

Enhancing Students' Learning Motivation with Interactive Educational Game Media Based on Articulate Storyline 3 in IPAS Learning for Grade V Elementary School

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Abstract

Low learning motivation among elementary school students in rural areas is an urgent issue that requires innovative solutions. This study aimed to increase students' learning motivation through interactive educational games developed with Articulate Storyline 3 in science and social learning (IPAS). The research employed Classroom Action Research (CAR) using the Kemmis & McTaggart model, conducted in two cycles involving 17 fifth-grade students at Banyurip State Elementary School, Boyolali Regency. Data were collected using an ARCS-based motivation questionnaire (Attention, Relevance, Confidence, Satisfaction), observation sheets, interviews, and documentation. The results showed a significant improvement in all ARCS aspects, with active student participation increasing from 50% to over 80%. These findings confirm the effectiveness of Storyline 3-based interactive games in fostering motivation. The novelty of this study lies in applying the ARCS model through Articulate Storyline 3 in rural elementary schools, which has rarely been examined in previous research.

Keywords: learning motivation, interactive games, Articulate Storyline 3, IPAS

Abstrak

Rendahnya motivasi belajar siswa sekolah dasar di daerah pedesaan merupakan isu mendesak yang membutuhkan solusi inovatif. Penelitian ini bertujuan untuk meningkatkan motivasi belajar siswa melalui media game edukasi interaktif berbasis Articulate Storyline 3 dalam pembelajaran Ilmu Pengetahuan Alam dan Sosial (IPAS). Penelitian menggunakan Penelitian Tindakan Kelas (PTK) dengan model Kemmis & McTaggart, dilaksanakan dalam dua siklus pada 17 siswa kelas V SD Negeri Banyurip, Kabupaten Boyolali. Data dikumpulkan menggunakan angket motivasi berbasis model ARCS (Attention, Relevance, Confidence, Satisfaction), lembar observasi, wawancara, dan dokumentasi. Hasil penelitian menunjukkan peningkatan signifikan pada semua aspek ARCS, dengan partisipasi aktif siswa meningkat dari 50% menjadi lebih dari 80%. Temuan ini membuktikan efektivitas media game interaktif berbasis Storyline 3 dalam menumbuhkan motivasi belajar. Kebaruan penelitian ini terletak pada penerapan model ARCS melalui Articulate Storyline 3 di sekolah dasar pedesaan, yang masih jarang diteliti pada penelitian sebelumnya.

Kata kunci: motivasi belajar, game interaktif, Articulate Storyline 3, IPAS



INTRODUCTION

Learning motivation is a crucial factor in student success, as emphasized by Sardiman (2018) and Schunk et al. (2014), who highlight the close relationship between motivation and academic achievement. However, initial observations at SD Negeri Banyurip, Boyolali Regency, revealed low learning motivation among fifth-grade students in Natural and Social Sciences (IPAS) learning. This was characterized by minimal active participation, lack of enthusiasm, and limited engaging learning media (Lestari & Ramadhan, 2021). Such conditions are concerning because they not only reduce the quality of learning but also hinder students' competitiveness in the digital era.

To address this, innovative approaches are required, particularly through the integration of interactive digital media. One potential solution is the use of game-based learning media developed with Articulate Storyline 3, which provides text, images, animations, videos, and quizzes designed to attract student interest and involvement. Based on the background, the main problems in this study are:

- Low student learning motivation in IPAS subjects, as indicated by passive participation and lack of interest.
- Limitations in conventional learning media that do not support the ARCS aspects (Attention, Relevance, Confidence, Satisfaction).

This study aims to:

- Examine the effectiveness of Articulate Storyline 3-based interactive educational game media in increasing student learning motivation through CAR.
- Identify improvements in ARCS aspects and student participation across cycles.

The ARCS model developed by Keller (2010) provides a systematic approach to enhancing motivation through four aspects: Attention, Relevance, Confidence, and Satisfaction. Previous studies have demonstrated the effectiveness of interactive media and gamification (Hamari et al., 2016; Qian & Clark, 2016; Subhash & Cudney, 2018). Several studies in Indonesia also reported that Storyline 3-based media improved student engagement and motivation (Amelia & Mintohari, 2024; Utari & Ramadan, 2023; Majid & Kawuryana, 2023).

However, most of these studies were conducted in urban schools with relatively better infrastructure and did not explicitly integrate the ARCS model. Research that applies Storyline 3 within the rural school context, where infrastructure and digital literacy are limited, is still scarce (Nugroho et al., 2023; Khairatunnisa & Fitria, 2024). This study therefore addresses this gap by implementing ARCS-based interactive educational games in a rural elementary school setting, aiming to provide empirical evidence of their effectiveness.

This study contributes theoretically by validating the ARCS model in rural school contexts and practically by offering a replicable instructional media model for teachers, particularly in supporting the implementation of the *Merdeka Belajar* curriculum. Moreover, the findings provide valuable insights for policymakers regarding the urgency of strengthening digital infrastructure and teacher capacity in rural elementary schools.

METHOD

This study employed Classroom Action Research (CAR) with the Kemmis & McTaggart model, carried out in two cycles from July to August 2025 at SD Negeri Banyurip, Boyolali Regency, Indonesia. The subjects were 17 fifth-grade students.

Research Design and Procedure

Each cycle consisted of four stages: planning, action, observation, and reflection.

Cycle I:

- *Planning*: Designing Articulate Storyline 3-based media with basic quizzes and animations.
- *Action*: Implementing the media in two IPAS lessons.
- *Observation*: Collecting data on student motivation and participation.
- *Reflection*: Identifying weaknesses, particularly low student confidence due to difficult questions.

Cycle II:

- *Planning*: Improving media design (gradual question levels, clearer feedback, digital badges).
- *Action*: Re-implementation in two lessons.
- *Observation*: Collecting data through instruments.
- *Reflection*: Evaluating overall improvements and effectiveness.

Instruments and Data Collection

- 1) Motivation Questionnaire: Based on Keller's ARCS model (Attention, Relevance, Confidence, Satisfaction), using a 5-point Likert scale. Adapted from Keller (2010) and validated through expert judgment. Reliability test showed Cronbach's Alpha = 0.85.
- 2) Observation Sheet: To measure student participation during lessons.
- 3) Interviews: Conducted with teachers and students to gather qualitative insights.
- 4) Documentation: Photos and videos of learning activities.

Data Analysis

Data were analyzed using both quantitative (percentage increase of ARCS scores and participation) and qualitative (interview responses, observation notes) approaches. The success criteria were:

- Increase in motivation questionnaire scores $\geq 20\%$.
- Student active participation $\geq 80\%$.

Validity and Reliability

- Content validity was established through expert judgment.
- Reliability was measured with Cronbach's Alpha ($\alpha = 0.85$, >0.7 threshold).
- Triangulation was applied by comparing questionnaire results, observation, and interviews.

Ethical Considerations

Research permission was obtained from the school principal, with informed consent from parents/guardians. Student identities were anonymized, participation was voluntary, and alternative activities were prepared in case of technical issues. This study followed the ethical guidelines of the Ministry of Education and Culture (Kemdikbudristek, 2024) and had approval from the Faculty of Teacher Training and Education, Universitas Sebelas Maret.

RESULTS AND DISCUSSION

1. ARCS Motivation Questionnaire Results

In the pre-cycle, the average motivation score was only 51%, in the low category. This indicates most students lacked sufficient attention, relevance, confidence, or satisfaction in IPAS learning.

In Cycle I, after implementing Articulate Storyline 3-based educational games, the average increased to 67%. Improvements were notable in Attention and Relevance aspects. However, Confidence and Satisfaction did not meet targets, as some students hesitated with questions or felt dissatisfied with achievements.

In Cycle II, after reflections and improvements (gradual question levels, clearer feedback, scores and digital badges), motivation increased significantly to 83%. All ARCS aspects reached the good category.

Table 1. Recapitulation of Student Learning Motivation Questionnaire Results

Aspek ARCS	Pra-Siklus	Siklus I	Siklus II	Kategori
Attention	55%	70%	85%	Baik
Relevance	52%	68%	82%	Baik
Confidence	50%	65%	80%	Baik
Satisfaction	48%	66%	83%	Baik
Average	51%	67%	83%	Baik

2. Results of Student Participation Observation

In addition to the motivation questionnaire, improvements were seen in student participation observations. In the pre-cycle, average participation was 47.5%, indicating most students were passive.

In Cycle I, participation increased to 70.5%. Some students began asking and answering questions, though limited to certain groups. Group discussions became more active.

In Cycle II, participation rose significantly to 88.8%. Almost all students actively discussed, showed enthusiasm, and were more confident in expressing opinions.

Table 2. Recapitulation of Student Participation Observation Results

Student Participation Aspect	Pre-Cycle	Cycle I	Cycle II	Category
Actively asking	40%	65%	85%	Good
Answering teacher's questions	45%	70%	88%	Good
Group discussion	50%	72%	90%	Very Good
Enthusiasm in activities	55%	75%	92%	Very Good
Average	47,5%	70,5%	88,8%	Good

3. Qualitative Data from Interviews and Documentation

- A student noted: *"The games made learning fun and less boring."*
- Teachers observed higher engagement and easier classroom management.
- Documentation (photos and videos) showed students enthusiastically using devices and collaborating in groups.

The findings prove that Articulate Storyline 3-based interactive game media effectively enhances student motivation in line with the ARCS model (Keller, 2010). The significant increase in **Cycle II** highlights the importance of iterative design improvements such as stepwise question difficulty and meaningful feedback in sustaining **Confidence** and **Satisfaction**.

These results are consistent with **Hamari et al. (2016)** and **Subhash & Cudney (2018)**, who confirmed the positive impact of gamification on learning motivation. Similarly, **Amelia & Mintohari (2024)** and **Majid & Kawuryana (2023)** found that Storyline 3 media increased student engagement in elementary science learning. However, unlike studies conducted in urban schools with better digital infrastructure, this study provides new evidence that ARCS-based interactive media can also be effective in **rural schools**, despite infrastructural challenges (Nugroho et al., 2023; Khairatunnisa & Fitria, 2024).

This indicates that well-designed interactive games are not only engaging but also adaptable across contexts, making them a promising approach for implementing the *Merdeka Belajar* curriculum.

CONCLUSION

The use of interactive educational game media developed with Articulate Storyline 3 proved effective in enhancing the learning motivation of fifth-grade students in IPAS at SD Negeri Banyurip, Boyolali Regency. Student motivation scores improved significantly from 51% in the pre-cycle to 83% in Cycle II, and student participation increased from 47.5% to 88.8%. All aspects of the ARCS model (Attention, Relevance, Confidence, Satisfaction) reached the "good" category after iterative improvements.

This study provides two main contributions:

1. **Theoretical contribution:** Strengthening the application of the ARCS motivation model in rural elementary school contexts.
2. **Practical contribution:** Offering teachers a replicable example of interactive digital media that can support the *Merdeka Belajar* curriculum.

Teachers are encouraged to design learning media using Articulate Storyline 3 to increase student engagement and motivation, especially in schools with limited access to modern learning tools.

Further studies could examine the impact of Articulate Storyline 3-based games on student cognitive achievement, apply this approach to other subjects, and test scalability in schools with different infrastructure conditions.

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