

Development of Visual Learning Media Based on A'rera Local Wisdom to Improve Results Learning and Social Responsibility in IPAS Class IV Learning Elementary School

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Abstract :

This research aims to produce visual learning media based on A'rera local wisdom that is valid, practical and effective that can improve learning outcomes and social responsibility of students in the learning of science class IV of elementary school. Media development research was carried out systematically using the Plomp model by testing the aspects of validity, practicality and effectiveness. The validity test was carried out using a Likert scale-based assessment instrument involving six experts (expert judgment) including two content experts, two media experts and two practitioner experts. The media practicality test was analyzed through a questionnaire of teacher and student responses using the Likert scale. The test subjects involved eleven teachers and twenty-six elementary school grade IV students. The effectiveness test was carried out in two classes involving fifty-two students. Data collection was carried out through learning outcome tests and social responsibility questionnaires before and after the use of media. Analysis of the validity of A'rera-based learning media using the gregory formula. Data analysis using the MANOVA test. Data analysis begins with statistical prerequisite tests, namely the normality test (Kolmogorov-Smirnov) and the variance homogeneity test (Levene's Test) to ensure that the data meets the assumptions of parametric analysis. The results of the study show that visual learning media based on local wisdom A'rera is in the category of being very valid and suitable for use. The characteristics of A'rera-based visual learning media have prominent distinctions both in terms of pedagogic, visual, and human values that are integrated in learning and visual presentation that are communicative and relevant to IPAS materials. Thus, A'rera-based visual learning media has been produced that meets valid, practical, and effective criteria that can improve learning outcomes and social responsibility of grade IV elementary school students.

Keywords : Visual Media; Local A'rera Wisdom; Learning Outcomes; Social Responsibility.

1. Introduction

Learning activities involve two elements, teachers and students. The implementation of learning depends on the teacher as one of the learning resources. In a situation like this, there is a learning process if without the presence of teachers in the classroom as a source of learning, there will be no possibility of a learning process taking place. Teaching and learning activities involving students and teachers in schools are carried out almost every day. Schools are a vehicle for infrastructure for students, most of their time is used in that place (Darman, 2020). The achievement of a learning process is seen from the positive changes in behavior that are better including, knowledge, attitudes, and skills. The achievement of these changes is influenced by various things such as teachers, students, the environment, facilities, infrastructure, learning methods, and learning resources (Septiani, 2023).

The aspect of social studies learning outcomes for students is expected to obtain good results. The achievement of maximum learning outcomes is determined by the conditions of the supportive learning environment including, facilities, infrastructure, learning media, and the application of methods carried out by a teaching staff. Learning outcomes are a person's acquisition when they finish participating in learning process activities which include cognitive, affective, and psychomotor aspects that can be expressed as symbols, letters, sentences, or numbers so that they can show individual qualities in a certain process (Endang, 2020).

Social studies learning in its implementation is no different from other subjects. Learning plans that need to be prepared, such as syllabus, lesson plans, media, teaching materials, and LKPD, are made early, so that the teaching and learning process is in accordance with the curriculum, basic competencies, learning outcome indicators, and learning objectives (Rusilowati, 2022). The subject of science is one of the learning that integrates science and society with the aim of forming spiritual, intellectual, social attitudes and skills of students in improving science and its implementation in daily life, for example, studying natural and social phenomena. Social studies lessons emphasize the importance of providing direct experience to students to develop competencies to understand environmental phenomena and social interactions that occur in the environment. Providing direct experience in learning can improve the ability to work, think critically, creatively, innovatively and as a vehicle to learn about oneself and the surrounding environment and apply it in daily life

(Wilujeng, 2020).

Although science learning in elementary school is designed to equip students with an understanding of scientific, social and environmental concepts, the reality shows that students' mastery of existing subject matter is still far from ideal conditions. Practically, there are still many students who have not been able to achieve the completeness set by the school, which has an impact on the low achievement of classical learning. For example, research at SD Negeri Datar in 2023/2024 noted that the pre-cycle average IPAS learning outcomes were 70.3 with a completeness of only 54.8%, indicating that almost half had not met the standards of completeness (Fita, et al, 2024).

Empirically, PISA data shows that the science literacy competency of Indonesian students is in the low category based on the 2022 Programme for International Student Assessment (PISA) data, the average science literacy score of Indonesian students is recorded at 383, far below the international average which is in the range of 485 points, the reality of Indonesia's science performance international assessments shows serious challenges, the proportion of students who reach the basic level of science competence is relatively low and the scores the average is still below the OECD country average, indicating an urgent need to strengthen the quality of science learning in primary schools. With conditions like this, social studies learning at the elementary school level is not optimal, students are not sufficiently trained to think scientifically, evaluate phenomena, and make decisions that reflect a deep understanding of science.

Conditions at school also show that the learning outcomes of social studies students at SD Inpres Campagalo 1 have decreased, which previously around 21 students obtained scores above the minimum completeness criteria, compared to the current condition of only 18 students who obtained scores above the completeness standard out of 26 students. This happens because, first, the media and learning resources are less contextual and less supportive of transfer to real life, often learning media are general and do not show a direct connection to the social, cultural or natural environment around the students. As a result, the social studies material feels separate from the daily reality of children so that motivation and meaning of learning decrease. Second, the gap between learning methods and student needs, although the curriculum has encouraged a scientific approach, the reality in the classroom shows that not all students have equal opportunities for exploration, experimentation and

discussion or reflection. This causes many students to accept information as passive, so that the mastery of the concept of science remains shallow. In line with the research of Intan Indah Tri Murti (2021) The learning outcomes in social studies subjects are very low, the students' scores can be seen from the acquisition of daily test results where there are as many as 60% of students still get scores less than the minimum completion standard (KKM) that has been determined with a standard score of 75.

Learning outcome indicators are intended so that students are able to; cognitive (knowledge of IPAS) such as, (1) identifying the basic concepts of IPAS related to the surrounding environment and local culture of A'rera, (2) explaining the relationship between natural phenomena and human activities in daily life, especially in the context of A'rera culture, (3) mentioning the form of local wisdom of A'rera and relating it to the principle of environmental sustainability, (4) deducing simple information related to the topic of IPAS with a coherent and logical language. Affective and socio-cultural values, (1) applying A'rera socio-cultural values such as empathy, mutual cooperation, caring for the environment, (2) showing a responsible attitude in group work and completing tasks, (3) respecting local traditions and wisdom as part of self-identity, and the school environment.

Another aspect of social responsibility shows a character that upholds integrity in a community. Among students, responsibility is something that should be done to bear the duties as school citizens, both doing assignments, maintaining school facilities, cleanliness of the school environment, and maintaining the state of the classroom. The attitude of social responsibility grows through external encouragement so that it can be proactively expressed towards the surrounding environment through self-involvement. According to & Murdiono (2020) character will be carried by students to maturity. Judging from the historical, sociological and pedagogical foundations, it provides the basis for how important character education is to provide a sense of responsibility to students in making human beings in accordance with their aspirations, this implementation can be carried out in schools to foster character values with activities in the classroom and environment at school. The national policy for the development of the nation's character states that there are seven of them, including the family, schools, civil society, political society, mass media, government, and the business world.

The results of a field survey conducted on grade IV students obtained information that most students still have difficulties in

understanding the science material delivered conventionally. As many as 72% of students stated that the learning that has taken place so far applies more lecture methods and is guided by textbooks, as a result of which abstract material is difficult to imagine and understand in depth. Students admitted that they were less interested in learning social studies because of the lack of use of interesting visual media. On the other hand, there is a decrease in students' social responsibility behavior, this decrease can be seen through simple indicators such as concern for the school environment, involvement in class picketing and participation in mutual cooperation activities. For example, the results of internal monitoring at SD Inpres Campagaloe 1 show that an average of 55-60 percent of students who consistently carry out picket duties compared to the previous 2 years are around 75 percent. Another phenomenon is also reflected in the compliance with discipline and willingness to help friends which has dropped from 70 percent to close to 58 percent according to homeroom teachers sourced from school reports.

The results of the interview were obtained at the Campagaloe Cluster 29 Elementary School, Bissappu District, Bantaeng Regency. According to the fourth-grade homeroom teacher at SDI Campagaloe 1 in August 2023, there are still many students who lack knowledge about local wisdom in their area, especially A'rera, teachers who use visual media aids in learning are still very minimal, learning resources are limited, there are still many students who get IPAS learning results below the minimum standard value of completeness and the lack of responsibility of students in maintaining school facilities. He further said that by using learning media, students are happier and enthusiastic to follow lessons, which means that teachers' teaching aids still need to be improved or by using other types of media. From the description above, supported by a preliminary study by Arfandi (2020), it is still found that students do not pay attention to the subject matter delivered by the teacher such as talking to classmates and doing something that is not related to the ongoing lesson.

A'rera culture is believed to increase students' social responsibility, A'rera has strong characteristics in the value of togetherness, mutual support, and concern for the social environment. This cultural character has the potential to foster students' social responsibility. When students learn through examples of local values such as solidarity, concern for neighbors, or participation in community activities, children not only understand concepts in the

abstract but also see them in real practice. By presenting A'rera culture in visual learning media, students can feel emotional closeness and understand that social responsibility is not just a school rule, but part of a student's identity as part of a community member. The approach places culture not only as a background, but as a source of inspiration to nurture a generation that cares, is humble, and always ready to contribute to its environment. When children feel proud of their culture, the social values inherent in it grow into more consistent, natural, and meaningful behaviors.

Visual media is then integrated into learning process activities that support active participation, such as group discussions, role-playing, and small projects involving real action in the school environment. When students are given the opportunity to not only see, but also feel and practice values, then the process of character formation goes more naturally and deeply. A'rera-based visual media development solutions not only offer academic improvement, but also create learning spaces that foster empathy, responsibility, and cultural pride. Students learn to understand science while learning to be human beings who are sensitive to their social environment. This innovative humanist approach gives birth to a young generation that is intelligent, characterful, and not scattered from its cultural roots.

A'rera-based visual media for learning outcomes and social responsibility of students is a product developed to make it easier for students to recognize the existing culture. A'rera is a tradition that needs to be preserved by students, every activity in the school in which there is cooperation or collaboration to build synergy, A'rera culture can give birth to strong responsibility. Every approach and method chosen in teaching and learning activities must pay attention to its accuracy and effectiveness (Lawe, et al., 2021).

The above description can be followed up by continuing the research to obtain more in-depth data as an answer to the problem of the value of local wisdom A'rera to improve learning outcomes and social responsibility of students in the concept of science learning. Therefore the title was formulated; "Development of visual learning media based on A'rera local wisdom to improve learning outcomes and social responsibility in science learning grade IV in elementary schools".

2. Overview of Theories and Concepts

2.1 Learning Media

The teaching and learning process is an activity of implementing the curriculum in an educational institution in order to support students in achieving educational goals that have become stipulations, in essence education can be a forum for students to make behavioral, intellectual, and social changes in order to live independently as social beings. Learning media is a distribution of messages that can stimulate feelings, thoughts, attention, and interest in learning so that there is an encouragement to learn intentionally and with a purpose (Rohani, 2020).

2.2 Visual Learning Media

The word Media comes from Latin which means between or intermediary which refers to something that can connect information between the source and the receiver of information. Visual media is a teaching tool that can be used by a teacher in the teaching process so that students can enjoy it through the involvement of the sense of vision (Pujilestari & Susila, 2020). According to Taseman (2020), formulating visual media includes: 1). There is a difference in the speed of understanding between classes that use visual-based learning media, 2). The use of visual media, students are more enthusiastic and active in following lessons. 3). Obstacles in the creation of visual media include time constraints, costs and age factors. According to Heinich (2010), the media is a tool or a forum for the delivery of communication (means of communication). Such as, audio, visual, print, video, objects, and people media. According to Sukman (2020), learning media is a non-personal means used or provided by teachers in the learning process, which has a role in the learning process in order to achieve goals.

2.3 The Value of Local Wisdom Gotong Royong (A'rera)

The principle of A'rera or called gotong royong in the tradition of the Makassar tribe is a sense of togetherness in doing everything to make it easier to do things at the same time. Gotong royong in the tradition of community identity includes the harvest, raising houses, and traditional traditions. Upholding the value of local wisdom is a pride of traditional stakeholders in maintaining the previous sustainability. According to Handayani (2000) gotong royong is an idea that has high value and is very closely related to the life of the Indonesian people. In all community activities, the principle of democratic kinship is used as a foundation. This democratic idea forms the basis for the participation of the people in a general agreement to reach a common decision. In essence,

mutual cooperation is an attitude of cooperation between the village community in achieving a common goal. This activity has been going on for a long time since ancient times until now. The scope of A'rera studies, in the aspect of education, includes: ritual/ritual practices, resource management mechanisms, communication patterns between members, cultural symbols, and value rules that guide collective behavior. This aspect is relevant when integrated as a source of learning (local wisdom) in subjects that demand social and cognitive values (Ningtyas, et al., 2025).

2.4 Learning Outcomes

According to Triono (2020), learning outcomes are the abilities that students get after completing activities which are the output of the teaching and learning process. Meanwhile, learning is a process that undergoes changes caused by activities or experiences. Improving student learning outcomes in elementary school is very important to determine the level of understanding and success of a teaching material carried out by teachers. Learning outcomes are a culmination of the learning process (Anni, 2011). According to Purwanto (2014), learning outcomes can be explained by understanding two words, namely "results" and "learning". The definition of a product refers to an acquisition by carrying out an activity or process that results in a functional change in inputs. The production results are acquired because of the activity of converting raw materials into finished goods. The achievement of learning outcomes depends on the individual students who learn and the teachers who provide the teaching, the learning outcomes obtained by students who experience the learning process and the teachers who teach it. How well students receive lessons from teachers and how well teachers provide learning becomes interesting.

2.5 Social Responsibility

According to Ningrum (2020), it is explained about social responsibility as part of disciplinary integrity which is a person's obedience to a rule that has been in effect. Discipline has an important role in determining the learning success of students and has many benefits. According to Muchlas and Hariyanto (2020), social responsibility is an attitude that exists in a person who shows positive behavior to know and carry out what is done as expected by others. Responsibility according to Peter (2015) based on the general Indonesian dictionary is a state of being obliged to bear all things, being obliged to bear, or giving answers and bearing the consequences. Responsibility is a human awareness of intentional or unintentional behavior or deeds. Responsibility emphasizes the positive obligation to protect each other, (Thomas, 2013). The

following are the terms about responsibility, namely: a). Duty is a job that is given to a person and must be done. b).

2.6 Social Science Learning

The history of the journey of human civilization science is growing rapidly, in Indonesia itself science can be divided into 2 terms of science and Natural and Social Science (IPAS) which have currently been integrated in the curriculum. In the curriculum of Elementary School/Madrasah Ibtidaiyah IPAS (Natural and Social Sciences) is the main subject that must be given to students. For this reason, educators must know in detail the actual concept of IPAS. The integration between science and social studies (IPAS) is one of the current learning solutions to improve literacy and numeracy competencies. The integrated science and numeracy learning design needs to be developed. Natural and social issues are universal contexts that can be used as a context for literacy tests both personally, regionally and globally.

2.7 A'rera-Based Visual Media to Improve Learning Outcomes and Social Responsibility

A'rera's attitude is very much needed by students in the education unit in elementary school as a form of cooperation skills, this action is very necessary as a form of cooperation or collaboration of students that can improve other skills such as responsibility, motivation, and creativity. Cultivating A'rera's attitude through learning activities using visual media will experience changes in attitude and knowledge due to practice and gaining experience. The learning process carried out by students will provide results called learning outcomes.

2.8 Benefits of A'rera Visual Media for Learning Outcomes and Social Responsibility

A'rera visual media learning is a student-centered learning approach by providing opportunities to actively engage to develop deeper understanding and relevant skills by motivating, stimulating to ask questions, and supporting meaningful learning experiences. A'rera-based media will have a positive impact including: a). Showing mutual help and forming understanding. b). Show familiarity and cohesiveness. c). Improve communication and conflict resolution skills. d). Improve academic ability and show a positive attitude. e). Reduce negative attitudes on every social and academic action. f). Help understand yourself to be useful to others. e). Helps develop a view of something.

Development Concept Framework

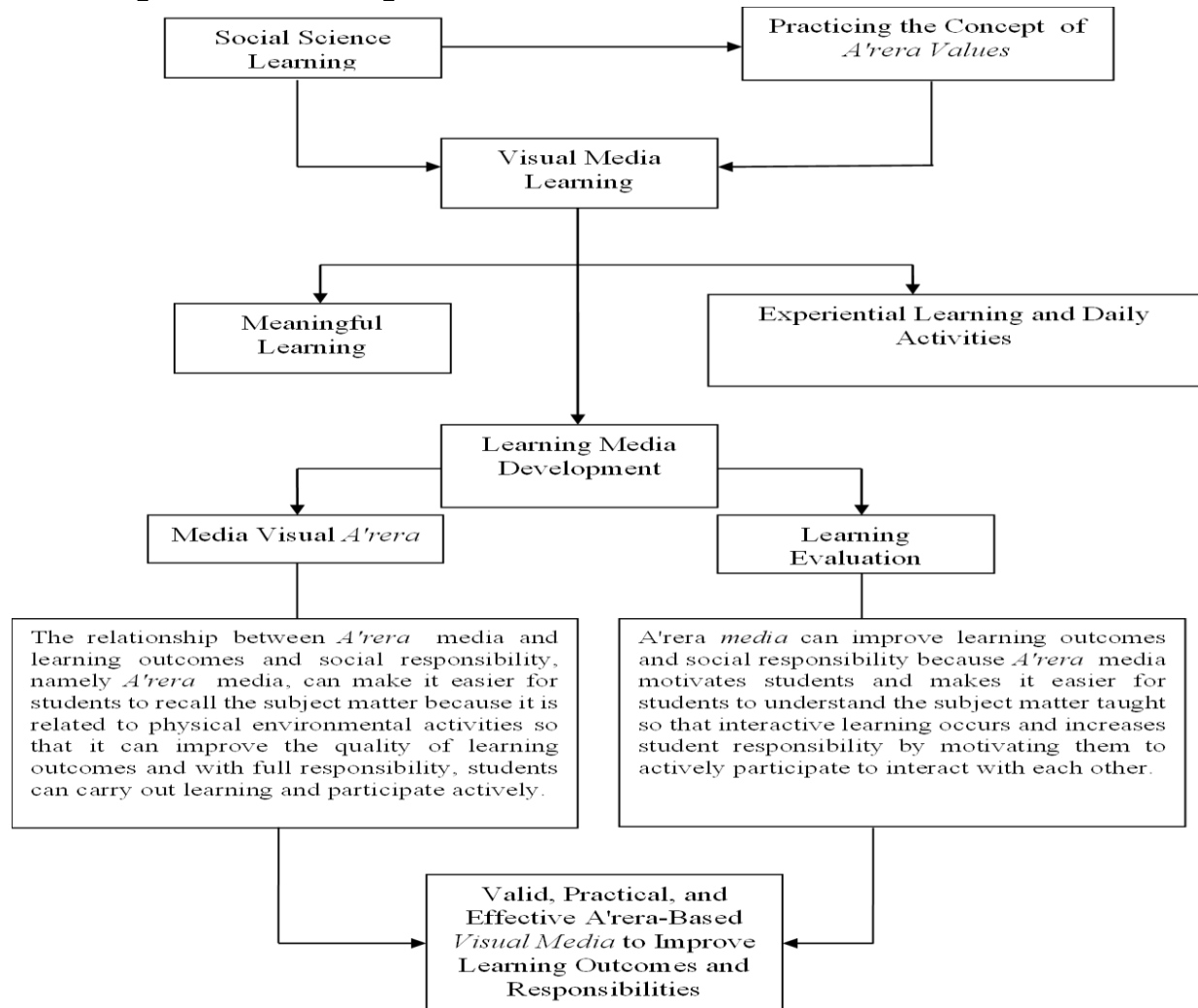


Figure 1. Development Mindset

3. Research Methods

3.1 Research Design

Based on the title of the research and the background of the problem that has been outlined in the initial section, the research uses a Research and Development or R&D research approach with the Plomp Model. Shown in Figure 3.1 the design of the Plomp Model.

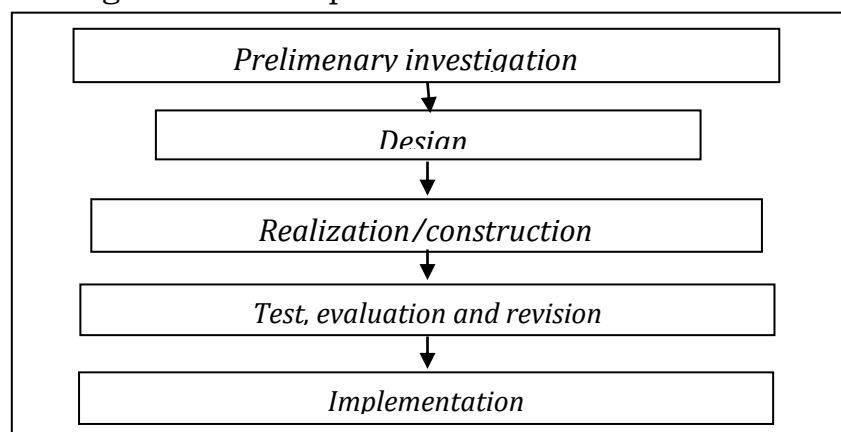


Figure 2. Plomp Model Design

(Source: *Plomp Model Development, 2013. Modified by Mita Ayu Puspita, 2014*)

3.2 Research Procedure

The steps in developing visual learning media based on A'rera local wisdom using the Plomp Model are illustrated in Figure 3.2.

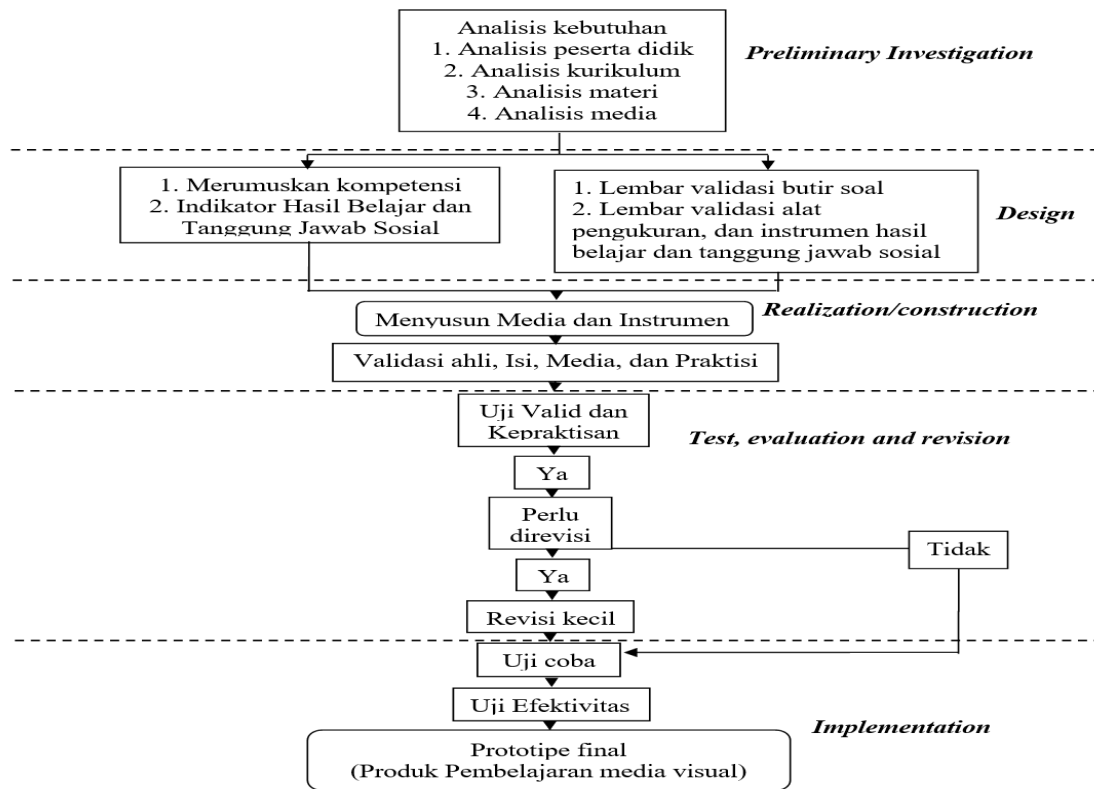


Figure 2. Plomp Model Design

(Source: *Plomp Model Development, 2013. Modified by Mita Ayu Puspita, 2014*)

3.3 Research Subject

This research involves experts/experts in learning and learning media in elementary schools. The subjects in question are: 1) Validity Test Subject, 2) Practicality Test Subject, and 3) Effectiveness Test Subject.

3.4 Data Collection Instruments

To support research in collecting data, several steps are needed, there are two types of data collection techniques, namely tests and non-tests. The evaluation test data collection technique is given to measure students' learning outcomes after using visual learning media.

3.5 Data Analysis Techniques

Data analysis techniques are carried out systematically to obtain an objective and accountable interpretation of the data that has been collected. Quantitative data related to students' learning outcomes and social responsibility were analyzed using descriptive and inferential statistical techniques. Descriptive statistics are used to describe the

characteristics of the data, such as average grades, percentages, and score distribution, thus providing an overview of student achievement.

4. Results of Research and Discussion

4.1 Research Results

Research and development results to ensure that the products developed have feasibility and effectiveness. Product validation using the results of the content and media validity test. Product Practicality uses the results of practicality tests by teachers and students. Product effectiveness testing is based on statistical tests, namely the Multivariate Analysis of Variance (MANOVA) test.

4.2 Test of the Validity of A'rera-Based Visual Learning Media

The validity test process in this study places the role of experts as academic partners who provide an objective and constructive assessment of the developed media. Input from experts is seen as part of a scientific effort to improve the media, so that the final product is not only worth using, but also has strong pedagogical value. This approach reflects the researcher's commitment to the principles of prudence, openness, and respect for science. Therefore, before entering the presentation of the results of the validation test by content experts, media experts, and practising experts. This presentation is expected to provide a complete framework of understanding, so that readers can examine the validation results more comprehensively and proportionately.

4.3 Test the Effectiveness of A'rera-Based Visual Learning Media

Product trials are conducted to determine the level of effectiveness of the use of learning media that is being developed, product trials are an important stage in the development process due to the empirical testing stage. After product development, the testing or trial stage is carried out to obtain data and information about the effectiveness of a product or concept before it is disseminated to users. The effectiveness of visual learning media is determined by the results of student tests that are carried out at the end of learning so that it can show a response to students' ability to meet learning outcomes. The instrument to test effectiveness was in the form of 20 multiple-choice questions. Looking at the results, students tend to have met the minimum completeness standard of 75 so that it can be said to be effective in the learning process. The effectiveness test was carried out on 52 students consisting of two classes. The provision of tests was followed by the provision of media products that have been developed. This approach is

designed to assess the effectiveness of the media that has been used in improving learning outcomes. The evaluation of the use of A'rera visual learning media was carried out at the end of the learning meeting. The evaluation was carried out to see the success of the development of A'rera visual learning media in improving learning outcomes in science subjects.

4.4 Normality Test

The data normality test was carried out in order to find out that the sample data came from a normally distributed population, for the normality test using the Lilliefors technique or called Kolmogorov-Smirnov which was assisted by the SPSS application. The normality test criterion, if the value of $L_{cal} < L_{table}$ with a significant level of > 0.05 of the data is said to be normally distributed. The results of the data analysis can be presented in Tables 4.9 and 4.10 as follows.

Table 1. Normality Test Results

Unit of Analysis	Kolmogorov-Smirnova			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
Learning Outcomes	228	26	201	902	26	0.418
Social Responsibility	290	26	201	915	26	0,515
a. Lilliefors Significance Correction						

The results of the normality test using the Lilliefors technique or called Kolmogorov-Smirnov with a significant level of 0.05 showed a result of $0.418 > 0.05$ can be concluded that the data on learning outcomes is normally distributed. Meanwhile, the social responsibility of the normality test results showed $0.515 > 0.05$ so that it can be concluded to be distributed normally.

4.5 Linearity Test

The linearity test is carried out to determine whether the relationship between the two linear variables is significant or not. The test is guided by the provisions of the criteria for making decisions on the linear test, namely if the value is greater than 0.05, then a conclusion can be drawn that there is a linear relationship between the learning outcome variable and the responsibility-bound variable. The following results of the linearity test are presented in the form of Table 4.10 as follows.

Table 2. Results of the Linearity Test

			Sum of Squares	df	Mean Square	F	Sig.
Learning Outcomes *	Between Group	(Combined)	10,829	3	3,610	1,689	198
		Linearity	10,734	1	10,734	5,02	0,03

Responsibilities	s					2	5
		Deviation from Linearity	095	2	047	022	0,978
	Within Groups		47,018	22	2,137		
	Total		57,846	25			

Based on table 2. above, it is known that the significant value of Deviation from Linearity is 0.978, this shows that a coefficient greater than 0.05 is $0.978 > 0.05$ so that in conclusion the relationship between learning outcomes and responsibility has a linear relationship.

4.6 Homogeneity

The homogeneity test is used to find out whether the variant data is the same or not, the decision making of the homogeneity test calculation data is based on the significant if the significant level > 0.05 , then it can be said that the variant in the sample in the study is homogeneous. The calculation uses the levene statistic formula, the results of the test analysis can be presented in Table 4.11 as follows.

Table 3. Variance homogeneity test results

Levena Statistic	df1	df2	Sig.
1,433	1	24	0.388

Based on the results of the homogeneity test, the significant value variance obtained was 0.388. The sample criteria are said to be homogeneous if the significance level > 0.05 . It can be obtained that the value in table 4.15 shows a result of $0.388 > 0.05$, so it can be concluded that the sample used in the study is homogeneous or the same.

4.7 Correlation Test

The correlation test was carried out to find out and prove by statistical means the relationship between learning outcome variables and responsibility with the correlation of product moment with the help of the SPSS program application. The results of the correlation test are presented in the form of Table 4. as follows.

Table 4. Variable Correlation Test Results

	Learning Outcomes	Responsibilities
Pearson Correlation	1	0.418**
Results		000
Learn Sig. (2-tailed)	118	118
N		

Responsibility for Pearson Correlation	418** 000	1
Answer Sig. (2-tailed)	118	118
N		

** . Correlation is significant at the 0.01 level (2-tailed).

Based on the results of the analysis in Table 4.12 above, the following hypothesis tests can be carried out.

- Hypothesis Zero (H_0): There is no significant relationship between student learning outcomes and social responsibility. In other words, changes in learning outcomes are not significantly related to students' levels of social responsibility.
- Alternative Hypothesis (H_a): There is a positive and significant relationship between student learning outcomes and social responsibility. This means that the increase in learning outcomes is followed by an increase in students' social responsibility.

Based on the results of the analysis, the value of Sig. (2-tailed) = 0.000 < α = 0.05 and the correlation coefficient r = 0.418 was obtained. Thus, it can be affirmed that learning outcomes have a positive and significant relationship with students' social responsibility.

4.8 Manova Test

The results of the manova test were taken from the analysis of the pillai's trace test, the wilk's lambda test, the hotelling's trace test, and the roy's largest root test, this test was carried out with the help of the SPSS application program with the General Linear Model Multivariate. The results of the data analysis test can be presented in the form of Table 4.13 as follows.

Table 5. Manova Test Results

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	1,000	149107,304b	2,000	23,000	000
	Wilks' Lambda	000	149107,304b	2,000	23,000	000
	Hotelling's Trace	12965,852	149107,304b	2,000	23,000	000
	Roy's Largest Root	12965,852	149107,304b	2,000	23,000	000
x	Pillai's Trace	025	300b	2,000	23,000	0,743
	Wilks' Lambda	975	300b	2,000	23,000	0,743
	Hotelling's	026	300b	2,000	23,000	0,74

	Trace				0	3
	Roy's Largest Root	026	300b	2,000	23,00 0	0,74 3
a. Design: Intercept + x						
b. Exact statistic						

Table 5. above shows the results of the analysis of the significant test data of Multivariate media which for pillai's trace, wilk's lambda, hotelling's trace, and roy's largest root have values of $0.743 < 0.05$. This shows that all significant so that a conclusion can be drawn that there is an influence between learning media variables on learning outcomes and responsibilities of grade IV students. Next, to find out the difference between learning outcomes and responsibilities, you can use the analysis of Test of Between Subjects Effects which is processed with the help of the SPSS application with the General Model Multivariate technique. The following results of the Test of Between Subjects Effects analysis are presented in the form of Table 6 as follows.

Table 6. Test Results of Test of Between Subjects Effects

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	Learning Outcomes	615a	1	615	322	576
	Responsibilities	154b	1	154	202	657
Intercept	Learning Outcomes	140605,538	1	140605,538	73605,584	000
	Responsibilities	144455,538	1	144455,538	189370,286	000
x	Learning Outcomes	615	1	615	322	0.576
	Responsibilities	154	1	154	202	0.657
Error	Learning Outcomes	45,846	24	1,910		
	Responsibilities	18,308	24	763		
Total	Learning Outcomes	140652,000	26			
	Responsibilities	144474,000	26			
Corrected Total	Learning Outcomes	46,462	25			
	Responsibilities	18,462	25			
a. R Squared = 013 (Adjusted R Squared = 028)						
b. R Squared = 008 (Adjusted R Squared = 033)						

Table 6. above shows the results of the analysis of the difference between learning outcomes and social responsibility in grade IV.

The analysis shows that there is a relationship between visual learning media based on local a'rera wisdom and learning outcomes shown by the acquisition of scores of sig. $0.576 < 0.05$. Furthermore, there is a relationship between visual learning media based on local wisdom a'rera and responsibility shown by obtaining scores of as many as sig. $0.657 < 0.05$.

4.9 Hypothesis Test (Simultaneous Test F)

The simultaneous test F was carried out to find out that the independent variables together had an influence on the dependent variables. This simultaneous test was carried out to compare $F_{\text{calculus}} < F_{\text{table}}$. It can be seen that the guidelines used to accept or reject the hypothesis are: If $F_{\text{cal}} < F_{\text{table}}$ then H_0 is accepted and if $F_{\text{cal}} > F_{\text{table}}$ then H_0 is rejected. Decision-making if the significance ≤ 0.05 , H_0 is accepted and if the significance on the F test > 0.005 ($0.000 < 0.05$) so H_0 is rejected.

Table 7. Results of Simultaneous Test F

Models		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	165	2	083	300	000b
	Residual	6,335	23	275		
	Total	6,500	25			
a. Dependent Variable: Learning Media						
b. Predictors: (Constant), Responsibility, Learning Outcomes						

Based on Table 4.15 above, hypothesis testing values can be obtained simultaneously so that a decision can be obtained, H_0 is rejected and H_a is accepted. This can be seen in the significant value obtained which is 0.000 while the significant value of the F test < 0.05 . Therefore, it can be concluded that independent variables, namely visual learning media, have a significant influence simultaneously on learning outcomes and responsibilities.

5. Discussion

The results of this study show that the use of visual learning media based on A'rera local wisdom has a significant impact on improving learning outcomes and social responsibility of students in elementary school grade IV science learning. Students who participate in learning by utilizing these media show a better understanding of concepts, more active involvement during the learning process, and a tendency to show more responsible behavior in completing assignments and interacting with classmates. Theoretically, the improvement in learning outcomes that occurs can be explained by the fact that information presented through visual and verbal channels simultaneously will be easier to process, understand, and store in long-term memory. A'rera's visual media presents the concept of IPAS through images, symbols, and cultural narratives that help students build an understanding of scientific

concepts with the concrete experiences they are familiar with. In addition, the use of local wisdom in the media is also in line with the principles of Contextual Learning, emphasizing that learning will be more effective when the material is associated with the social and cultural context of the learners. When students learn concepts through examples that come from their own cultural environment, they not only understand the material cognitively, but also more easily absorb the social values contained in it.

5.1 Relevance of Findings to Theoretical Framework

The research findings on A'rera's visual learning media show a strong alignment with the principles in the theory of learning constructivism. This media provides space for students to build understanding independently through observation, visualization, and interaction with the learning objects presented visually. This emphasizes that learning does not take place solely through the transmission of information from educators, but through the process of internalizing meaning triggered by rich and meaningful learning experiences. Thus, A'rera functions as a bridge that connects visual stimuli with the process of concept formation in students.

From the perspective of learning motivation theory, A'rera presents a fun, humanistic, and meaningful learning experience. The presence of attractive visual elements allows students to feel involved, appreciated, and have an active role in the learning process. This sense of interest has an impact on increasing curiosity, confidence, and perseverance in completing academic tasks. This process shows that visual learning media has a significant role in building a positive and inclusive learning climate.

5.2 Consistency of Findings with Previous Research

The results of the study on A'rera show consistency with various findings of previous research that affirm the effectiveness of visual media in improving learning outcomes. Many previous studies have stated that visual representations help learners understand abstract concepts through concrete and easy-to-understand visual forms. These findings reinforce the view that the use of visual-based media is able to enrich the learning experience while increasing student engagement during the learning process. In particular, previous studies have also shown that visual media contributes to the development of critical and analytical thinking skills. This similarity can be seen in the results of using A'rera, where students not only receive information, but are also invited to interpret, compare, and draw conclusions from the visual representations presented. This alignment indicates that A'rera is

in line with the trend of developing innovative learning media in various educational contexts.

Thus, the compatibility between the findings of this study and previous studies emphasizes that A'rera is not a stand-alone innovation, but integrated in the scientific tradition of learning media development. A'rera's presence provides additional contributions in the form of empirical evidence that enriches the scientific literature on the effectiveness of visual media in the context of contemporary education. This strengthens the academic legitimacy that the use of visual media is a relevant, adaptive, and effective pedagogic strategy.

5.3 Theoretical Implications for Knowledge Building

From a theoretical point of view, this research makes a significant contribution to the development of learning theory, especially regarding the integration of visual media with the strengthening of social values. The emerging empirical findings can enrich learning models that emphasize the importance of the relationship between cognitive and affective aspects. This research also provides the basis for the development of new theories that are more contextual with the elementary school environment. Another theoretical implication lies in strengthening the student-centered learning paradigm. A'rera helps prove that learning experiences involving active participation, visual interpretation, and reflective interaction can strengthen learning autonomy. This confirms that modern learning theories require real implementation through media innovations that allow students to become the main subjects in the educational process. This research contributes to the development of scientific discourse on visual learning media as an important pillar in future learning systems. A'rera presented evidence that the development of creative, contextual, and humanist media can enrich theoretical perspectives in the field of education.

5.4 Practical Implications for Education and Policy

In the realm of educational practice, the results of research on A'rera provide an important encouragement for educators to integrate visual media in the learning process. The use of A'rera helps teachers present material in a more varied, interesting, and contextual way. Thus, the learning process does not only focus on delivering material, but also on developing a dialogical and empowering learning experience. For the school environment, these findings are an important basis for strengthening the culture of learning innovation. The implementation of visual media such as A'rera can be a model for the development of creative learning

programs based on simple and digital technology. This experience encourages schools to provide support for the development of learning media that is in line with the needs of students and curriculum development.

From the perspective of education policy, this study provides strategic input for policy makers to pay more attention to the development of innovative learning media. A'rera points out that investment in media development not only improves the quality of learning, but also strengthens students' readiness to face the challenges of 21st century learning. Policies that support teacher training and the development of learning media will have a direct impact on improving the quality of education.

Overall, the practical implications of this study show that A'rera plays a role as a means of transforming learning that is humanistic, inclusive, and oriented towards student development. This media not only enriches teaching methods, but also strengthens the educational relationship between educators and students. Thus, A'rera is a real example of how learning media innovations can contribute to improving the quality of education while supporting the direction of progressive education policies.

5.5 Design and Build Visual Learning Media Based on A'rera Local Wisdom Developed

The findings obtained in the field will then be discussed regarding the design of visual learning media based on A'rera local wisdom. Based on initial observations that have been carried out at SD Gugus 29 Campagaloe, Bissappu district, Bantaeng Regency. There are several problems including the tendency of students to be bored in learning, less active in the learning process, and lack of enthusiasm. This happens because the learning media used is less varied, in the delivery of the dominant subject matter, the teacher only tells stories and uses conventional media, for example, in the sub-material of various local wisdom there is only one type of image displayed. The researcher in seeking information has conducted interviews with grade IV teachers of SD Gugus 29 Campagaloe to find out the implementation of learning. The teacher said that the existing learning media had not optimally supported learning, especially in science lessons.

The design of A'rera's visual learning media began with the creation of templates, displays and image selection. The design and construction of visual media based on local wisdom A'rera has elements including covers, material lists, material introductions, pictures and subject matter, sub-materials in which there are explanations and pictures of various cultures. Initially, the visual

media A'rera that was created only included pictures and explanations of the subject matter after getting input, it was necessary to have additional videos to help students with movement styles and media to be more interesting. A'rera's visual learning media has a design in the form of several slides and series images with the help of a projector that can be used to zoom in or out so that it can reach from various sitting positions of students in the classroom. The development of visual learning media based on local wisdom A'rera is a media that is assisted by a projector when displayed in the learning process by taking a scientific approach, visual media combines images, animations, and text. This simple product is combined with A'rera's local wisdom. Specific characteristics in visual learning media are packaged in such a way in the form of illustrations, images, and local narratives that can attract students' attention. This structured design stage is in line with the principles of learning media development which emphasizes the importance of visual planning and material flow before the product is made in its entirety, so that the resulting media is not only visually appealing, but also has good instructional quality (Nursetyo, et al., 2021).

Local wisdom is relevant to be integrated in the visual design, so that it not only enriches the learning content, but also reflects the cultural values that live in the student community. This approach is in line with the results of Rahimi (2025) research that the development of media based on local wisdom shows that the presentation of material through a familiar cultural context can increase the relevance of learning and strengthen the linkage between school knowledge and students' daily lives.

5.6 The Validity of Visual Media Content Based on A'rera Local Wisdom

Validity in terms of content, media, and practitioners is comprehensively described to affirm that the resulting research products or findings meet scientific, pedagogical, and applicable standards. This description of validity not only serves as a methodological justification, but also as a form of academic accountability for the quality and meaningfulness of research results. The validity in terms of content is stated to be fulfilled because the material developed has been aligned with learning outcomes, basic competencies, and indicators set out in the applicable curriculum. Each component of the content is structured based on a relevant and up-to-date theoretical foundation, and pays attention to the depth, breadth, and sequence of concepts. The assessment by the material expert

shows that the substance presented does not deviate from scientific principles, is free from misconceptions, and is able to represent the essence of the material in its entirety. Thus, the validity of the content confirms that the learning product has conceptual accuracy and strong academic relevance.

The results of the A'rera validation test also showed internal consistency between the media items, where all the main topics presented in the A'rera visual were independently tested by the validator to ensure not only the relevance of the content, but also the link between the local wisdom component and the learning objectives. This is similar to the learning media of mental canvas animation based on Batanghari's local wisdom which goes through two stages of validation (beginning and end), where the average score of validation from various aspects increases and is in the category of being very valid after expert revision (Putri, 2025). This finding is also strengthened by a literature review that shows that comprehensively validated local wisdom-based learning media tends to have a positive impact on students' cognitive and character aspects. The integration of local cultural values through an ethnopedagogical approach has been proven to be able to strengthen cultural identity while forming responsible social behavior in elementary school students (Latifah et al., 2025).

5.7 The Practicality of Visual Learning Media Based on Local Wisdom A'rera by Teachers and Students

The practicality aspect is comprehensively described by placing two main perspectives, namely theoretical practicality and practicality for teachers and students as direct users. This discussion aims to show that the A'rera visual learning media products developed are not only systematically designed based on scientific studies, but are also really easy to use, meaningful, and relevant in daily learning practices.

Practicality for teachers is described through the ease of teachers in understanding, using, and integrating products into the learning process. The teacher assessed that the product provided clear instructions, systematic steps, and flexibility in adjusting to classroom conditions. In addition, the product helps teachers in delivering material in a more structured and efficient manner, so that the teacher's role as a learning facilitator can run optimally. This aspect emphasizes that the product does not increase the workload of teachers, but rather supports the professionalism and effectiveness of teacher performance in the classroom.

The findings of the practicality of visual learning media based on A'rera's local wisdom show that the developed media is not only

theoretically valid, but also easy to use and can be applied effectively in learning situations in grade IV elementary school. The practicality of media is reviewed from the ease of use by teachers, comprehension by students, the efficiency of learning time, and the implementation of media in the condition of available school infrastructure. Based on the results of limited trials and field trials, teachers stated that A'rera visual media is easy to use, does not require special training, and can be directly integrated into the IPAS learning flow. The teacher also assessed that the use of media helps explain abstract concepts to be more concrete through visual illustrations and local cultural narratives. Research on the development of social studies learning media shows that media that are considered practical by teachers generally have the characteristics of being easy to use, do not take a long preparation time, and can support the achievement of learning goals more efficiently (Afifah & Sumadi, 2025).

5.8 The Effectiveness of A'rera Local Wisdom Based Visual Learning Media on Learning Outcomes and Social Responsibility of Students

The effectiveness aspect is studied in depth to explain why the application of A'rera's visual learning media products has been proven to be able to improve learning outcomes while fostering students' social responsibility. This discussion is directed to relate the empirical findings of the research with a theoretical foundation, so that the effectiveness obtained is not only understood as a numerical achievement, but also as a meaningful and valuable educational process. According to Nuranggraini (2022), the application of cultural local media in learning has been proven to increase students' understanding of abstract subject matter that raises local wisdom, proven to be effective in facilitating learning in social studies and other subjects, with an empirical increase in student learning outcomes.

The effectiveness of learning outcomes and social responsibility are two aspects that reinforce each other. When students feel actively involved and trusted in the learning process, motivation to learn increases, resulting in better academic achievement. At the same time, meaningful learning experiences encourage students to be more responsible, both to themselves and to the group. This synergy between cognitive and social aspects shows that learning runs holistically. Research conducted by Yusuf (2023) on meta-analysis shows that learning media based on local wisdom significantly affects students' character and social behavior in general. The Effectiveness of the Relationship of A'rera-Based

Visual Media with Learning Outcomes and Social Responsibility. A'rera-based visual media has a strong impetus in creating a more lively, meaningful, and learning experience in accordance with the developmental characteristics of students in elementary school. The effectiveness of this media can be seen from the ability to combine elements of illustration, storyline, and conceptual visualization that guide students to understand IPAS material more concretely. When complex information is presented in the form of images, symbols, and visual circuits, it is easier for students to process, remember, and apply concepts in a real context. This condition directly contributes to improving learning outcomes, both in the cognitive and affective domains.

6. Conclusion

Design and construction of visual learning media based on local wisdom A'rera is a visual visual image media that is designed systematically and contextually, by integrating local cultural values as a meaningful learning resource and oriented towards strengthening learning experiences based on learning science through A'rera media using the design of the Plomp model (Preliminary investigation, Design, Realization/construction, Test, evaluation and revision, and Implementation). This research shows that the media developed has visual and pedagogical qualities that are in accordance with the needs of students. This answers the formulation of the problem of product validity. Content expert validation provides an idea that the elements of illustration, storyline, and material presented in the media are obtained with a score of 1, meaning that the media is declared valid and acceptable, as well as the results of the media expert's assessment which as a whole are obtained with a score of 1, meaning that the media is declared valid and acceptable. so as to meet the research objectives to produce valid and appropriate learning media. The practicality of visual learning media based on A'rera's local wisdom developed was assessed based on the results of teacher and student response questionnaires. The results of use show that the development product is rated very well, usable, easy to understand, and provides benefits to users. In its implementation, students obtained an average score from the results of the small group response of 97.2% and the large group of 98.5% while the results of the teacher's response were 98.6%. From the results of the recapitulation, it was found that the average response of teachers and students was 98.1%. This shows that the assessment of visual learning media based on A'rera local wisdom is

categorized as very practical so that it can be used in the learning process. The effectiveness of the development of visual learning media based on A'rera local wisdom as a result of the hypothesis test using the f-test that has been carried out showed a significant value of less than 0.05 ($0.00 < 0.05$). The results showed that H_0 was rejected. Based on the results of the effectiveness test, it can be stated that the development of visual learning media has been tested for effectiveness so that it can be used in the science learning process. The results of the analysis of the Multivariate media significant test data through the calculation statistics of pillai's trace, wilk's lambda, hotelling's trace, and roy's largest root had a value of $0.743 < 0.05$. This shows that all are significant so that a conclusion can be drawn that this media is effective in improving learning outcomes and social responsibility of grade IV elementary school students.

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