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Development of Articulate Storyline Interactive Learning Media Based on Realistic Mathematical Education (RME) to Improve Critical Thinking Ability of Elementary School Students

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Abstract: The objectives of this study are 1) Know the process of developing interactive learning media articulate storyline based on Realistic Mathematical Education (RME) to improve critical thinking skills for students in class IV, 2) Knowing the feasibility of developing products in the form of interactive learning media articulate storyline based on Realistic Mathematics Education (RME) to improve critical thinking skills for students in class IV, 3) Analyze the practicality of interactive learning media articulate storyline based on Realistic Mathematical Education (RME) to improve critical thinking skills for students in class IV, 4) Analyze the effectiveness of interactive learning media articulate storyline based on Realistic Mathematical Education (RME) to improve critical thinking skills for students in class IV. This study uses a research and development approach (Research and Development) which consists of 10 steps. The subjects in this study are students and teachers of class IV in Purwodadi District in 4 elementary schools, namely Public Elementary School No. 1 Kuripan, Public Elementary School No. 4 Kuripan, Public Elementary School No. 4 Cengkrong, Public Elementary School No. 11 Purwodadi, Rembang Regency in the full semester of 2021/2022. Data collection techniques using interviews (interviews), questionnaires (questionnaires), and tests. The analysis used in this study is quantitative and qualitative analysis, including critical thinking ability, observation of learning, and validation of media products to articulate storylines. Product effectiveness test results in improving critical thinking skills obtained Paired Samples T-Test test results from control class data with experimental class, seen from the significance (2 tailed) showed a result <0.05 which is 0.000. Thus, it can be concluded that Ha is accepted and H0 is rejected meaning that there is a difference between the control class and the experimental class. Development of learning media articulate storyline through model Realistic Mathematic Education (RME) effective in improving students' critical thinking skills.

Keywords: Learning media, articulate storyline, realistic mathematic education *(RME*)

1. Introduction

The role of teachers in bridging learning needs and learning goals is very important (Resch & Schrittesser, 2021). In their role to facilitate student learning, teachers can use a variety of methods of using learning media in delivering subject matter to students. Sofiyati, Suad, & Surachmi (2021) stated that the use of learning media can arouse new desires and interests, motivate, and stimulate learning activities, and will bring psychological effects on students, it can be concluded that there is a relationship between learning media and technology that both have power Pull. An interesting learning process can be done by utilizing technology, especially in mathematics subjects.

Mathematics is a universal science that underlies the development of modern technology, plays an important role in various disciplines, and develops human thinking (Chong & Sungap, 2021). The magnitude of this role, making mathematics a compulsory subject in school, and the need for a strong mastery of concepts from an early age, and can

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cultivate students' ability to think logically, analytically, systematically, critically, creatively, and collaboratively (Pratama, 2017). However, in reality, most students still consider mathematics as an unpleasant subject, as well as material that seems difficult and abstract to understand. This is potentially the main cause of their learning difficulties.

Mathematics is seen as a human activity that starts with problem-solving (Fabian, Sintian, & Yusof, 2022). Therefore, students' reasoning ability is very decisive in translating problems in everyday life into mathematical sentences. The results of learning mathematics require reasoning skills to translate problems into mathematical sentences. Realistic Mathematics Education (RME), which translates as Pen Realistic Mathematics (PMR) is an approach to learning mathematics developed in 1971 by a group of mathematicians from the Freudenthal Institute at Utrecht University in the Netherlands.

The critical thinking ability of Grade IV Elementary Students of Purwodadi District, Grobogan Regency is still low. Realizing the low ability to think critically, researchers then try to find alternatives to overcome these problems. From the various obstacles and challenges that exist, as well as looking for problem-solving alternatives, researchers conduct this research with research and development models. Researchers developed a learning media in the form of Articulate Storyline as an online learning media through various development applications, while in the implementation of applying the Realistic Mathematical Education (RME) learning model. The development includes several steps, namely: potential problems, data collection, product design, design validation, design revision, product testing, product revision, application testing, product revision.

2. Literature Review

Istikomah, Utaminingsih, & Sumaji (2022) stated that the RME learning model is related to mathematical concepts, critical thinking skills, creative thinking, and problem-solving. Ulandari, Amri, & Saragih (2019) stated that the RME learning model provides the widest opportunity for learners to build their knowledge through a given problem-solving process. Furthermore, Ndiung, Jehadus, & Apsari (2021) stated that the RME has advantages. The advantages of the RME model include 1) learners are more active and independent to find concepts and theories in learning, so that they can connect the concepts with daily life, 2) RME is also able to increase seriousness in learning because of activity-based learning so that all learners are actively involved in learning.

According to Harun et al. (2021) that the reality in the field students often feels afraid to solve mathematical problems, especially stories. This indicates that students 'mathematical ability to solve problems is still quite low, which will certainly have an impact on students' mathematical critical thinking ability. The low mathematical critical thinking ability of students is also supported by the facts of research conducted by Hasibuan (2016) who stated that students' mathematical critical thinking ability is still in the low category.

Based on observations made by researchers on teachers and students in class 4 Public Elementary School No. 1 Kuripan, Public Elementary School No. 4 Kuripan, and Public Elementary School No. 11 Purwodadi found several problems that are related to teachers, students, and learning media. Regarding teachers, teachers have not found suitable learning media to apply to students, so learning is still centered on teachers, in giving projects or assignments, teachers still have difficulty because the ability to solve mathematical problems is still low. Concerning students' problems, namely students have difficulty in understanding the mathematical material from the school handbook, students feel easily bored and less interested in being able to complete the problems in the school handbook, and there are no media that attracts students to solving math problems. Concerning media, the lack of interesting and suitable learning media is applied in solving mathematical problems in improving students' critical thinking ability.

Researchers also conducted an initial test to find out the critical thinking ability of students in working on mathematics. The sample students took a total of 24 students in class 4 Public Elementary School No. 1 Kuripan, 24 students in Public Elementary School No. 4 Cengkrong, and 9 students in Public Elementary School No. 4 Kuripan, randomly, and obtained the result that the average initial test of 63.30 below minimum completeness criteria. After finishing the test and obtaining the test results, the researcher then approached the students and asked about the problems experienced that students consider mathematics is a difficult lesson, and less interesting so that students' dissatisfaction with mathematics will create obstacles in the learning process. Students have difficulty understanding a given story question and write down the steps of solving a math question including knowing, being asked, answering, and so on.

From the findings obtained from the analysis, the authors found the need to improve and enhance the quality of education. One of the things that need to be done is to improve the quality of teachers' abilities in designing and creating learning media that can increase interest, motivate students and increase understanding. So, there is a need for appropriate interactive learning media to improve the ability to think critically in learning. The appropriate interactive learning media developed by researchers to improve student's critical thinking ability in mathematics learning is Articulate Stories. It is based on previous research from Pratama (2019) is a learning media based on Articulate Storyline 2 on the material of drawing function graphs in Junior High School Patra Dharma 2 Balikpapan obtained the achievement of student learning outcomes yielding an average of above 75. Research by Yahya, Ummah, & Effendi (2020) shows the learning media Articulate Storyline is very worthy with a rating of 87.2%. Research results of Purnama (2014) which has the title "Development of Interactive Learning Media Using Articulate Storyline Software in Basic Electronic Engineering Subjects Class X TEI 1 in Public Vocational School No. 2 Probolinggo".

Based on the background and results of previous research, it is necessary to conduct research on the development of learning media interactive Articulate Storyline based on Realistic Mathematical Education (RME) to improve the critical thinking ability of elementary students.

3. Methodology

Research development using Articulate Storyline interactive learning media based on Realistic Mathematics Education (RME). The research uses the type of research and development (Research and Development). Sugiyono (2017) states research and development method or Research and Development is a research method used to produce a particular product, and test the effectiveness of product.

3.1 Research Procedures

According to Sugiyono (2017), the research procedure includes 10 stages including 1) potential and problems, 2) data/information collection, 3) product design, 4) design validation, 5) design revision (improvement), 6) product testing, 7) product revision, 8) application testing, 9) product revision, 10) mass production.

3.2 Data Sources and Types

Data sources in this study consist of main data sources and additional sources. The main sources were obtained from questionnaires, interviews and tests. While additional data sources come from portfolio documents as well as from others.

The type of data in this study uses quantitative data and qualitative data. Quantitative data derived from questionnaire and test scores mean while Qualitative data came from improvement suggestions from validation questionnaires filled out by media experts, material experts, and audience observation sheets filled out when students used the media to articulate storylines.

3.3 Data Collection

Data collection techniques used questionnaires, interviews, and tests. Questionnaires were used to obtain data on the validity and practicality of media articulate storylines from display design experts, material experts, teachers, and students. Questionnaires were conducted by providing a set of written questions to respondents to be answered. Interviews were conducted to determine the development needs and obtain data on the competencies that students will achieve. Tests are used to measure the skills, knowledge, intelligence, abilities, or talents possessed by an individual or group.

3.4 Data Analysis Techniques

Data analysis According to Sugiyono (2017) data analysis is an activity after the data from all respondents or other data is collected. Data analysis was performed by grouping data based on variables and types of respondents, tabulating data based on variables from all respondents, presenting data for each variable studied, performing calculations to answer the problem formulation, and performing calculations for hypotheses that have been proposed. For data analysis in the development of Media Articulate Storyline through Realistic Mathematical Education Model (RME) to improve students' critical thinking ability includes prerequisite test consisting of normality and homogeneity test, hypothesis test consists of validity test analysis, Practicality Test Analysis, Effectiveness Test Analysis. All data analyzed using statistics.

4. Results

4.1 Needs Analysis

The results of observations with teachers and students obtained data that Students' critical thinking ability is still low, in addition, teachers have not found a suitable learning medium to apply to students, so learning is still teacher-centered, in assigning projects or assignments, teachers still have difficulty because the ability to solve mathematical problems (students' critical thinking ability) is still low. Regarding the problem of students that students have difficulty understanding the mathematics material from the school guidebook, students feel easily bored and less interested in solving problems in the school guidebook, there are no media that attracts students to solving math problems. With less than maximal learning, interactive learning media is needed.

4.2 Planning

The steps in the planning of learning media based on Articulate Storyline through the Realistic Mathematical Education Model (RME) are as follows:

1. Formulate Goals

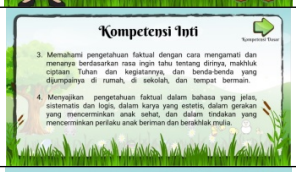
The purpose of making learning media articulate storyline. This is following the needs analysis, namely to improve students' critical thinking ability, especially in the learning of mathematics, the surrounding material, and the area of squares and rectangles in 4th grade.

2. Observation of Mathematics Learning in Schools
   Observation activities are intended to find out what media use needs to be developed and to know the low ability of students to think critically during the learning of Mathematics.
3. Analyzing the Curriculum
   At this stage, the researcher analyzes the curriculum including Graduate Competency Standards (SKL), Content Standards, and Process Standards
4. Mapping Basic Competences and Learning Content
   At this stage map the Basic Competences of mathematics subjects that will be taught to students of grade IV elementary school
5. Collecting Material Sources
   Conducted discussions with class IV teachers, lecturers, media experts, and colleagues who were conducted separately and survived. This aims to ensure that the products developed are following the curriculum.
6. Compiling Learning Tools
   Performing the preparation of learning tools in the form of a learning implementation plan, syllabus, and semester program. Learning tools are prepared to adapt to the development of learning media that will be created so that the development goals can be achieved.
7. Determination of Media Development
   After the material analysis, the next step is to determine the appropriate media for the selected material. This is done through a needs analysis by conducting observations, interviews, and the distribution of questionnaires to teachers and students. The media developed is the learning media articulate storyline in the mathematics learning of the surrounding material and the area of the square and rectangle.

4.3 Media Development

Open the address of the page or website https://s.id/mediabufera or install an articulate storyline application.

Table 1 - Media development.

No.	Picture	Description
1		Media Initial Intro View
2		First Page Articulate Storyline Learning Media.
3		Core Competencies
4		Material Menu
5		Mobile Material Menu

6			Evaluation Menu
7			Media Developer Profile
8			Bibliography

4.3.1 Adobe Animate Based Learning Media Qualification

Eligibility Articulate Storyline development obtained from material validation and media validation by the validator.

Table 2 - Summary of validation results articulate media expert storyline development.

No.	Aspects	Percentage Achievement per Aspect	Categories	Description
1.	Language	88%	Very Valid	Eligible without revision
2.	Software Engineering	93%	Very Valid	Eligible for revision
3.	Visual display	86%	Very Valid	Eligible for revision
Overall		86%	Very Valid	Eligible for revision

The results of media validation show that 1) in aspects Language, the development product results reached a percentage of 88% of the category is very valid with a decent description without revision, 2) in the aspect of software engineering, the development product results reached a percentage of 93% of the category is very valid with a description worthy of revision, 3) on the aspect of visual display, the development product results reached the percentage of 86% of the category is very valid with descriptions worthy of revision, and As for overall, the development of articulate storyline media showed positive results where the percentage reached 86% the category was very valid with descriptions worthy of revision.

Table 3 - Summary of validation results development of articulate storyline expert material.

No.	Aspects	Percentage Achievement per Aspect	Categories	Description
1.	Material Relevance	90%	Very Valid	Eligible for revision
2.	Organizing Materials	84%	Very Valid	Eligible without revision
3.	Language	88%	Very Valid	Eligible for revision
4.	Effects on Learning Strategies	84%	Very Valid	Eligible without revision
Overall		86%	Very Valid	Eligible for revision

The assessment results of the material expert validator show that 1) on the aspects of material relevance, development product results reach a percentage of 90% of very valid categories with descriptions worthy of revision, 2) on aspects of material organization, the development product results reached a percentage of 84% of the category is very valid with a decent description without revision, 3) in the aspect of language, the development product results reached a percentage of 88% of the category is very valid with descriptions worthy of revision, and 4) effects for learning strategies, product development results reached the percentage of 84% of very valid categories with descriptions worthy of revision as for the overall, articulate storyline development showed positive results where the percentage reached 86% of highly valid categories with descriptions worthy of revision.

4.3.2 Practicality of Adobe Animate Based Learning Media

Media practicality is obtained from the results of student and teacher response questionnaires after using the media that have been developed.

Table 4 - Student response results.

No.	Aspects	Details of Questions	Total Score	Maximum Score per Aspect	Percentage Achievement per Aspect	Category
1.	Implementation	1	80	100	80%	Good
		2				
		3				
		4				
		5				
2.	Presentation	6	78	100	78%	Good
		7				
		8				
		9				
		10				
3.	Display	11	80	100	80%	Good
		12				
		13				
		14				
Overall			**238**	**300**	**79%**	**Good**

Based on the results of students' responses to the use of articulate storyline media showed the acquisition of value with a percentage of 79% in good criteria which is categorized as very practical. While the results of the teacher's response showed the acquisition of value with a percentage of 85% in the criteria is very good which means the very practical category. This means that learning media based on articulate storylines based on Realistic Mathematic Education (RME) is very practical to use for Improving the Critical Thinking Ability of Elementary Students.

Table 5 - Teacher response results.

No.	Aspects	Details of Questions	Total Score	Maximum Score per Aspect	Percentage Achievement per Aspect	Category
1.	Implementation	1	89	100	89%	Very Good
		2				
		3				
		4				
		5				
2.	Presentation	6	88	100	88%	Very Good
		7				
		8				
		9				
		10				
3.	Display	11	79	100	79%	Good
		12				
		13				
		14				
Overall			**256**	**300**	**85%**	**Very Good**

5. Discussion

5.1 Learning Media Development Articulate Storyline Based on Realistic Mathematical Education (RME)

The results of the needs analysis show that the grade point average learning for mathematics is still low. One of the reasons is the lack of learning media in the implementation of online learning for the delivery of materials. The results of this needs analysis are strengthened by directly monitoring the learning process and the limited ability to receive the material. Based on the results of interviews and questionnaires to teachers and students on learning for mathematics lessons show that teachers are rarely not the medium of learning in the delivery of subject matter. The teacher only assigns assignments to the textbooks they own. The reason is that teachers have difficulty creating internet-based learning media due to the lack of teachers' skills in the field of information technology. The delivery of material by giving assignments causes students difficulty in understanding the subject matter of mathematics, especially the surrounding material and the area of squares and rectangles. Students tend not to be enthusiastic about learning so students' interest in learning decreases which has an impact on low math learning outcomes. Students and teachers know full well that learning media are very necessary for mathematics lessons. Based on the results of the needs analysis, the next step is for the researcher to make the product development design development The learning media development design articulate storyline has a stage of planning, media development process, and evaluation. Students tend not to be enthusiastic about learning so students' interest in learning decreases which has an impact on low math learning outcomes. Students and teachers know full well that learning media are very necessary for mathematics lessons. Based on the results of the needs analysis, the next step is for the researcher to make the product development design development The learning media development design articulate storyline has a stage of planning, media development process, and evaluation. Students tend not to be enthusiastic about learning so students' interest in learning decreases which has an impact on low math learning outcomes. Students and teachers know full well that learning media are very necessary for mathematics lessons. Based on the results of the needs analysis, the next step is for the researcher to make the product development design development The learning media development design articulate storyline has a stage of planning, media development process, and evaluation.

The planning stage includes formulating objectives, Observing the learning of Mathematics in primary school, Analyzing the Curriculum, Mapping Basic Competences, and Learning Content, Gathering material resources, Compiling learning tools, and determining media development.

Level of development of learning media. The stages of the media development process include learning media articulate storyline to improve the critical thinking ability of students of grade IV elementary school-wide and circular material square and rectangular there is semester II. In the articulate storyline learning media, the initial menu contains core competences, Materials, Developers, and Evaluation

Step-by-step usage learning media articulate storyline this is the student opening the online link or installing the offline version in the form of an apk. Articulate storyline. This is one of the multimedia authoring tools used to create interactive multimedia applications with content in the form of text, images, graphics, sound, video, and even animation and simulation. The result of the publication articulate storyline in the form of web-based media (html5) or application files (.exe) that can be run on various devices such as laptops, tablets, and smartphones.

The final stage of development design is an evaluation that includes validation of media experts and material experts, testing, product revision, and the instructional impact that includes the feasibility, practicality, and effectiveness of learning media to improve the critical thinking ability of elementary students.

The step in validating the design of learning media is to communicate with learning media experts and material experts. The results of the assessment of the first stage media experts obtained a total score of average validity of 85 % and in the good category so that it can be used with little revision. At this stage, the media experts provide feedback on the mathematics learning media to be revised in the second stage to produce a good development product that is worthy of being tested on students.

The results of the assessment of the material experts in the first stage obtained an average score of average validity of 81.50% in the category of "very good" and can be used with little revision, to get the right product used by students. At this stage, several parts need to be revised, namely, the layout, writing on mathematics learning media, and the addition of evaluation questions. In the second stage, a validation value of 86 % was obtained with the category "very good".

The design revision stage is done after obtaining assessments from experts, namely media experts, material experts, and learning experts. All feedback, criticism, suggestions, and recommendations from the three experts and experienced teachers are recorded and used as a basis for improving the product design developed. The validation results from the validator will be able to know the weaknesses and revise the product design that is the learning media articulate storyline and get a very good predicate, valid, and without further revision will be tested on students. The following is a design revision of the validator regarding the addition of narrative volume, the addition of questions to be tested, and errors in writing.

Product testing phase. The trial aims to see the effectiveness of the developed product. The results of this field test are used as material for improvement and refinement of the articulate storyline learning media created. Based on the student questionnaire, we can see that the development of learning media articulate storyline mathematics get an average percentage value is 85.38% with a very good category. Thus textbooks can increase the enthusiasm for learning mathematics, students more easily understand mathematical materials, and can help improve the ability to solve mathematics problems given by the teacher.

In the next stage, the first product is revised by analyzing the shortcomings encountered, and then immediately make improvements to the product, namely articulate storyline learning media. The next step is to test the use of the product. This stage is implemented after the revision of product I which has been tested on students and based on the results of validation by experts. This test is used to determine the feasibility of articulate storyline learning media with the Realistic Mathematical Education (RME) learning model to improve the critical thinking ability of 4th-grade students.

Based on the results of field tests obtained test data on the use of mathematics learning media with a percentage of 85.38% on the criterion "very good".

The next step is the second product revision. This stage is done by analyzing the shortcomings encountered during the revision of the first product learning media articulate mathematical storylines, then immediately making improvements to the product. The second product revision was done after the data were obtained from experts and students and corrected the errors found in the use of learning media products, namely learning media articulate storyline with Realistic Mathematical Education (RME) learning model in improving the critical thinking ability of elementary students.

Based on the test of the use of articulate storyline mathematics learning media in this revision of the second product, it is known that students are very enthusiastic about learning the material on articulate storyline mathematics learning media, based on observations made during learning, 87.12% of students can understand the material. presented in articulate storyline learning media, students can solve existing math problems in articulate storyline math learning media, so students' critical thinking ability increased from 87.12% to 89.26%, we can conclude that students are more active and calmer in working on exercises, students can develop and improve skills in managing materials or tools in completing tasks.

The next step is mass production. The product developed is a mathematics learning media in the form of articulate storyline learning media that is effective in several tests, then the product can be made in bulk and can be applied as a material to be applied in educational institutions.

5.2 Learning Media Development Qualifications Articulate Storyline Based on Realistic Mathematical Education (RME)

Based on the feasibility analysis, it is obtained that the development of articulate storyline learning media is suitable for use according to the assessment of material experts and media experts. As for some revisions to the display of articulate storyline media and the content of articulate storyline material that is adjusted to be more complete, practical, and interesting. This is also following the opinion of Munir, Murtono, & Darmanto (2022) that determining the learning media comes from the view and concept that the media is part of the instructional system (learning) so it must pay attention to several criteria.

The selection of media to articulate this storyline is worthy of development because it has criteria, among others 1) Relevant to the learning objectives to be achieved that contain cognitive, affective, and psychomotor aspects, 2) Consistent and appropriate with the needs to be achieved by students including mental abilities, 3) Practical, flexible (according to conditions) and reliable so that it can facilitate teachers in adjusting learning and can be used repeatedly 4) Can be mastered by the teacher easily or the teacher can use it optimally, 5) Can be tailored to target both individuals and groups, and 6) Have a technical quality, for example in visual development must meet the technical requirements, which is clear and does not give rise to double perception.

Based on the above, it is like a medium for learning such as articulate storyline media is also through considerations relevant to the material that is Mathematics lessons about perimeter and area of squares and rectangles through Realistic Mathematical Education (RME) model which of course has learning objectives, materials, and teaching materials requires scientific work with discovery and research. However, although this media articulate storyline is relevant to the learning topics that have been mentioned, it certainly has limitations that must be considered in terms of suitability, usefulness, practicality, and feasibility.

Based on the results of the validation of the material as a whole, the development of articulate storyline media reached a percentage of 85% of very valid categories with decent information with little revision according to expert advice. As for the results of media validation. Overall, the development of media articulate storyline reached a percentage of 84% of very valid categories with decent information with little revision. Media revisions articulate storylines are not done in total. However, it only implements the recommendations of a few validators. According to the suggestions of the validator, to optimize the media articulate storyline by improving some parts of the learning media.

Some of the things that have been revised are: 1) Add core competence/basic competence to the main menu, 2) Learning activities are associated with daily activities, 3) There is clarity back to the main menu (home), 4) operational instructions media articulate storyline in Indonesian made, 5) There is a time limit for doing the evaluation, and 6) The addition of the names of students who do the evaluation. Those are some of the things that are fixed for media articulate storylines the more quality. Conclusions from the media feasibility results articulate storyline which was developed are very feasible with little revision.

5.3 Practicality of Learning Media Development Articulate Storyline Based on Realistic Mathematical Education (RME)

Practicality test obtained from the response of students and teachers The results of students' response to learning media based on articulate storyline show a turnover with a percentage of 89% in very practical criteria. While the result of the teacher response of 88% is a very practical criterion. This means that articulate storyline-based learning media are very practically used in learning the mathematics of the surrounding material and the area of squares and rectangles.

The response of students and teachers by the main function of learning media is as a teaching aid that also affects the climate, conditions, and learning environment designed and created by teachers (Firdaus et al., 2022). While according to Husna & Fajar (2022) that the use of Learning media in the teaching-learning process can arouse new desires and interests, arouse motivation and stimulation of learning activities, and even bring psychological influences to students.

The benefits of learning media are as follows 1) Overcome the limitations of the experience that students have, 2) Obtain a clear picture of objects that are difficult to observe directly, 3) Allow direct interaction between students and their environment, 4) Produce uniformity of observations, 5) Instill basic concepts that are correct, concrete, and realistic, 6) Arouse new desires and interests, 7) Arouse motivation and stimulate children to learn, 8) Provide a comprehensive experience from the concrete to the abstract, 9) Facilitate students to compare, observe, describe an object (de Peralta et al., 2019).

The development of learning media based on articulate storyline has a function and manat as a learning media that is responded to both by teachers and students. This shows the practicality of articulate storyline-based learning media as a learning medium that can overcome the limitations of space and time in learning during the pandemic with online learning.

The results of student responses are relevant to the results of research from Nabila & Junaini (2021) The results of the practicality of the teacher response questionnaire of 100% which is categorized as very practical and students of 91.07% which is categorized as very practical. The effectiveness of the media is known from the student's response to the learning media with a percentage of 91.42% so it is categorized as a very positive response and the media is declared effective.

Practicality learning media is based on an articulate storyline following the principles of learning media, namely 1) the learning process becomes fun. Fun learning can be made in such a way, for example with instructional games, or with others, 2) the learning process becomes more interactive. With good learning media, the learning process is expected to be more interactive. Creating learning media that are easy for students to use, will make students more interested and play an active role in every learning activity, 3) available feedback. Good learning media should provide feedback or feedback that can be easily understood by students so that if there are mistakes made by students can be immediately known and understood. Learning media that provide feedback can increase self-motivation in students, by informing the results obtained by students while working.

6. Conclusion

Based on the results of research and discussion it can be concluded that the development of interactive learning media articulate storyline based on realistic mathematical education (RME) is feasible and practical to use to improve the critical thinking ability of elementary students. The feasibility percentage of the final stage media experts is 86% in the very good category which means it is very worthwhile to use as well as the practicality test analysis obtained a presentation value above 80%. The use of mathematics learning media obtained a percentage value of 85.38% in the category of very practical use in learning.

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Conflict of Interest

The authors declare no conflicts of interest.

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