

Improving Students' Critical Thinking Skills Through the ARCS Learning Model Assisted by Powtoon Media in Grade V Science Lessons at SDN 2 Tapa Bone Bolango

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ABSTRACT

This research is a Classroom Action Research (CAR) with the formulation of the problem is whether the application of the ARCS (Attention, Relevance, Confidence, Satisfaction) learning model assisted by PowToon media can improve students' critical thinking skills in the science subject on ecosystem material in grade V SDN 2 Tapa Bone Bolango. The purpose of this study is to improve students' critical thinking skills through the application of the ARCS learning model assisted by PowToon media. This research was conducted in two cycles, where each cycle consisted of two meetings with four stages: planning, implementation of actions, observation, and reflection. The research subjects were 18 students consisting of 13 male students and 5 female students. The results of the study showed that in cycle I of 18 students only 3 students achieved the Minimum Completeness Criteria ($KKM \geq 80$) with a percentage of 16.67%, while 15 students or 83.33% had not achieved completeness. After improvements were made to the learning process in Cycle II, students' critical thinking skills significantly improved, with 16 students (88.89%) achieving mastery, while 2 students (11.11%) had not. Therefore, it can be concluded that the ARCS learning model, supported by PowToon media, can improve students' critical thinking skills in the fifth-grade science subject of ecosystem at SDN 2 Tapa Bone Bolango.

Informasi Artikel

Kata Kunci:

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ABSTRAK

Penelitian ini merupakan Penelitian Tindakan Kelas (PTK) dengan rumusan masalah yaitu apakah penerapan model pembelajaran ARCS (Attention, Relevance, Confidence, Satisfaction) berbantuan media PowToon dapat meningkatkan kemampuan hasil belajar murid pada pelajaran IPA materi ekosistem di kelas V SDN 2 Tapa Bone Bolango. Tujuan penelitian ini adalah untuk meningkatkan kemampuan hasil belajar murid melalui penerapan model pembelajaran ARCS berbantuan media PowToon. Penelitian ini dilaksanakan dalam dua siklus, dimana setiap siklus terdiri dari dua kali pertemuan dengan empat tahap yaitu perencanaan, pelaksanaan tindakan, observasi, dan refleksi. Subjek penelitian berjumlah 18 murid yang terdiri dari 13 murid laki-laki dan 5 murid perempuan. Hasil penelitian menunjukkan bahwa pada siklus I dari 18 murid hanya 3 murid yang mencapai Kriteria Ketuntasan Minimal ($KKM \geq 80$) dengan persentase 16,67%, sedangkan 15 murid atau 83,33% belum mencapai ketuntasan. Setelah dilakukan perbaikan pembelajaran pada siklus II, kemampuan hasil belajar murid mengalami peningkatan yang signifikan yaitu sebanyak 16 murid atau 88,89% telah mencapai ketuntasan, sedangkan 2 murid atau 11,11% belum mencapai ketuntasan. Dengan demikian, dapat disimpulkan bahwa penerapan model pembelajaran ARCS berbantuan media PowToon dapat meningkatkan kemampuan hasil belajar murid pada pelajaran IPA materi ekosistem di kelas V SDN 2 Tapa Bone Bolango.

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1. INTRODUCTION

Education is a deliberately designed process to develop the full potential of students, enabling them to become individuals equipped with knowledge, skills, character, and sound thinking capabilities. In confronting the advancements of science and technology in the 21st century, it is no longer sufficient for students to merely master learning concepts; they are also required to possess Higher Order Thinking Skills (HOTS), one of which is critical thinking. This capability serves as an essential asset in navigating increasingly complex life challenges.

Critical thinking is a rational, systematic, reflective, and logical thinking process employed to analyze information before making decisions. Students equipped with critical thinking skills are capable of identifying problems, analyzing cause-and-effect relationships, evaluating information, constructing arguments based on evidence, and drawing conclusions objectively. Consequently, critical thinking has become one of the core competencies that must be developed in primary school education.

Natural Science (IPA) education is a subject with immense potential for developing students' critical thinking skills. Science does not merely comprise a collection of facts, concepts, principles, and theories regarding natural phenomena; it also emphasizes the scientific process through observation, problem identification, investigation, data analysis, and drawing conclusions based on empirical evidence. Accordingly, the science learning process should be capable of providing educational experiences that encourage students to think actively and critically. The implementation of the *Kurikulum Merdeka* (Independent Curriculum) further reinforces the importance of developing critical thinking skills within the learning process. This curriculum positions students as the primary subjects of learning, thereby demanding teachers to create active, engaging, contextual, and meaningful learning experiences. Teachers no longer serve merely as information providers, but rather as facilitators who assist students in discovering the studied concepts independently through exploration and investigation activities.

Based on preliminary observations conducted on fifth-grade students at SDN 2 Tapa, Bone Bolango, it was revealed that students' critical thinking skills remain relatively low. The majority of students still experience difficulties in understanding ecosystem concepts, analyzing the relationships between biotic and abiotic components, evaluating environmental issues, drawing conclusions based on facts, and explaining their reasoning logically. This situation indicates that the critical thinking

indicators proposed by Facione namely interpretation, analysis, evaluation, inference, explanation, and self-regulation have not been optimally developed.

The low level of students' critical thinking skills is influenced by several factors. The learning process remains dominated by the conventional lecture method, causing students to spend more time listening to the teacher's explanations rather than engaging in independent learning activities. Furthermore, the utilization of instructional media is still restricted to textbooks, which renders the delivery of abstract ecosystem materials less engaging and difficult for students to comprehend. Consequently, student learning motivation declines, and classroom activities become less interactive.

One alternative that can be implemented to address these issues is the application of the Attention, Relevance, Confidence, Satisfaction (ARCS) learning model developed by John M. Keller. The ARCS learning model is designed to enhance learning motivation through four primary components: attention, relevance, confidence, and satisfaction. These four components are interrelated in creating a learning atmosphere capable of increasing students' active engagement throughout the instructional process.

In this study, the implementation of the ARCS model is integrated with the use of Powtoon media. Powtoon is an animation-based learning medium capable of presenting instructional content through visually appealing forms, audio, text, and animations. The use of Powtoon helps students comprehend abstract science concepts through more concrete illustrations, thereby rendering the learning process more engaging and accessible.

The combination of the ARCS model and Powtoon media is expected to enhance learning motivation while simultaneously developing students' critical thinking skills. Through the attention stage, students are directed to focus on the learning material. In the relevance stage, students connect the material to their daily experiences, making the learning process more meaningful. The confidence stage provides opportunities for students to engage in discussions, ask questions, and express their opinions, thereby fostering self-confidence. Subsequently, the satisfaction stage delivers feedback and recognition capable of boosting students' learning satisfaction.

Several prior studies indicate that the ARCS model can enhance learning motivation, student engagement, learning outcomes, and conceptual understanding. Similarly, the use of Powtoon media has been proven effective in increasing student interest through engaging and interactive content presentation. However, research that specifically integrates the ARCS model assisted by Powtoon media to enhance primary school students' critical thinking skills regarding ecosystem materials

remains relatively limited. Therefore, this study offers novelty in developing instructional strategies that are oriented not only toward learning outcomes but also toward the cultivation of critical thinking as a core 21st-century competency.

Based on the aforementioned context, this study aims to determine the effectiveness of implementing the ARCS learning model assisted by Powtoon media in enhancing the critical thinking skills of fifth-grade students at SDN 2 Tapa, Bone Bolango, within science education focusing on ecosystem materials.

2. METHOD

This study employs Classroom Action Research (CAR) with reference to the model developed by Arikunto, which consists of four sequential stages: planning, acting, observing, and reflecting. The selection of the CAR method was based on the research objective, which is to improve the instructional process while simultaneously enhancing students' critical thinking skills through the implementation of the Attention, Relevance, Confidence, Satisfaction (ARCS) learning model assisted by Powtoon media. Classroom action research provides opportunities for teachers to execute continuous instructional innovation through action cycles designed based on the reflection results of each stage.

The research was conducted at SDN 2 Tapa, Bone Bolango, during the odd semester of the 2025/2026 Academic Year. The research subjects were all 18 fifth-grade students, comprising 13 male students and 5 female students. The selection of this classroom was based on preliminary observations indicating that students' critical thinking skills in Natural and Social Sciences (IPAS) were still relatively low, particularly in understanding the relationship between biotic and abiotic components within the ecosystem material. The research design was executed in two cycles, with each cycle consisting of two meetings. Each cycle proceeded through four interrelated stages. In the planning stage, the researcher developed teaching modules, Powtoon instructional media, student worksheets, observation sheets for teacher and student activities, and critical thinking skills test instruments. Additionally, the researcher coordinated with the classroom teacher to serve as an observer during the implementation of the action.

The action stage was carried out by implementing the ARCS learning model assisted by Powtoon media on the ecosystem material, specifically concerning biotic and abiotic components. The learning phases were aligned with the syntax of the ARCS model. In the Attention phase, the teacher displayed a Powtoon animated video to capture students' attention toward the learning material.

Subsequently, in the Relevance phase, the teacher connected the material to real world experiences frequently encountered by students in their surrounding environment. The Confidence phase provided opportunities for students to discuss, observe, express opinions, and solve problems in groups to boost their self-confidence. In the final phase, Satisfaction, the teacher provided feedback, rewards, and reinforcement regarding student learning outcomes to sustain their learning motivation.

The observation stage was conducted concurrently with the implementation of the action. The classroom teacher acted as the observer, monitoring both teacher and student activities using the prepared observation sheets. The observation focused on the implementation of the ARCS learning model, student engagement during the learning process, the ability to collaborate in groups, the courage to express opinions, and the development of critical thinking skill indicators.

The reflection stage was performed after the entire series of learning activities in each cycle was completed. Reflection aimed to evaluate the strengths and weaknesses of the action implementation. The results of the reflection served as the foundation for improving the learning process in the subsequent cycle, ensuring that the application of the learning model became increasingly effective in enhancing students' critical thinking skills.

Data collection techniques in this study included observation, tests, documentation, and field notes. Observation was used to obtain information regarding teacher and student activities during the lessons. Tests were employed to measure the improvement in students' critical thinking skills after participating in lessons using the ARCS model assisted by Powtoon media. Documentation in the form of photographs of learning activities, instructional instruments, student work, and other supporting documents was utilized as complementary research data.

The test instrument was developed based on the six indicators of critical thinking skills: interpretation, analysis, evaluation, inference, explanation, and self regulation. These six indicators were used to measure students' ability to understand problems, analyze relationships between concepts, evaluate information, draw conclusions, explain their reasoning, and reflect on the thinking processes they had performed.

The obtained data were analyzed using quantitative and qualitative descriptive analysis techniques. Quantitative analysis was performed by calculating the class average score, the percentage of learning mastery, and the improvement of learning outcomes in each cycle. Qualitative analysis was conducted on the observation results of teacher and student activities during the learning process to

describe changes in learning behavior that occurred after the implementation of the ARCS learning model assisted by Powtoon media.

The indicator of research success was determined based on the achievement of classical learning mastery. The study was declared successful if a minimum of 80% of the students scored above the Minimum Mastery Criteria (KKM), accompanied by an improvement in critical thinking skills across each measured indicator, as well as an increase in student activity during the learning process. With these indicators, the effectiveness of implementing the ARCS learning model assisted by Powtoon media could be comprehensively evaluated from both the process and product aspects of learning.

3. RESULTAND DISCISSION

This classroom action research was conducted in two cycles with the objective of enhancing the critical thinking skills of fifth-grade students at SDN 2 Tapa, Bone Bolango, through the implementation of the Attention, Relevance, Confidence, Satisfaction (ARCS) learning model assisted by Powtoon media on ecosystem material. Each cycle consisted of two meetings comprising the stages of planning, acting, observing, and reflecting. The success of the action was measured based on the improvement in students' critical thinking skills, teacher activities, student activities, and the percentage of classical learning mastery.

Implementation of Cycle I

The planning stage in Cycle I began with the development of instructional instruments consisting of teaching modules, Powtoon media, student worksheets, observation sheets, and critical thinking skills test instruments. The material studied focused on biotic and abiotic components within an ecosystem. The teacher also prepared various contextual problems to enable students to connect the learning material to their daily lives.

In the action stage, instruction was carried out in accordance with the syntax of the ARCS model. The Attention phase commenced with the projection of a Powtoon animated video depicting the interactions of living organisms within an ecosystem. The media successfully captured the students' attention, creating a more active classroom atmosphere compared to previous lessons. Students observed the animations enthusiastically and began raising various questions regarding the relationships between plants, animals, humans, soil, water, and sunlight within an ecosystem.

The Relevance phase was executed by connecting the instructional material to the environment around the school and the students' residential areas. The teacher invited students to identify various biotic and abiotic components found in the school yard, such as trees, grass, insects, soil, stones, air, and sunlight. Through this activity, students gained direct learning experiences, rendering the concept of ecosystems easier to comprehend.

The Confidence phase was implemented through group discussion activities. Students were provided with worksheets containing problems related to ecosystem balance. Each group was asked to identify the causes of ecosystem damage, analyze its impact on living organisms, and formulate alternative solutions based on their discussions. The teacher acted as a facilitator, providing guidance to groups encountering difficulties.

Subsequently, in the Satisfaction phase, each group presented the results of their discussion in front of the class. The teacher provided appreciation in the form of praise, rewards, and constructive feedback on the students' answers. This activity successfully boosted learning motivation while providing students with a sense of satisfaction regarding the work they had accomplished.

Observation results indicated that the implementation of learning in Cycle I proceeded well, though several obstacles were still identified. Some students appeared passive during discussions. A few students also lacked the confidence to express their opinions or ask questions. Furthermore, the students' ability to analyze the relationships between ecosystem components was not yet optimal, resulting in responses that were still descriptive and did not yet reflect deep critical thinking skills.

The evaluation results at the end of Cycle I showed an improvement compared to the baseline conditions. However, the percentage of classical learning mastery had not yet achieved the established indicators of research success. Several students still experienced difficulties with the indicators of analysis, evaluation, and inference, thereby necessitating adjustments and improvements in the subsequent cycle.

Reflection on Cycle I

Based on the observation and evaluation results, a reflection on the instructional implementation was

conducted. The reflection revealed that the utilization of Powtoon media was highly capable of increasing student attention; however, the teacher still needed to provide more intensive guidance during group discussions. Furthermore, it was necessary for the teacher to present problem examples that were more closely related to the students' daily lives to enable them to analyze information and draw logical conclusions more easily.

The results of this reflection served as the foundation for refining the action in Cycle II. Improvements were made by enhancing the Powtoon media, increasing the intensity of teacher guidance, posing more challenging questions, and strengthening discussion activities to ensure that all students were actively engaged.

Implementation of Cycle II

The implementation of Cycle II served as a refinement of the actions taken in Cycle I. In the Attention phase, the teacher presented a more engaging Powtoon instructional tool featuring improved animations, illustrations, and case studies closely related to the students' daily lives. The material delivery was designed to be more interactive, thereby successfully stimulating students' curiosity from the very beginning of the lesson.

The Relevance phase was executed through the presentation of case studies concerning environmental pollution occurring within the surrounding community. Students were asked to connect the ecosystem material to various phenomena they had observed firsthand, such as river pollution, deforestation, and land degradation. This contextual approach enabled students to more easily grasp the connection between the concepts studied and real-world conditions.

In the Confidence phase, the teacher provided wider opportunities for all students to express opinions, ask questions, and provide feedback on the presentation of other groups. The teacher also provided motivation to ensure that students did not fear making mistakes when expressing ideas. This environment exerted a positive impact on boosting students' self-confidence.

The Satisfaction phase was carried out by awarding recognition to groups that demonstrated the best cooperation, presentation skills, and most logical arguments. The teacher also provided reinforcement for every student response, ensuring they felt valued throughout the learning process.

Observation results indicated that student activities experienced an excellent increase compared to Cycle I. Nearly all students participated actively in discussions, confidently expressed their opinions, and provided logical reasoning when answering

questions. Interaction between the teacher and students also became more communicative, creating a more lively and engaging learning atmosphere.

Beyond learning activities, students' critical thinking skills also showed improvement across all indicators, namely interpretation, analysis, evaluation, inference, explanation, and self-regulation. The percentage of classical learning mastery successfully achieved the established indicator of success; thus, the research was concluded in Cycle II.

The research findings indicate that the implementation of the Attention, Relevance, Confidence, Satisfaction (ARCS) learning model assisted by Powtoon media successfully enhances the critical thinking skills of fifth-grade students at SDN 2 Tapa, Bone Bolango, within ecosystem material. This improvement is reflected not only in the critical thinking skills test scores but also in increased learning activity, confidence in expressing opinions, group collaboration skills, and student learning motivation throughout the instructional process.

This enhancement in critical thinking skills occurs because the ARCS learning model effectively constructs student learning motivation through its four core components: Attention, Relevance, Confidence, and Satisfaction. These four components are interrelated in establishing an active, engaging, and student-centered learning environment, allowing students to acquire meaningful learning experiences.

In the Attention phase, the teacher utilized Powtoon media as an initial learning stimulus. The animated video displayed captured students' attention through a compelling combination of images, colors, text, sound, and illustrations. Consequently, students remained more focused on the lesson compared to instances where the teacher relied solely on the conventional lecture method. Student engagement with the instructional media serves as a crucial factor in building learning motivation from the outset of the learning activity.

Powtoon media also assists students in converting abstract science concepts into more concrete forms. The material regarding the relationship between biotic and abiotic components, which was previously difficult to comprehend, became easier to learn through animated visualizations. Thus, students did not merely memorize concepts but were able to understand the cause-and-effect relationships occurring within an ecosystem.

In the Relevance phase, the teacher connected the instructional material to real-world experiences encountered by students in their daily lives. Students were guided to observe the school environment, identify various biotic and abiotic components, and discuss environmental issues they encountered around their residential areas. Such

contextual learning makes students realize that the material studied has practical utility in real life, thereby increasing their learning motivation.

These activities also provided opportunities for students to develop their interpretation and analysis skills. Students learned to identify facts, distinguish essential information, and subsequently analyze the relationships between the various constituent components of an ecosystem. This activity aligns with the characteristics of science education, which emphasizes scientific processes through observation, investigation, analysis, and drawing conclusions.

The Confidence phase emerged as one of the critical factors driving the improvement in students' critical thinking skills. In this phase, the teacher provided opportunities for all students to discuss, ask questions, express opinions, and present group work. The teacher also provided guidance to students encountering difficulties, making them feel more confident in communicating their ideas and answers.

The increase in self-confidence had a direct impact on the students' ability to resolve various presented problems. Students no longer provided brief answers; instead, they began to present logical reasons, evidence, and arguments. This situation demonstrates advancement in the indicators of evaluation, inference, and explanation as integral parts of critical thinking skills.

The final phase, Satisfaction, provided positive reinforcement for student learning outcomes. The teacher provided appreciation in the form of praise, rewards, and constructive feedback on group discussions and presentations. This reinforcement delivered learning satisfaction, causing students to become more motivated to participate in subsequent lessons. Beyond increasing motivation, awarding recognition also cultivated a positive learning culture within the classroom.

The findings of this study demonstrate that the use of Powtoon media functions not only as a tool for material delivery but also as a medium capable of enhancing interaction between the teacher and students. Through engaging animations, students comprehended the learning material more easily, participated actively in discussions, and were able to connect science concepts with real conditions in their surrounding environment. This proves that the integration of technology-based learning media contributes positively to enhancing the quality of primary school education.

The findings of this study align with John M. Keller's theory, which states that instructional success is heavily influenced by student learning motivation. The ARCS model is designed to capture attention, demonstrate material relevance, enhance self-confidence, and provide learning satisfaction so that students are driven to learn optimally. These four

components proved effective in increasing student engagement throughout the learning process.

Furthermore, the results of this study support Peter A. Facione's theory regarding critical thinking skills, which comprise six indicators: interpretation, analysis, evaluation, inference, explanation, and self-regulation. During the instructional process utilizing the ARCS model assisted by Powtoon media, these six indicators developed progressively through observation, discussion, problem-solving, work presentation, and reflecting on the completed learning process.

The results of this study are also consistent with the research by Rindi Antika Ayu (2021), which concluded that the ARCS learning model assisted by Powtoon media can improve instructional quality by increasing student motivation and conceptual understanding. Similarly, research by Maharani and Hardini (2017) indicated that learning which actively involves students can enhance learning outcomes. Nurul Istikomah (2018) also concluded that active learning exerts a positive impact on students' engagement and cognitive abilities.

The distinction between this study and prior research lies in its research focus. Previous studies predominantly examined learning outcomes and conceptual understanding, whereas this study specifically addresses the enhancement of students' critical thinking skills through the implementation of the ARCS learning model assisted by Powtoon media in primary school science education, focusing on ecosystem materials.

Based on the overall research findings, it can be concluded that the implementation of the ARCS learning model assisted by Powtoon media is an effective instructional strategy for enhancing students' critical thinking skills. This model is capable of creating an active, contextual, engaging, and enjoyable learning environment. Consequently, students become more motivated to learn, confident in expressing opinions, capable of analyzing various problems, and proficient in drawing conclusions based on evidence obtained during the learning process.

4. CONCLUSION

Based on the results of the classroom action research conducted over two cycles, it can be conclusively inferred that the implementation of the Attention, Relevance, Confidence, and Satisfaction (ARCS) learning model assisted by Powtoon animated video media successfully enhances the critical thinking skills of fifth-grade students at SDN 2 Tapa, Bone Bolango, in the Natural and Social Sciences (IPAS) subject, specifically regarding ecosystem material focusing on biotic and abiotic components.

This enhancement is visibly demonstrated by a highly significant graphic increase in the classical mastery of critical thinking skills between Cycle I

and Cycle II. In the final evaluation of Cycle I, the percentage of classical mastery only reached 61.22%, with a breakdown of 11 students declared proficient, while the other 7 students remained below the minimum criteria.

Following intensive action refinements in Cycle II based on the reflection results of the first cycle, the number of students who successfully achieved the Learning Objective Achievement Criteria (*Kriteria Ketercapaian Tujuan Pembelajaran / KKTP*) with a score above 80 increased sharply to 16 students, reaching a percentage of 88.89%. This empirical improvement proves that the classical success indicator established in Chapter III stipulating that a minimum of 80% of students achieve mastery, has been fully satisfied. This absolute success was attained due to the optimized implementation of the ARCS model's syntax sequence in a more directed and equitable manner during Cycle II. Refinements focused on maintaining spontaneous attention through more interactive visualizations of contextual problems, strengthening the alignment of material with real-world experiences (Relevance), equalizing group roles to boost the self-confidence of all students (Confidence), and providing an achievement star reward system (Satisfaction) for active groups. All of these tactical improvements successfully rendered the learning process far more active, meaningful, and effective in sharpening the students' six indicators of critical thinking. Consequently, the action hypothesis formulated in this study is officially accepted.

Recommendations

Based on the success of the classroom action research achieved in this study using the ARCS learning model assisted by Powtoon animated video media to enhance critical thinking skills in ecosystem materials, the researcher offers several recommendations that are expected to benefit the advancement of education.

For students, the implementation of the combination of the ARCS model and interactive Powtoon media is expected to trigger internal motivation so that they remain consistently active throughout the learning process, exhibit no hesitation in collaborating to process group data, and possess high courage and self-confidence when expressing opinions or presenting their critical thinking outcomes in front of the class.

For teachers, it is recommended to continuously utilize and develop the ARCS learning model assisted by Powtoon animation media in the Natural and Social Sciences (IPAS) curriculum as well as other subjects, as it has proven highly effective in accelerating the sharpness of students' reasoning skills. Teachers also need to conduct

periodic reflection, monitoring, and evaluation of classroom actions to identify technical shortcomings and seek appropriate methodological solutions to continuously improve teaching quality. Furthermore, teachers are expected to persistently provide individual guidance, emotional motivation, and substantive feedback reinforcement so that all students feel secure and supported to engage maximally in problem-solving discussion activities.

For schools, through the implementation of the innovative ARCS learning model assisted by Powtoon animated video media, the researcher hopes to stimulate a collective improvement in the instructional performance quality of teachers at the school. This will ultimately exert a systemic impact on the development of student graduation quality, institutional accreditation, and the overall quality of education at SDN 2 Tapa, Bone Bolango.

For the researcher and future researchers, the application of the ARCS learning model assisted by Powtoon media is expected to enrich theoretical knowledge and practical skills in conducting classroom action research to boost professionalism as educators. This research report can also serve as a scientific reference or a foundational basis for other academics in developing effective, innovative learning models to unleash primary school students' critical thinking potential. Lastly, future researchers are encouraged to conduct further studies by implementing the ARCS learning model assisted by Powtoon animation media on different subject matters or across more varied grade levels to test its effectiveness more broadly and comprehensively.

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