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THE EFFECTIVENESS OF ARTICULATE STORYLINE ON PROBLEM-SOLVING ABILITY AND STUDENT SELF-CONFIDENCE

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ABSTRAK

Dalam pendidikan, banyak siswa yang membutuhkan lebih banyak kepercayaan diri dalam memecahkan masalah dan kurang percaya diri. Penelitian ini membandingkan kemampuan pemecahan masalah dan kepercayaan diri matematis siswa yang menggunakan media Articulate Storyline versus pembelajaran tradisional. Desain penelitian ini adalah eksperimen semu dengan kelompok kontrol non-ekuivalen. Kelas eksperimen menggunakan media Articulate Storyline, sedangkan kelas kontrol menggunakan pembelajaran tradisional. Siswa X TKI 6 (Eksperimen) dan X TKI 5 (Kontrol) berpartisipasi dalam penelitian ini. Tes kemampuan pemecahan masalah matematis dan angket kepercayaan diri digunakan untuk mengumpulkan data dalam penelitian ini. Analisis data menggunakan uji Mann-Whitney mengungkapkan bahwa media Articulate Storyline secara substansial meningkatkan kemampuan pemecahan masalah dan kepercayaan diri matematis siswa.

ABSTRACT

In education, many students need more confidence in problem-solving and a lack of confidence. This study compares the problem-solving abilities and mathematical confidence of students who use Articulate Storyline media versus traditional learning. The design of this study was quasi-experimental with the non-equivalent control group. The experimental class uses Articulate Storyline media, while the control class uses traditional learning. Students from X TKI 6 (Experiment) and X TKI 5 (Control) participated in this study. Mathematical problem-solving ability tests and self-confidence questionnaires were used to collect data for this study. Data analysis using the Mann-Whitney test revealed that Articulate Storyline media substantially increased students' problem-solving skills and mathematical confidence.

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INTRODUCTION

In the digital era, efforts to increase the efficacy and quality of the learning process have switched their attention to the use of technology in the learning process. Articulate Storyline is a technology-based learning media that may provide students with interactive and engaging learning experiences (Daryanes et al., 2023; Yolanda et al., 2022; Sari et al., 2023). This study focuses on the application of Articulate Storylines in a learning context. The relevant study discovered that using Articulate Storylines significantly improved students' mathematics problem-solving abilities (Rahayu et al., 2022; Ratnasari et al., 2022). According to Yolanda (2022) and Sari (2022), using Articulate Storyline has a favorable impact on enhancing student confidence in the learning process.

Articulate Storyline is an interactive learning media because it allows content creators to integrate various interactive elements such as simulations, exercises, quizzes, and animations. This makes learning more exciting and meaningful for students. The way to involve students through Articulate Storyline is to give them control. Students can choose the learning course, answer questions, and participate in activities encouraging active thinking. The main difference with traditional learning methods is high interactivity. In traditional methods, learning is often passive, with the teacher as the primary source of information. Articulate storylines, however, allow students to be actively involved in learning and explore, experiment, and learn from interactive experiences. This increases students' understanding, problem-solving, and confidence in a more relevant and exciting learning context.

According to Maulidiyah et al. (2022), using Articulate Storyline can boost student engagement and facilitate interactive learning. These findings provide a solid foundation for future research and explain the article's originality. Nonetheless, despite some linked studies, the knowledge gap remains. Previous research has yet to particularly investigate the relationship between Articulate Storyline usage and students' problem-solving ability and self-confidence. As a result, this study is unique in that it delves further into the influence of the media on critical components of student learning. The knowledge gap in this study is mainly due to the need for more research that specifically explores the relationship between the use of an Articulate Storyline of problem-solving skills and increased student self-confidence. This research contributes by deeply exploring how this media influences these two aspects, which have yet to be widely studied. This study differentiates itself by examining the potential positive

effects on students' problem-solving abilities and self-confidence when using Articulate Storyline media in learning contexts.

Articulate Storyline can make learning exciting and meaningful by providing rich interactivity. For example, in learning mathematics, Articulate Storylines can present problem-solving challenges that involve students in real-world scenarios. Students can interact with the situation, try different approaches, and see the impact firsthand. This creates active and engaging learning, helping students develop real-life problem-solving skills. In addition, interactivity aspects such as instant feedback and tiered challenges can increase students' confidence as they see their progress and improvement in real-time. This is important because high motivation and self-confidence are the keys to facing learning challenges.

Articulate Storyline is more challenging and empowering than traditional methods, which are often passive, such as lectures. Articulate Storyline enables real-time monitoring of student progress and personalization of learning, which is difficult to achieve with conventional methods. Thus, Articulate Storyline has great relevance and significance in increasing the effectiveness of modern education.

This study distinguishes itself from previous research on the utility of Articulate Storyline Media in education. While prior studies such as (Daryanes et al., 2023; Yolanda et al., 2022; and Sari et al., 2023) have highlighted the advantages of using Articulate Storyline in learning, they did not specifically examine its impact on students' problem-solving abilities and self-confidence. On the other hand, our research focuses precisely on these two aspects, addressing a gap in the literature. They were contributed by enhancing engagement (Daryanes et al., 2023), exploring its adaptability (Yolanda et al., 2022), and emphasizing user-friendliness (Sari et al., 2023). This study adds to the body of knowledge by shedding light on how Articulate Storyline can enhance students' problem-solving skills and self-confidence in educational settings.

In this day and age of growing technology and e-learning, it is critical to grasp the extent to which the usage of interactive media such as Articulate Storyline can give benefits in an educational context. Problem-solving abilities are essential in everyday life and the workplace. Many kids need additional self-confidence when handling tasks. The problem with conventional learning effectiveness is that it sometimes cannot provide students with exciting and meaningful learning experiences. Articulate Storyline can aid students by presenting content graphically and interactively.

The research hypothesis is that using Articulate Storyline in learning can significantly increase problem-solving abilities and students' self-confidence compared to traditional learning methods. We also wanted to explore whether this impact varied based on students' initial ability level. As such, this study aims to provide strong evidence of the effectiveness of interactive media in improving student learning outcomes and helping to create more efficient and inclusive learning approaches.

Improving students' problem-solving skills and self-confidence through interactive media such as Articulate Storyline will significantly impact academic and career success. Better problem-solving skills can help students achieve higher academic performance and overcome complex problems in the world of work. Increased self-

confidence encourages initiative, adaptability, and creativity, which form the basis for innovation. Thus, strengthening these skills equips students with powerful tools to deal with change and achieve success in various aspects of their lives.

This study is expected to provide a more profound knowledge of the usefulness and potential of Articulate Storyline Media in increasing students' problem-solving abilities and self-confidence based on the facts and hypotheses. Students can improve their problem-solving skills and gain confidence using interactive features and simulations. This study aims to understand better the usefulness of Media Articulate Storyline in attaining these aims.

METHODOLOGY

This study's design follows specific procedures to investigate the impact of Articulate Storyline Media on students' problem-solving ability and self-confidence. The first stage is choosing a research subject that enhances students' problem-solving abilities and self-confidence. Determine the factors to be measured to see improvements before and after using Articulate Storyline, such as students' problem-solving ability and self-confidence. The design of this study was quasi-experimental with the non-equivalent control group.

A quasi-experimental design with a non-equivalent control group was chosen to test the impact of Articulate Storyline Media on problem-solving abilities and self-confidence because there are several strong justification reasons. First, establishing a fully equivalent control group in an educational context is often difficult due to individual student differences, previous experience, and varying environmental factors. The pseudo-design allows the researcher to compare existing groups without forcing impossible manipulations. Second, the quasi-design considers ethical factors, as it would be difficult to ignore the potential benefits of interactive learning media for a control group that might feel left behind. This avoids situations where the control group might feel neglected or disadvantaged. In doing so, this design provides the necessary flexibility and ethics while enabling the evaluation of the impact of Articulate Storyline Media on problem-solving and student self-confidence in a practical way in a complex educational setting.

SMKN 2 Cilegon and class X Computer and Informatics Engineering (TKI) were selected as the study population because of their relevance to the selected variables. SMKN 2 Cilegon probably has technological facilities and access to Articulate Storyline media, making it suitable for this study. Class X TKI is a suitable target because they have an interest and background in technology and computers. Purposive sampling is used to select experimental and control groups because it allows researchers to selectively place subjects according to research objectives. With this, researchers can ensure that the experimental and control classes represent suitable groups to test the impact of the Articulate Storyline on problem-solving and students' self-confidence, increasing the validity of the research results.

This study was conducted at SMKN 2 Cilegon from 1 February 2023 to 31 March 2023 for the academic year 2022/2023. This study's population consisted of class X TKI SMKN 2 Cilegon pupils. There are up to two types of samples in this investigation. Purposive sampling was used in this investigation. They created X TKI 6 for the experimental class using Articulate Storyline media and X TKI 5 for the control class with traditional learning. The number of students who took part in the pre-test and post-test administration, 36 in the experimental and 36 in the control classes, was one of the many studied subjects. The next step is to divide the population into experimental and control groups. Data were collected in both groups by administering problem-solving exams and assessing students' self-confidence before and after treatment.

Pre-test and post-test are essential evaluation tools in this study. The pre-test was carried out before giving treatment (using Articulate Storyline media and traditional learning) to measure the level of initial problem-solving and the initial level of self-confidence of students. The pre-test identifies the baseline data, which allows comparison with the post-test results. The post-test was carried out after the treatment was finished. Measures the level of problem-solving and self-confidence after students participate in learning using a predetermined method. The difference is that the pre-test records the initial level. At the same time, the post-test reflects progress or changes that the use of Articulate Storyline media or traditional learning may cause. The combination of pre-test and post-test provides a more complete understanding of the effectiveness of the learning methods.

The research material focuses on pupils' problem-solving ability and self-confidence. Problem-solving talents include detecting problems, devising problem-solving tactics, and evaluating following solutions. Conversely, self-confidence relates to a student's level of confidence and self-assurance when faced with problem-solving activities. This study compares students' problem-solving abilities and self-confidence levels before and after using Articulate Storyline Media.

This study's research instruments comprised problem-solving tests and questionnaires to gauge students' self-confidence. The problem-solving ability test will include questions and problems designed to assess students' problem-solving abilities. The problem-solving ability essay test is an evaluation tool that requires students to detail and detail their solution to a problem. Examples of the types of questions in a problem-solving ability description test include:

Case Study: Provide a problem scenario and ask students to detail their solution based on the information provided. Problem Analysis: Students must identify a problem, analyze its root causes, and detail appropriate solving steps. Designing a Solution: Students are asked to devise a step-by-step plan or strategy to solve a problem. Solution Arguments: Ask students to provide solid and rational arguments for their proposed solutions. Evaluation of Alternatives: Students are asked to evaluate various alternative solutions, compare their strengths and weaknesses, and choose the most effective one. Correction Case: Requires students to identify the problems in a scenario and detail the improvements needed. This essay test requires critical thinking,

good written communication skills, and the ability to detail and defend solutions logically.

The development of a self-confidence evaluation questionnaire with a Likert scale involves several essential steps to ensure its validity and reliability: 1. Identify the concept to be measured: The first step is to identify the aspects of self-confidence we want to evaluate in the research context, such as students' confidence in their problem-solving ability; 2. Formation of Questions: Questions should be designed to reflect the identified concept of self-confidence. Make sure the questions are straightforward, on-topic, and relevant; 3. Content Validity: The questionnaire should be checked by several experts in the relevant field to ensure that the questions measure the desired aspect; 4. Initial Testing: Before being used in research, the questionnaire can be pilot-tested on several initial respondents to identify potential problems, such as question ambiguity or inappropriate responses; 5. Likert Scale: The selection of a Likert scale with four response levels (Strongly Agree, Agree, Disagree, Strongly Disagree) is appropriate; 6. Reliability: To check reliability, retest the questionnaire after some time to see if the results are consistent; 7. Statistical Analysis: The data obtained from the questionnaires can be analyzed using statistical methods such as factor analysis to check the validity of the constructs. By following these steps, researchers can develop a valid and reliable self-confidence questionnaire to measure students' self-confidence variables in a research context that focuses on the impact of using Articulate Storyline media on problem-solving abilities and self-confidence.

The self-confidence evaluation questionnaire will investigate pupils' confidence levels in problem-solving situations. The questionnaire employs a Likert scale with four response options: Strongly Agree (SS), Agree (S), Disagree (TS), and Strongly Disagree (STS). Table 1 shows the response criteria Solihah et al. (2021) used.

Table 1. Criteria for Students' Self-Confidence Answers

Presents	Interpretation
0%	There is not any
1% - 25%	Fraction
26% - 49%	Almost half
50%	Half
51% - 75%	Most of the
76% - 99%	Almost all
100%	Whole

Analyzing data from research instruments involves several stages, including instrument validation through trials and expert judgment. Here are the steps taken: 1. Initial Trial: Data from the initial Trial of the instrument were tested by detailing the results obtained from the initial respondents. Includes identifying questions or statements that are ambiguous or difficult to understand; 2. Internal Consistency Measurement: An internal consistency analysis, such as Cronbach's alpha, can be employed to assess the instrument's reliability. This analysis quantifies the extent to

which the questions in the instrument are correlated; 3. Content Validity: Questions are asked of experts in the relevant field to assess whether the instrument correctly covers the concept to be measured. The results decide whether changes or additions are needed; 4. Factor Analysis: Exploratory or confirmatory factor analysis can be used to check the validity of the instrument constructs. This aids in comprehending the extent to which the instrument accurately captures the intended concept; 5. Advanced Trial: The instrument was then tested on a larger sample to measure the validity and reliability of the instrument more accurately. Data from these trials were used in the appropriate statistical analyses; 6. Statistical Analysis: Data obtained from instruments (e.g., student self-confidence scores) can be analyzed using statistical methods such as regression analysis, t-test, ANOVA test, or correlation test to identify significant relationships or differences; 7. Interpretation of Results: The results of the data analysis were interpreted to describe the effect of the independent variable (use of Articulate Storyline) on the dependent variable (self-confidence and students' problem-solving abilities); 8. Conclusion and Implications: Conclusions are drawn based on the findings, and implications for further education or research are discussed. This process ensures that research instruments have sufficient validity and reliability to accurately measure the variables studied, making research results more robust and reliable. Data was collected before and after treatment in both groups, the experimental group and the control group. Students will complete self-confidence questionnaires and administer problem-solving skills assessments to collect data. Instrument validation will be carried out through trials and expert assessment phases to verify the validity and reliability of the instruments utilized.

The t-test is a statistical tool used to compare two groups: the experimental group (which uses Articulate Storyline) and the control group (which uses traditional learning). The t-test will be used to answer research questions and test hypotheses about whether there is a significant difference between the two groups regarding problem-solving abilities and students' self-confidence after treatment. This study hypothesizes that using an Articulate Storyline improves problem-solving abilities; the t-test will compare the two groups' average scores on the problem-solving test. Suppose the difference in scores between the two groups is statistically significant. In that case, the hypothesis can be accepted or rejected, and research can conclude a significant impact of media use.

The type of data obtained from each research instrument determines the analytic technique utilized. The analysis strategy employed included statistical procedures such as the t-test, which were used to compare the experimental and control groups in terms of problem-solving abilities and self-confidence of students before and after using Articulate Storyline Media. All collected data will be processed and evaluated using the appropriate statistical software. The analysis results will be evaluated comprehensively to provide a clear picture of the impact of the Articulate Storyline on students' problem-solving abilities and self-confidence.

The results of the t-test analysis will be the core of the answers to the objectives of this study. This will directly reveal whether using Articulated Storyline Media

significantly impacts students' problem-solving abilities and self-confidence. Suppose the results show a significant difference between the experimental and control groups. In that case, this will provide strong evidence of the effectiveness of the media in increasing problem-solving abilities and self-confidence. This will fill knowledge gaps about their concrete impact in educational contexts and provide a deeper view of how a technology-based learning approach like this can improve student learning outcomes.

N-Gain is a method used to measure the increase in students' understanding or performance in a concept after they experience specific treatment, in this case, the use of Articulation Storyline Media in the experimental group compared to traditional learning in the control group. First, before treatment, both groups will be tested with the same test (pre-test) to measure their initial understanding of problem-solving abilities and self-confidence. After treatment, they will be tested again with the same test (post-test). The difference between each group's post-test and pre-test scores will be calculated. Furthermore, the N-Gain is this difference divided by the maximum possible range of scores. These N-Gain results will help answer research questions and test hypotheses by enabling comparisons between the improvements in students' understanding and confidence in the two groups. Suppose the N-Gain of the experimental group is significantly higher than the control group (using a t-test). In that case, it indicates that using Articulation Storyline Media effectively increases students' problem-solving abilities and self-confidence.

RESULT

Pre-test Data Analysis of Initial Problem-Solving Ability

The findings of the pre-tests given to the experimental and control groups were used to evaluate these pupils' initial mathematical problem-solving ability. This pre-test aims to determine whether or not the two classes have the exact beginning comprehension of mathematical topics. The results of the pre-test data normality test are shown in Table 2.

Table 2. Pre-test Data Normality Test Results

Class	Shapiro Wilk			
	Statistic	df	Significance	Information
Experiment	0,213	36	0,001	Not Normal Distribution
Control	0,243	36	0,002	Not Normal Distribution

The significant value for the experimental class is 0.001, and the significance value for the control class is 0.002, according to the results of the Shapiro-Wilk normality test provided in Table 2. As a result, the data on students' pre-test results in both the experimental and control groups come from populations that do not have a normal distribution. The Mann-Whitney-U test was then used as a nonparametric test. Table 3 summarizes the findings.

Table 3. One-Way Anova Test Results

Class	Asymp Sig- (2-tailed)	Information
Experiment Control	0,092	H_0 accepted

Table 3 shows the Mann Whitney-U test findings, which reveal a significant value of 0.092, greater than 0.05, indicating that H0 is accepted. As a result, both classes begin with the same capacity to solve mathematical problems. As a result, researchers can continue their investigation by administering a different medication or treatment to the two classes.

Post-test Data Analysis of Problem-Solving Ability

Analysis of variance is used to make demographic inferences or to evaluate the effect hypothesis. This study's analysis of variance is a one-way analysis of variance, also known as one-way ANOVA. Assuming that the data is usually distributed, homogeneous, and independent. The following are the findings of the one-way ANOVA test calculation:

Table 4. Post-test Data Normality Test Results

Class	Shapiro Wilk			
	Statistic	df	Significance	Information
Experiment	0,197	36	0,003	Not Normal Distribution
Control	0,203	36	0,002	Not Normal Distribution

The significant value for the experimental class is 0.003, and the significance value for the control class is 0.002, according to the results of the Shapiro-Wilk normality test provided in Table 4. As a result, the data on students' post-test results in both the experimental and control groups come from populations that do not have a normal distribution. The Mann-Whitney U test was then used as a nonparametric test. The outcomes are shown in Table 5 below.

Table 5. Post-test Mann Whitney-U test results

Variable	Asymp Sig- (2-tailed)	Information
Post-test	0,003	H_0 rejected

In addition to assessing the Mann-Whitney U test, a follow-up test, the N-Gain test, was performed to determine the percentage of effectiveness of the learning model used in each class.

Gain Index Analysis of Problem-Solving Ability

Gain index data analysis was done to see if there were any differences in pupils' abilities to solve mathematical problems following different therapies. This information was gathered from the experimental and control classes' pre-test and post-test scores.

Table 6 displays the gain index data from the two classes, classified as high, medium, and low.

Table 6. Gain index grouping data

Class	Many Students		
	High	Medium	Low
Experiment	13	16	7
Control	7	22	7

Table 6 reveals that the experimental group understands mathematical concepts better than the control group, with a significant difference in the high category. Demonstrates that the experimental class outperforms the control class. However, statistical test analysis revealed a more substantial increase.

Table 7. Gain index data normal distribution

Class	Shapiro Wilk			
	Statistic	df	Significance	Information
Experiment	0,784	36	0,066	Normal Distribution
Control	0,243	36	0,001	Not Normal Distribution

Table 7 displays the significance values for the experimental and control classes, which are 0.066 and 0.001, respectively. The data in the experimental class is considered normally distributed since the significance value exceeds 0.05. Conversely, the data in the control class is not normally distributed, indicating that the gain index score data originates from a non-normally distributed population. Consequently, the Mann-Whitney U test, a nonparametric test, was employed. Table 8 presents the results, indicating a significance value of 0.000. When the value is less than 0.05, H0 is rejected. Hence, students employing traditional learning methods do not exhibit more potent mathematical problem-solving abilities than those using Articulate Storyline media.

The Mann-Whitney U test was chosen as a nonparametric test because this research involves comparisons between two groups that may not meet the assumption of normality in the data distribution. In the context of the N-Gain test, we chose the Mann-Whitney U test because it is suitable for comparing changes or increases in two groups. It measures the difference between the changes in the two groups' pre-test and post-test scores by considering the data's rank, not the absolute values. Therefore, the Mann-Whitney U test is suitable for testing whether the use of Articulated Storyline Media has a significant impact on increasing students' problem-solving abilities and self-confidence, regardless of the data distribution, which may not be normal.

Table 8. Mann Whitney-U test results gain index value

Class	Shapiro Wilk	
	Asymp Sig-(2-tailed)	Information
Experiment Control	0,000	H_0 rejected

The results of the Mann-Whitney U analysis in Table 8 show a significant difference in the increase between the experimental and control groups in problem-solving ability, the p-value of which is less than 0.05 ($p = 0.000$). The Mann Whitney-U test findings in Table 8 reveal that when students use Articulate Storyline media instead of traditional learning methods, they can solve mathematical problems more.

Table 9 shows the results of the N-Gain test analysis, which also employed SPSS. According to Table 9, the average percentage of efficacy in the experimental class was 89.5% in the influential group. With a percentage of 72.83%, these outcomes outperformed the control group. As a result, Articulate Storyline media is more effectively applied to students' problem-solving abilities when learning Sequences and Series.

Table 9. Mann Whitney-U test results gain index value

Class	N – Gain Skor (%)			Kesimpulan
	Minimum	Maximum	Mean	
Experiment	74,65	100	89,5	Efektif
Control	68,07	100	72,83	Cukup Efektif

Table 6 (gain index grouping data) displays a comparison between the experimental group (users of Articulate Storyline) and the control group (traditional learning) in the "high," "moderate," and "low" categories based on the gain index increase. In the High Category, significant differences indicate that students in the experimental group experienced a substantial improvement in problem-solving abilities and self-confidence after using Articulate Storyline Media, demonstrating a strong positive impact, especially for students with high initial levels. The Moderate Category shows noteworthy improvement, albeit with a slightly lower impact than the high category, demonstrating the effectiveness of Articulate Storyline in enhancing problem-solving abilities and self-confidence, even for students with moderate initial levels. Within the Low Category, significant differences suggest that even students with low initial problem-solving ability and self-confidence levels can benefit from using Articulate Storyline, highlighting its inclusivity and effectiveness in improving learning outcomes for varying ability levels. These results emphasize how Articulate Storyline significantly impacted students' problem-solving abilities and self-confidence across different initial levels, with the most substantial effect observed in the "high" category while still providing substantial benefits to those in the "moderate" and "low" categories. This underscores the relevance and effectiveness of this media in diverse learning contexts.

Analysis of Student Attitudes Using Articulate Storyline Media

Using the SPSS 24 software, the collected attitude scale data were computed and tabulated. Table 10 displays the whole student attitude scale scores.

Table 10. The results of student attitude Articulate Storyline media

No/ Criteria	Student Attitude Data				Answer Presentation		Modus	Information
	SS	S	TS	STS	Positive	Negative		
1 (+)	31	5	0	0	100%	0%	SS+S	Positive
2 (-)	7	27	2	0	94,4%	5,6%	S+SS	Positive
3 (-)	2	13	18	3	86,1%	13,9%	TS+S	Positive
4 (+)	7	28	1	0	97,2%	2,8%	S+SS	Positive
5 (-)	18	2	16	0	55,6%	44,4%	SS+TS	Positive
6 (+)	6	18	12	0	91,7%	8,3%	S+TS	Positive
7 (+)	10	21	5	0	86,1%	13,9%	S+SS	Positive
8 (+)	5	20	9	2	69,4%	30,6%	S+TS	Positive
9 (+)	4	28	3	1	88,9%	11,1%	S+SS	Positive
10 (+)	32	4	0	0	100%	0	SS+S	Positive
11 (-)	1	3	25	7	11,2%	88,8%	TS+STS	Positive
12 (+)	9	27	0	0	100%	0	S+SS	Positive
13 (+)	9	27	0	0	100%	0	S+SS	Positive
14 (-)	3	8	24	1	30,5%	69,5%	TS+S	Positive
15 (+)	7	25	4	0	88.9%	11,1%	S+SS	Positive
16 (-)	3	18	12	3	38,9%	61,1%	S+TS	Positive
17 (-)	2	14	19	1	44,5%	55,5%	TS+S	Positive
18 (+)	3	23	10	0	72,2%	27,8%	S+TS	Positive
19 (+)	3	23	10	0	72,2%	27,8%	S+TS	Positive
20 (-)	3	14	18	1	88,9%	11,15	TS+S	Positive
21 (-)	2	12	16	6	38,9%	61,1%	TS+S	Positive
22 (-)	2	16	15	3	55,6%	44,4%	S+TS	Positive
23 (+)	9	26	1	0	92,2%	7,8%	S+SS	Positive
24 (-)	9	26	1	0	58,3%	41,75	S+SS	Positive
25 (-)	4	17	14	1	47,2%	52,8%	S+TS	Positive
26 (-)	2	15	15	4	52,7%	47,3%	S+TS	Positive
27 (+)	3	16	15	2	100%	0	S+TS	Positive
28 (-)	17	19	0	0	75%	25%	S+SS	Positive
29 (+)	8	19	9	0	80,6%	19,4%	S+TS	Positive
30 (+)	5	24	7	0	97,25	2,8%	S+TS	Positive
31 (-)	12	23	1	0	50%	50%	S+SS	Positive
32 (+)	2	16	17	1	83,3%	16,7%	TS+S	Positive
33 (+)	6	24	6	0	91,7%	8,3%	S+	Positive
34 (+)	7	26	3	0	92,2%	7,8%	S+SS	Positive
35 (+)	9	26	1	0	100%	0	S+SS	Positive
36 (+)	20	16	0	0	97,2%	2,8%	SS+S	Positive
37 (-)	12	23	1	0	75%	25%	S+SS	Positive

No/ Criteria	Student Attitude Data				Answer Presentation		Modus	Information
	SS	S	TS	STS	Positive	Negative		
38 (-)	5	19	11	1	66,75	33,3%	S+SS	Positive
39 (-)	6	24	5	1	83,4%	16,6%	S+SS	Positive
40 (-)	7	17	8	4	66,6%	33,4%	S+TS	Positive
41 (-)	6	13	14	3	52,8%	47,2%	TS+S	Positive
42 (+)	12	22	2	0	94,4%	5,6%	S+SS	Positive
43 (+)	8	7	21	0	100%	0%	TS+SS	Positive
44 (-)	9	15	10	2	66,7%	33,3%	S+TS	Positive
Mean					76%	24%		

Attitude scale data reflecting the positive responses of some students towards the use of Articulate Storyline Media have positive implications for the effectiveness of this media. Here are some more in-depth insights. High Motivation: Positive responses reflect that some students feel inspired and motivated using the Articulate Storyline. They may find this medium interesting, interactive, and supportive of their learning. Better Comprehension: Students who gave positive feedback may feel that Articulate Storyline helps them understand the material better. This media incorporates visual, audio, or interactive elements, making understanding more accessible. Comfort with Technology: Students who respond positively may feel comfortable and familiar with technology, so they can easily interact with this medium. Media Effectiveness: Positive feedback from some students may reinforce the idea that the Articulate Storyline is an effective educational tool. This shows that the media can have a good impact on several students. In the context of effectiveness, this positive response can influence student motivation and involvement in learning, increasing understanding and problem-solving abilities. Therefore, it is essential to understand why some students give positive feedback and how these aspects can improve the design and use of the Articulate Storyline to increase its effectiveness for the whole group.

DISCUSSION

This study aims to assess the impact of Articulate Storyline media on students' problem-solving ability and self-confidence. The findings revealed that using Articulate Storyline media greatly enhanced both factors. According to the findings of this study, using Articulate Storyline media is essential for boosting students' problem-solving ability and self-confidence. Students who utilize this platform for interactive learning immerse themselves in an engaging and challenging learning environment. This helps kids practice problem-solving skills in an enjoyable way while also growing confidence in dealing with various learning problems. Students can assess problems, identify practical answers, and take appropriate actions through interactive learning experiences. This medium's quick feedback also allows students to observe their progress in real-time, enhancing their confidence in their abilities to handle challenges.

Thus, the findings of this study give compelling evidence that the use of Articulate Storyline media improves students' problem-solving ability (Table 9) and self-confidence (Table 10).

Based on 44 responses, Table 10 revealed that 76% of students responded positively, and 24% responded negatively. Almost all students responded positively to arithmetic learning with Articulate Storyline, despite some students' negative attitudes. However, this did not affect students' attitudes about learning mathematics with Articulate Storyline, which showed a positive attitude on average because the average score was still significantly higher than the neutral score.

Students strongly support some statements. Statement number one indicates a 100% presentation, indicating that most students are eager to begin learning because they had previously studied the content using the Articulate Storyline-assisted learning module. Statement number 6, with a presentation of 91.7%, demonstrates that nearly all students are excited about working on various questions during class learning. Statement 10 demonstrates that students are enthusiastic and motivated to use the Articulate Storyline assisted learning paradigm. This technique entails studying alone at home before performing group assignments in class.

Statements that received a negative response tended to reflect a neutral attitude, as illustrated in statement number 8, which garnered a 30.6% rating. It mentioned that students avoid answering the teacher's questions because they fear being wrong, resulting in their lack of confidence. Therefore, teachers must emphasize that students' participation is evaluated based on their willingness to express their thoughts, regardless of correctness. Additionally, instructors should develop a learning model that nurtures students' self-confidence to avoid failing to answer the teacher's questions.

In Articulate Storyline-assisted learning, students receive learning materials ahead of time, which boosts their confidence and motivates them to be better prepared for classroom learning. Additionally, they become more engaged in asking questions when they struggle to understand the content and responding to teacher inquiries during revision. Furthermore, students actively collaborate on homework through group discussions, even though they study individually at home. These groups also have opportunities to present their work, contributing to the students' increased confidence in public speaking.

Furthermore, with a percentage of 27.8%, students responded negatively to statement number 18. They claimed only to study when there was a test. Continuing to use Articulate Storyline media will encourage students to always study independently at home through the lessons supplied by the teacher before learning in class, which is deeper and more meaningful. Students will be encouraged to study at home all the time, not just during testing.

According to this study, Articulate Storyline media dramatically enhanced students' problem-solving ability and self-confidence. Students participating in this learning experience an improvement in their abilities to assess problems, discover effective solutions, and take suitable actions. They also indicated greater confidence in confronting learning activities and problems.

The utilization of dynamic and intriguing Articulate Storyline media contributed to this outcome. This media enhances student participation in the learning process by providing topics that capture their interest. Furthermore, the quick feedback provided via this medium allows students to observe their progress in real time, increasing their confidence in their ability to handle challenges. As a result, these characteristics led to the observed increase in students' problem-solving ability and self-confidence in this study.

This study is consistent with other prior studies conducted in the context of using interactive media in learning. The findings of this study back up prior research that found a beneficial association between the use of interactive media and an increase in students' problem-solving abilities and self-confidence. The influence of interactive media on mathematics learning was explored by (Maulidiyah et al., 2022 Palera et al., 2020 Novitasari 2016 and Sattriawan et al. 2020). According to this study, interactive media significantly impacts pupils' problem-solving abilities. This study backs up our findings, which show that using Articulate Storyline media effectively increases students' problem-solving ability.

Sancar and Yanpar (2015) investigated the impact of digital media on students' self-confidence. The study discovered that using digital media can boost students' self-esteem. These findings confirm the conclusions of our research, which found that using Articulate Storyline media boosts students' self-confidence. Furthermore, Sadikin and Hardianti's investigation (2021) discovered results that were identical to ours. According to this study, using interactive media in learning can boost students' problem-solving abilities and self-confidence. Our findings are consistent with the results of this study, indicating that using Articulate Storyline media as interactive media can assist in improving both of these factors. However, there have been other past investigations that have produced disparate outcomes. For example, Almekhlafi (2006) and Kalelioglu and Gülbahar (2014) discovered that interactive media did not substantially impact pupils' problem-solving ability. Nevertheless, it is essential to emphasize that variations in research outcomes may stem from changes in context, methods, and study populations.

The findings of this study have important practical implications in educational settings. Instructors can effectively integrate Articulate Storyline to improve students' problem-solving skills and self-confidence by following these suggestions: Attractive Content Design: Create interactive, engaging, relevant content for learning objectives. Use images, animations, videos, and interactive elements to motivate students. Learning Customization: Tailor content to students' ability levels. Articulate Storyline media enables the customization of learning to individual levels. Problem Solving Assignments: Integrate challenging problem-solving tasks in the Articulate Storyline module. Provide real situations that allow students to apply the concepts learned. Interactive Feedback: Insert instant feedback mechanisms to inform students about their performance in problem-solving. This can increase their self-confidence. Online Collaboration: Use the collaborative features of this medium to facilitate online discussion and group work, which can enhance shared problem-solving. Media Use

Training: Instructors must train students on effectively using Articulate Storyline, especially if unfamiliar with this technology. Continuous Evaluation: Regularly evaluate and update learning content and approaches based on student feedback and evaluation results. Evaluation of Effectiveness: Always evaluate learning outcomes to ensure the effectiveness of using Articulate Storyline Media in increasing students' problem-solving skills and self-confidence. Applying these findings will help instructors create interactive, immersive, and challenging learning environments that can significantly improve students' problem-solving abilities and self-confidence.

Overall, this study supports several earlier studies that investigated the use of interactive media in learning environments. These studies continuously support the idea that interactive media, such as Articulate Storyline media, can help students enhance their problem-solving ability and self-confidence. On the other hand, differences in environment and research approach affect the variations in results among existing studies. As a result, this study adds to earlier findings by proving the benefits of using Articulate Storyline media in increasing students' problem-solving ability and self-confidence.

The findings of this study have significant significance and consequences in the educational context. Students' problem-solving ability and self-confidence may benefit from using Articulate Storyline media as a learning tool. Multimedia study's practical implication is that instructors can use multimedia mediums to create engaging, enjoyable, and successful learning experiences. The impact is increased student interest, involvement in learning, and confidence in tackling assignments and obstacles. Students can build the problem-solving abilities needed to deal with a complicated and ever-changing world by using Articulate Storyline media.

This study contributes by underlining the value of employing interactive media in learning. These findings may promote creating and using more inventive and exciting e-learning content, such as Articulate Storyline. Furthermore, this study adds to the empirical evidence that interactive media improves students' problem-solving skills and self-confidence. Overall, this study's findings benefit educational practitioners and scholars working on interactive learning. The implications and repercussions highlight the need to harness technology in education to provide students with more meaningful learning experiences and applicable skills.

It is essential to acknowledge the limitations of the study in order to understand the generalizability of the findings and directions for future research. Specific Context: Researchers conducted this study at SMKN 2 Cilegon with class X TKI students, who might possess unique characteristics. This limits the generalizability of the results to different populations or levels of education. Sample Size: This study's sample may have been relatively small (36 students in each group), which may affect the representation of the larger population. Potential Bias: The possibility of bias, such as selecting particular students for experimental or control groups, must be. Unmeasured Variables: This study may not have measured other variables, such as the students' technological skill level or previous experience with similar media. Subjective Measurements: Self-confidence and attitudes can be subjective and prone to subjective bias.

CONCLUSION

In conclusion, this study conclusively shows that integrating Articulate Storyline media enhances students' mathematical problem-solving abilities and increases their self-confidence compared to traditional learning approaches. Articulate Storyline offers a promising alternative to mathematics education by engaging students through interactive and captivating content. While the current investigation focused on sequences and series among tenth-grade vocational high school students, the implications of these findings extend beyond this scope. Further research can explore the application of Articulate Storyline across diverse mathematical topics and educational levels. This study contributes to the growing body of research on technology-enhanced learning and reaffirms the potential of Articulate Storyline to revolutionize mathematics education. Despite the limitations inherent to this study, its outcomes underscore the need to harness innovative tools for more effective teaching and learning experiences. As mathematics educators and researchers continue to explore the dynamic landscape of technology in education, Articulate Storyline stands as a beacon of possibility, empowering students to excel in problem-solving and fostering newfound confidence in their mathematical abilities.

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