To assess student learning outcomes, the study utilized both pre-test and post-test instruments. The selection of two elementary schools in Sukoharjo was

based on differing levels of accessibility to technology-based learning media, providing more comprehensive insights into the implementation of this model.

Data and Data Sources

Data were collected from fifth-grade students at two elementary schools in Sukoharjo, Central Java, Indonesia: Elementary School Mentari I and Elementary School Mentari II. The sample consisted of two intact classes, with 14 students assigned to the experimental group and 18 students assigned to the control group. The experimental group engaged with the STEAM-Inquiry Learning model supplemented by cartoon film media, while the control group received instruction using a contextual learning model with PowerPoint presentations.

Data Collection Technique

This study employed a pre-test and post-test design to collect data on student learning outcomes. The instrument used was a multiple-choice questionnaire developed specifically for this research. To ensure the instrument's validity and reliability, it underwent a series of tests. The instrument's validity was assessed by administering it to a group of sixth-grade students at Elementary School Mentari I.

Based on the validity test results, 12 items were deemed valid with r_{count} values exceeding r_{table} (0,404). Conversely, 8 items were invalid and excluded from the research instrument. The reliability test produced a Cronbach's Alpha coefficient of 0,804, exceeding the critical value (0,404). This indicates that the instrument used has a high level of internal consistency and reliability for the study.

Data Analysis

1. Independent t-Test

The independent samples t-test is a statistical procedure used to compare the means of two independent groups. It is ideally suited for data that are normally distributed and exhibit homogeneity of variance, although these assumptions are not always strictly enforced. In this study, the data satisfied the prerequisites for the independent samples t-test, making it appropriate to analyze the differences between the pretest and posttest scores of the experimental and control groups.

Independent t-test pretest

H_0= No statistically significant difference exists in students' learning outcomes in the Indonesian language before the implementation of the STEAM-Inquiry Learning model with cartoon film media compared to the contextual model with PowerPoint media in fifth-grade elementary

school. ($\mu_1 = \mu_2 = \mu_i = \mu_j$)

H$_1$= There is a significant difference in students' learning outcomes before the implementation of the STEAM-Inquiry Learning model with cartoon film media compared to the contextual model with PowerPoint media in Indonesian Language learning for fifth-grade elementary school students. ($\mu_i \neq \mu_j, i \neq j$)

Independent t-test posttest

H$_0$= There is no significant difference in students' learning outcomes after the implementation of the STEAM-Inquiry Learning model with cartoon film media compared to after the implementation of a contextual model with PowerPoint media in Indonesian Language learning for fifth-grade elementary school students. ($\mu_1 = \mu_2 = \mu_i = \mu_j$)

H$_1$= There exists a statistically significant difference in students' learning outcomes in the Indonesian language after the implementation of the STEAM-Inquiry Learning model with cartoon film media compared to the contextual model with PowerPoint media in fifth-grade elementary school. ($\mu_i \neq \mu_j, i \neq j$)

2. Dependent t-test

A dependent samples t-test is employed to assess the within-subjects effect of the intervention. This test compares the pretest and posttest scores of the same group (i.e., the experimental group) to determine if the STEAM-Inquiry Learning model with cartoon film media significantly impacts students' learning outcomes in the Indonesian language for fifth-grade elementary school students.

Dependent t-test pretest

H$_0$= There is no statistically significant difference in students' learning outcomes in the Indonesian language before and after using the STEAM-Inquiry Learning model with cartoon film media. ($\mu_1 = \mu_2$)

H$_1$= There is a statistically significant difference in students' learning outcomes in the Indonesian language before and after using the STEAM-Inquiry Learning model with cartoon film media. ($\mu_i \neq \mu_j$)

3. N-gain test

N-gain is a measure used to assess the improvement in students' understanding or abilities after undergoing a learning process. N-gain is calculated by comparing the pretest scores and posttest scores (Yustina et al., 2020).

$$\text{N-Gain} = \frac{S_{post} - S_{pre}}{S_{\max} - S_{pre}}$$

n-gain criteria:

g>0,7   = High

0,3<g<0,7   = Moderate

g<0,3   = Low

RESULTS

This study consists of three stages: pretest, treatment, and posttest. The pretest was conducted on students in both the experimental and control groups to assess their initial abilities. Afterward, different treatments were applied to both groups. The experimental group participated in learning sessions using the STEAM-Inquiry Learning model with cartoon film media over three sessions from March 25-27, 2024. Each session included an introduction, core activities, and a conclusion.

During the main learning activities, the researcher conducted five stages as follows: (1) Posing questions through observation: In this stage, students were encouraged to develop various relevant questions based on their observations of specific phenomena or issues. The aim was to stimulate students' curiosity about the topic being studied. (2) Formulating hypotheses with creative ideas: These hypotheses should be based on students' prior knowledge. (3) Collecting data with an innovative plan: Students were trained to develop efficient and accurate methods for data collection. (4) Applying creativity in data analysis: The goal was to interpret data deeply and connect it with the formulated hypotheses. (5) Drawing conclusions and evaluations: Students synthesized their findings and evaluated the outcomes of their inquiry.

In the initial stage, students engaged with a fictional story video. Following this, they formulated hypotheses with creative ideas using individual worksheets. During the data collection phase, students openly discussed their worksheets and shared their opinions, which the teacher acknowledged and responded to. In the subsequent stage, students collaborated in small groups to discuss and work on their worksheets together. Finally, in the concluding stage, students, alongside the teacher, deliberated on the group's findings, drew conclusions, and reflected on the acquired knowledge.
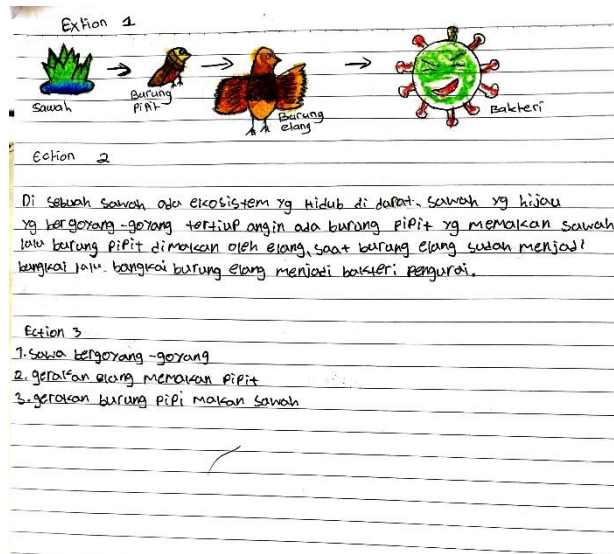
Figure 1. Results of Project STEAM-Inquiry Learning 1

Figure 1 illustrates the collaborative visualization created by students about a specific ecosystem. Each student represented a food chain that reflects their understanding of the interactions within the ecosystem.

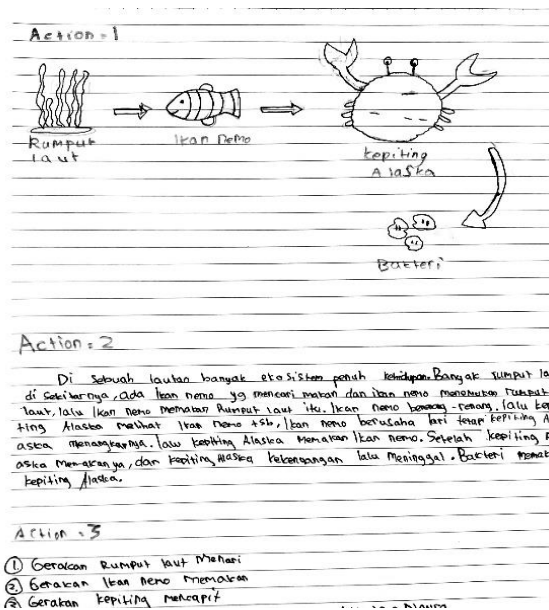**Figure 2.** Results of Project STEAM-Inquiry Learning 2

Figure 2 depicts how students created fictional narratives based on their ecosystem visualizations. The narratives highlight daily activities occurring within the fictional worlds they designed.

The results of the STEAM-Inquiry Learning model show an improvement in students' understanding of the food chain concept. Figures 1 and 2 illustrate how

students collaboratively developed visualizations and fictional narratives based on their assigned ecosystems.

These findings are consistent with prior studies that demonstrate how STEAM-based learning enhances student engagement and comprehension. Additionally, this approach contributes to the development of students' creativity and critical thinking skills. In the future, this method can be adapted for other language learning contexts by integrating creative media such as cartoon films.

Figure 3. Collecting Data with an Innovative Plan

Figure 3 illustrates the data collection process using an innovative plan. Students collaborated to discuss data related to the teacher-assigned project. This process helped students develop data analysis skills for collaborative evaluations.

Figure 4. Cartoon Film Media

Figure 4 presents a cartoon media resource obtained from the YouTube channel "Riri Cerita Anak Interaktif" (link: https://youtu.be/IQW64q5-

lNE?si=x_r9vnKH975OOcZA). This resource serves as a tool to guide students in formulating hypotheses. This media aims to engage students through visual and narrative elements relevant to the learning theme. Following the video, students will analyze data presented in worksheets to assess its validity. Subsequently, they will conclude and record them in the worksheets for teacher review and feedback.

After validating and ensuring the reliability of the research instruments, data collection proceeded through pre-tests and post-tests. Normality and homogeneity tests were then conducted for both the experimental and control groups. The data analysis results were processed using SPSS software, as detailed below.

Table 3. Normality Test

Test Name	Groups	Sig. Level α = 0,05	Sig. Value
Pretest	Experiment		0,099
	Control		0,066
		0,05	
Posttest	Experiment		0,140
	Control		0,077

The significance values for the experimental and control groups in the pretest were 0.099 and 0.066, respectively, while in the posttest they were 0.140 and 0.077. These values (>0.05) indicate that the data are normally distributed.

Table 4. Homogeneity Test

Data 1	Data 2	Sig. Level α = 0,05	Sig. Value
Pretest experiment	Pretest control		0,297
Posttest experiment	Posttest control	0,05	0,370
Pretest experiment	Posttest experiment		0,390

The results shown in Table 4 indicate that the significance values are > 0.05, suggesting that the data are homogeneously distributed. Thus, an independent t-test was employed on data that are normally distributed and homogeneous, as shown in Table 5.

Table 5. Independent T-Test of Pretest Data

Sig. (2-tailed)	Sig. level (α)	Status
0,534	0,05	H_0 accepted

As seen in Table 5, the Sig. (2-tailed) value for the pretest is 0.534, which is greater than 0.05. This indicates acceptance of the null hypothesis (H0) and rejection of the alternative hypothesis (H1). Consequently, it may be inferred that there is no significant difference in learning outcomes before utilizing the STEAM-Inquiry Learning model with cartoon film media compared to a contextual model using PowerPoint media in the Indonesian Language for fifth-grade elementary school students. Subsequently, an independent t-test was conducted on the post-test data. The normality test results in Table 3 indicate that the data is normally distributed, with significance values greater than 0,05. Furthermore, the homogeneity test in Table 4 shows that the data is homogeneous, enabling the use of an independent t-test. The t-test results in Table 5 demonstrate acceptance of the null hypothesis (H0), indicating no significant difference in students' learning outcomes before using the STEAM-based learning model and cartoon media.

Table 6. Independent T Test of Posttest Data

Sig. (2-tailed)	Sig. level (α)	Status
0,035	0,05	H_0 rejected

Based on the data in Table 6, the Sig. (2-tailed) value for the posttest is 0.035, which is less than the threshold of 0.05. This result indicates that the alternative hypothesis (H1) is accepted, and the null hypothesis (H0) is rejected. Therefore, it can be inferred that the use of the STEAM-Inquiry Learning model with cartoon film media in Indonesian Language learning for fifth-grade elementary school students has a significant positive effect compared to the contextual model using PowerPoint media.

Table 7. Dependent T Test of Pretest and Posttest Data

Sig. (2-tailed)	Sig. level (α)	Status
0,017	0,05	H_0 rejected

The results of the dependent t-test reveal a Sig. (2-tailed) value of 0.017, which is less than the significance level of 0.05. Consequently, the alternative hypothesis (H1) is accepted, and the null hypothesis (H0) is rejected. This indicates that the implementation of the STEAM-Inquiry Learning model using cartoon film media in Indonesian Language learning for fifth-grade elementary school students has a significant impact on learning outcomes. To measure the improvement in students' learning outcomes before and after implementing this model, the n-gain formula is utilized. These findings suggest that the use of STEAM-based learning with cartoon media provides an engaging and in-depth approach to Indonesian language learning. This approach facilitates student engagement and enhances comprehension of the material more interactively.

Table 8. N-Gain Test (Posttest of Experiment and Control Group)

Number of Students	Average Score of Experiment Posttest	Average Score of Control Posttest	Highest Score	N-Gain	Status
32	79,5	66,89	100	0,2797	Low

Table 9. N-Gain Test (Pretest and Posttest of Experiment Group)

Number of Students	Average Score of Experiment Pretest	Average Score of Experiment Posttest	Highest Score	N-Gain	Status
32	66,93	79,5	100	0,4610	Moderate

Our analysis using n-gain calculations revealed a low level of improvement (n-gain = 0.2797, g < 0.3) in post-test scores for both the experimental and control

groups. This suggests that the STEAM-Inquiry Learning model, in its current form, may not be a significant driver of learning gains.

However, a brighter light emerges within the experimental group. Here, the n-gain value between pre-test and post-test data (n-gain = 0.4610) indicates a moderate level of improvement. This finding suggests that the overall learning model has the potential to be effective in optimizing student learning outcomes.

This study investigated the effectiveness of the STEAM-Inquiry Learning model supplemented with cartoon media in optimizing elementary school students' learning outcomes. The combination proved advantageous, as cartoons fostered student engagement and active participation, while the STEAM-Inquiry Learning model facilitated independent content mastery. This synergistic effect led to enhanced learning outcomes as students developed a more enthusiastic approach to learning. The research demonstrated a significant difference in learning outcomes between the experimental and control groups following the implementation of the STEAM-Inquiry Learning model with cartoon media. The experimental class achieved an average post-test score of 79.5 compared to 66.89 in the control class. These findings suggest that the learning model has a moderate effect size. Additionally, these findings contribute to promoting innovative teaching approaches in Indonesia, particularly by leveraging cartoon media as a tool to enhance student engagement and learning outcomes.

DISCUSSIONS

Our data analysis suggests that employing the STEAM-Inquiry Learning model with cartoon film media can enhance students' learning outcomes in the Indonesian Language for fifth-grade elementary school. Notably, the comparable learning outcomes between the control and experimental groups during the pretest stage establish that both classes possessed similar initial student capabilities. This finding is particularly significant as traditional methods, often reliant on additional textbooks and less diverse teaching approaches, may not fully optimize students' learning potential. The STEAM-Inquiry Learning model with cartoon film media, implemented in the experimental class, offers a more varied and engaging learning experience compared to these traditional methods. By facilitating active student engagement through group investigations, this approach fosters more enjoyable and potentially more effective learning. This advantage highlights that the STEAM-Inquiry Learning approach utilizing cartoon film media provides a more meaningful

learning experience compared to traditional methods relying solely on additional textbooks.

Cartoon media not only captures students' attention but also enhances their understanding of lesson materials through relevant and interactive visual illustrations. This type of learning plays a significant role in shaping students' responsive behavior. It demands sensitivity, reasoning, and a comprehensive understanding of them. Before the rapid technological advancements of the 1990s, educators often relied on monotonous teaching methods, which could lead to student boredom during the learning process. Research suggests that learning progress thrives when students maintain a positive and active mindset throughout the process.

This study demonstrates the effectiveness of the STEAM-Inquiry Learning model with cartoon film media in enhancing students' comprehension of lesson concepts. The interactive implementation of this model between educators and learners yielded positive impacts on Indonesian Language learning outcomes. The increased engagement and active participation of students in the experimental class were further evidenced by their successful completion of all post-test questions. Active student engagement in this learning process was a key factor in their success in completing all post-test questions effectively.

Wahyuni & Rusnilawati (2024) posit that the STEAM-Inquiry method serves as an effective educational solution for preparing students for the integration of technological advancements and scientific knowledge. This approach fosters dynamic and engaging learning, positively impacting student outcomes by enabling them to achieve desired graduation criteria. Dewi et al. (2023) concur that STEAM can broaden and guide learning, fostering scientific attitudes in students, starting by igniting curiosity through initial exploration. Similarly, Bedar & Al-Shboul emphasize that STEAM should enhance student comprehension of work mechanisms, technological applications, and engineering fields. Furthermore, it should assist in refining skills and capabilities throughout the learning process. The implementation of STEAM can be supported by various teaching methods, as its integrative nature allows for the use of diverse educational approaches to promote its effectiveness.

Students benefit from supportive media, such as cartoon films, to enhance their learning outcomes (Rahma & Mubarok, 2021). Anggraini & Abduh support this notion, arguing that video-based learning effectively maximizes learning outcomes

by motivating students to actively engage, ultimately leading to optimal results. Similarly, Hartini (2022) highlights the increased effectiveness of learning when teachers incorporate media in the classroom. Media can function as both a supplementary resource for teachers and a valuable tool in formal educational settings where teachers may be unavailable due to attending to other students. The flexibility of the STEAM approach allows its application not only in Indonesian language learning but also in other subjects that require complex conceptual understanding.

This study acknowledges several limitations. Firstly, the research sample was confined to fifth-grade students at a single elementary school, potentially restricting the generalizability of the findings to a wider population. Secondly, the relatively brief duration of the study may not adequately capture the long-term effects of implementing the STEAM-Inquiry Learning model with cartoon film media. Future research could address these limitations by expanding the sample scope to encompass multiple schools and various grade levels, thereby generating more representative results. Additionally, longitudinal evaluations are necessary to assess the model's sustained impact on learning outcomes. Furthermore, future studies could explore the influence of external factors such as parental support and the use of complementary learning resources on Indonesian Language learning outcomes. Furthermore, future studies could explore the impact of cartoon media on developing critical thinking and creativity skills across various educational levels.

This study demonstrates the significant effectiveness of the STEAM-Inquiry Learning model with cartoon film media, particularly when used in conjunction with contextual learning supported by PowerPoint presentations. The findings suggest that selecting appropriate learning tools can heighten student enthusiasm, ultimately leading to improved learning outcomes in the Indonesian Language. Based on these results, the routine integration of the STEAM-Inquiry Learning model with cartoon media is recommended, especially for early grades. To further support the implementation of this model, the development of diverse teaching materials aligned with the curriculum is necessary. Additionally, workshops equipping teachers with the skills to effectively implement STEAM-Inquiry Learning models and leverage cartoon films can enhance their teaching competencies. Moreover, continuous teacher training on the utilization of cartoon media and evaluations focused on student learning outcomes should also be developed to effectively support the implementation of this learning model.

CONCLUSION

This study demonstrates that the implementation of the STEAM-Inquiry learning model with cartoon film media is an innovative approach that not only enhances students' comprehension of Indonesian language lessons but also promotes active engagement and creativity in learning. The novelty of this research lies in the integration of the STEAM inquiry approach with cartoon film media, which has been rarely applied in the context of Indonesian education. This approach makes a significant contribution to the development of scientific knowledge, particularly in integrating technology and art into primary education. The study provides new insights into the effectiveness of cartoon media as an educational tool that supports interactive and collaborative learning, encouraging further research into its application across various educational levels.

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