Research and Development in Education (RaDEn)

UMM

Research Article

Interactive learning media: Literacy and numeracy Limas House Balaputera Dewa Museum in phase B

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Abstract: Literacy and numeracy in Indonesia was still relatively low, teachers did not discuss literacy and numeracy material with students. Learning media needed to deliver material, but technology based learning media for literacy and numeracy materials had not been used in the learning process. This research aimed to determine the procedures for making products, the level of validity and practicality in literacy and numeracy material. The model used the ADDIE (Analysis, Design, Development Implementation and Evaluation) development model. Data collection techniques, including observation, interviews, questionnaires, and documentation. Data analyzed in two ways, namely qualitatively and quantitatively. Validation of the media is carried out by validating material experts, media experts and classroom teacher practitioner. The assessment results from material experts were 3.81 (very valid), media experts were 3.67 (very valid) and classroom teacher practitioner were 3.44 (very valid). Practicality was carried out with a total of 19 grade 4 students through three stages, namely one to one, small group trials and field test. The average score obtained was 89%, including the "very practical" category. So, the interactive learning media literacy and numeracy material house of Limas Balaputera Dewa museum in phase B was feasible and practical to use for delivering material in the teaching and learning process in school.

Keywords: interactive learning media; literacy and numeracy; Limas House

Citation: Maharani, S. D., Putri, R. I. I., Syawaliyah, A. F., & Saftiri, M. L. O. (2024). Interactive learning media: Literacy and numeracy Limas House Balaputera Dewa Museum in phase B. *Research and Development in Education (RaDEn)*, *4*(1), 617-629. https://doi.org/10.22219/raden.v4i1.32832

Received: 24 March 2024
Revised: 28 May 2024
Accepted: 5 June 2024
Published: 8 June 2024

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1. Introduction

Literacy and numeracy are cornerstones of academic proficiency, providing students with the skills and tools necessary to navigate an increasingly complex and interconnected world (Kilag et al., 2024). Literacy and numeracy do not only relate to knowledge and abilities in terms of reading, writing, and calculating (Reder et al., 2020). Literacy and numeracy are knowledge that should be possessed from an early age, especially at the elementary school level (Grasby et al., 2020). Literacy and numeracy cover a wide area, not only in mathematics lessons but can also be related to other literacies, such as culture and citizenship (Grotlüschen et al., 2020). Literacy and numeracy are the ability to combine mathematical knowledge and understanding effectively to face various challenges in everyday life (Ermiana et al., 2021). The curriculum currently used is the independent curriculum (Safitri et al., 2023). In the independent learning curriculum, the concept of education combines abilities such as literacy, knowledge, skills, and attitudes, as well as the ability to use technology (Manalu et al., 2022; Faigawati et al., 2023). Education is needed to realize the future of a nation, education is a form of long-term investment that requires a lot of energy and a lot of funds (Radović et al., 2020). According to the results of the PISA survey from 2009 to 2015, it is stated that the literacy abilities of students in Indonesia are much lower compared to PISA participants from other countries (Ayuningtyas & Sukriyah, 2020). According to Begum et al. (2021), literacy competencies are needed by a person in daily activities, there are four basic literacy competencies, namely reading and writing (literacy), mathematics

(numeracy), science (scientific literacy), information and communication technology (ICT literacy), financial ability (financial literacy), as well as culture and citizenship.

Coverage in literacy is more than just the ability to read but involves the ability to analyze and understand the ideas contained in texts through the reading process (Lechner et al., 2021). Numeracy is not only related to mathematics, but is an assessment of students' abilities in applying mathematical procedures, concepts, facts, and tools in everyday situations that are relevant, both for individuals as Indonesian citizens and in a global context (Kartowagiran, 2021). Numeracy is an important part not only in mathematics learning but also in other fields of study (Abella et al., 2024). So, literacy and numeracy are 21st-century skills that include more than the ability to read, write, and count and also include the ability to solve various situations in everyday life, analyze various forms of information presented in tables, diagrams, and graphs, as well as interpret analysis results to predict and draw conclusions. Indonesia has great hopes in education to build a future successor to the nation's hopes. The decision of the Indonesian Minister of Education on the independent learning curriculum in elementary schools is based on the Curriculum Implementation Guidelines Number 56/M/2022, which is a framework for learning development and learning recovery that consists of three different phases. The first phase, intended for grades 1 and 2, is called students in Phase A. The second phase, intended for grades 3 and 4, is called students in Phase B. Finally, the third phase, designed for students in grades 5 and 6, is called students in Phase C.

Learning media includes objects, people, or the surrounding environmental context as providers of information messages in the implementation of learning to help attract students' interest, attention, thoughts, and feelings to achieve learning goals (Lassoued et al., 2020). For teachers it is very important to use learning media in conveying material during the learning process (Roldán et al., 2021). According to Williamson et al. (2020), The benefits of technology have an impact on the development of learning media in the teaching process, namely (1) Learning activities can be more interesting and clear; (2) Shorten time and energy efficiency in the learning process; (3) Can help students to improve the quality of learning outcomes; (4) Flexible in time and place in the learning process; (5) Helps concretize abstract learning material; (6) The limitations of human senses can be helped by media. Through observations and interviews, SD Plus IGM Palembang made a visit to the Balaputera Dewa Museum in Palembang for the 2021/2022 academic year for grade 4 students in the Strengthening Pancasila Student Profile (P5) Project activity. This is related to literacy and numeracy in local cultures such as field trips and historical places in an area close to where students live, so that real-life contexts and global diversity can emerge, according to what is contained in the Independent Curriculum in Elementary Schools (SD).) There is a science subject in class 4 Chapter 6 Indonesia is Rich in Culture on topic B Indonesia's Cultural Wealth. Learning activities at SD Plus IGM Palembang have used conventional and technological learning media. However, literacy and numeracy learning materials still use conventional media such as comics and have not used technology-based learning media because there have been adjustments to the material for ICT teachers and the use of computer rooms.

Limas House is a traditional house from South Sumatra on display at the Balaputera Dewa Museum it was built on pillars with a roof in the shape of a truncated pyramid at a slope of between 45 degrees to 60 degrees with a roof slope extending to the front and a shorter rear. Rumah Limas is a meaning created from the perspective of the Limas language which means "Five Gold" (the essential value of life) is 'The Majesty and Greatness of God'; ‘Harmony and Peace’; 'Courtesy'; 'Security'; and 'Welfare'. The development of learning media is needed in all subjects, culture, society, and history subject matter is closely related to social studies (Social Sciences) material at the elementary school level (Afriani et al., 2022). Teachers and students have the opportunity to utilize technology to facilitate learning and teaching activities and create interesting learning experiences. There are many types of media so they can be selected, developed, and used according to circumstances, costs, and learning objectives (Bernacki et al., 2020). Rapid technological developments have triggered many online software, one of which is Canva. Canva is a place to link links

as a process in interactive activities, an online editing application that provides many tools, including infographics, posters, brochures, banners, pamphlets, and others contained in the application (Olatunde-Aiyedun & Hamma, 2023).

There are characteristics of interactive learning media in students, namely listening to learning material and interacting directly during learning activities (Leow & Neo, 2014; Pulungan et al., 2022). Several previous studies have shown that the development of digital literacy and numeracy-based media can bridge teachers during the learning process in the classroom (Pangrazio et al., 2020). Other research shows that interactive learning media for early childhood numeracy has a very positive response and is very amenable to being applied to early childhood in improving literacy and numeracy skills (Dorouka et al., 2020). Other research shows that learning mathematics with students' numeracy literacy skills using West Sumatran culture-based videos is declared effective based on the total number of students who get scores of moderate to very good quality (Putra & Mukhtar, 2022). Furthermore, research shows that the "Pegalinu" media in digital literacy and basic numeracy skills in grade 3 students has very good effectiveness and student responses are in a good category, and teacher responses are in the very good category (Budiningtyas et al., 2022). Then, interactive learning media based on educational games to increase students' literacy and numeracy shows that the average percentage of validation is 74%, the practicality results are 80%, and the student's response results are 80%, so with these results the interactive learning media is declared valid and suitable for use in learning (Mulyani, 2023).

The application-based learning facilitated by interactive technology was found to play a crucial role in deepening children's understanding of numeracy skills (Olis III et al., 2023). Interactive technology contributed to a more comprehensive understanding of numeracy skills (Ondog et al., 2023). The importance of embedding interactive media in numeracy learning, it would be used to solve this problem in the real life (Sakurai & Goos, 2023). Teachers can employ media literacy education to hone students' abilities to assess media as evidentiary sources, to identify bias in mediated constructions of society and history, to understand how media frame issues, to separate fact from opinion and to assess the credibility of media sources (Zhang et al., 2020). Integrating literacy and numeracy across content areas and promoting real-world applications, educators can enhance student learning outcomes and foster holistic development (Echavez et al., 2024).

The difference with previous research is that this research develops interactive learning media for literacy and numeracy which raises the theme of local culture in the form of a field trip context in Palembang, namely the pyramid house which is included in learning outcomes in grade 4 elementary school science material within the scope of social studies because literacy and numeracy are not only just mathematics (Kartowagiran, 2021), but the process of combining knowledge and understanding in critical thinking, this finding is also important because at SD Plus IGM Palembang, literacy and numeracy still use conventional media and are still widely used only in mathematics material, then it was determined, the socio-cultural theme of Rumah Limas Balaputera Dewa Museum as learning material with the context of literacy and numeracy in subjects other than mathematics. The Limas House of the Balaputera Dewa Museum is a traditional South Sumatran house that is very close to the lives of South Sumatra students, especially Palembang, but unfortunately, there is no learning that uses technology-based learning media, especially literacy and numeracy material and in this research the latest curriculum is used, namely the independent curriculum. So it becomes the attention of researchers to provide a concrete picture of the material using media appropriate to the students' environment. This research aims to describe the procedures for developing interactive learning media and to determine the validity and practicality of interactive learning media.

2. Materials and Methods

In this research, the method used is the Research and Development (R&D) method and uses the ADDIE model. According to Branch (2009), the ADDIE development model is a

model that applies the concept of constructive performance in the learning process, namely the concept of designing a learning product design. The ADDIE development model, according to its acronym, has 5 stages, namely: Analysis, Design, Development, Implementation, and Evaluation.

The first stage, namely analysis, is carried out to define and determine the analysis of student needs and analysis of the curriculum used. Then, the second stage is designed in the form of an application selection process, designing the presentation of learning materials in the form of teaching modules, interactive learning media creation tools, designing an interactive learning media framework, and designing data collection instruments. The third stage, namely development, is carried out by developing learning media which is first made by storyboards, followed by validation by material experts, media, and class teacher practitioners. Material expert validation is carried out by Primary School Teacher Education lecturers who have master academic degrees, then media expert validation is carried out by Educational Technology lecturers who hold doctoral academic degrees. Material and media expert validation is carried out by a practicing elementary school teacher who has a master's degree. The fourth stage is implementation by conducting trials on students, the subjects used were 19 students in phase B or class 4 at SD Plus IGM Palembang. Product testing is carried out in a limited number, namely involving trials in three stages, namely trials with three students called individuals, trials with six students called small groups, and trials with ten students called large groups. The fifth or final stage is evaluation, using formative evaluation which is used by researchers to compile and collect data in the process of improving media products in the form of assessments and suggestions as guidelines for improving the products produced. The results of the three expert validations were found to be in a very valid category.

Data analysis was carried out in two stages. First, quantitative data was obtained by assessing the quality of interactive learning media products through validation sheet questionnaires given to material experts, media experts, and class teacher practitioners, and through student response questionnaires to determine the practicality of media products. Second, qualitative data which includes the results of interviews with grade 4 teachers before the research, input from experts (material experts, media experts, and class teacher practitioners) will then be analyzed descriptively, as well as interpretations of assessment data from questionnaires.

Data collection techniques in this research are observation, interviews, questionnaires, and documentation. The observations carried out in this research were non-participant observations, meaning that the researcher was only an independent observer, which was carried out before the research to obtain initial information in the field, such as to understand the learning process in the classroom and see the existing facilities at the school to support the learning process. The interviews were conducted in an unstructured manner, but there was a list of questions that had been prepared before the interview activities to find out the material discussed in the research, the needs of students, the curriculum used in schools, and the obstacles faced by teachers. The questionnaire is used to find out the results of validation assessments from material experts, media experts, and class teacher practitioners as well as the results of practicality assessments in student trials. The questionnaire in this study used a Likert scale of 4, so respondents chose one of the four alternative answers provided for each statement point in the questionnaire with categories 4 = very good, 3 = good, 2 = not good, 1 = very bad. Next, analysis of the results of the validity assessment from material experts, media, and class teacher practitioners, is carried out using a range of average values and then the quantitative data is interpreted into qualitative data by referring to the validity categories contained in Table 1. Then, analyzing the results of the practicality assessment is carried out through student trials, namely individual trials, small group trials, and large group trials by calculating percentages after that, the quantitative data is interpreted into qualitative data by referring to the validity categories contained in Table 2. Documentation in the form of photos of activities related to research conducted.

Table 1. Category of Validity Level of Learning Media by Experts

Average Value Range	Validity Categories
X ≥ 3.25	Very Valid
3.25 ≥ X ≥2.5	Valid
2.5 > X ≥ 1.75	Invalid
1.75 > X	Very Invalid

(Source: Faresta et al., 2020)

Table 2. Category Value of Student Response Questionnaire Results

Value (%)	Value Categories
81 – 100	Very practical
61 – 80	Practical
41 – 60	Quite practical
21 – 40	Not practical
0 – 20	Very impractical

(Source: Cahyani et al., 2023)

3. Results

Developing interactive learning media for literacy and numeracy material, Limas House, raster dewa museum for students in elementary schools requires observing the use and needs of learning media. There are stages of development that have been carried out, namely Analysis, Design (Planning), Development, Implementatio, and Evaluation. This research uses the latest curriculum in education, namely the independent curriculum with the context of field trips as a form of literacy and numeracy material.

The Analysis Stage is the first stage which is carried out in two ways, namely analysis of student needs and analysis of the curriculum used. First, analyze the needs of students, and the results of observations and interviews. Second, analysis of the curriculum used, adjusting the content of materials, books, and sources based on the guidelines of the curriculum used. Next, the second stage is Design, namely selecting the application, designing the presentation of material in the form of learning outcomes and learning objectives, creating teaching modules, creating tools for interactive learning media, and designing the media framework for interactive learning media by first creating storyboards and designing instruments for experts. materials, media experts, and class teacher practitioners in the form of validation sheets to determine the validity of the product before being tested and using student response questionnaires to determine the practicality of using the interactive learning media that has been developed. Third, the Development stage is the stage for realizing the storyboard into actual and usable media. The results of interactive learning media components include animation, text, video, and audio. When making this product, Canva was used as the main website, and integration was carried out by linking links to other websites. The selection of animation, text, video on YouTube, and audio adapts to the needs of the learning material and learning objectives displayed on the learning media. Figure 1, Figure 2, and Figure 3 are the results of the development of interactive learning media.

The interactive media developed consists of several parts, including Figure 1 shows the initial display and menu in the interactive media. Figure 2 shows instructions for using interactive media and the material menu contained in the interactive media. Figure 3 contains the LKPD and quiz which students use to practice the knowledge that has been given in the previous part of the material.

Figure 1. Initial display and learning media menu

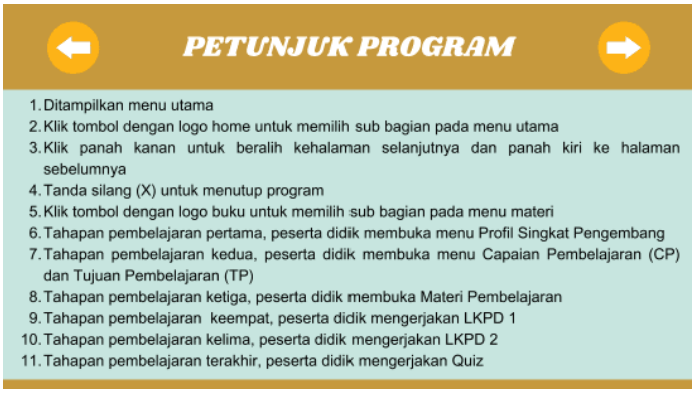

Figure 2. Display program instructions and material menu

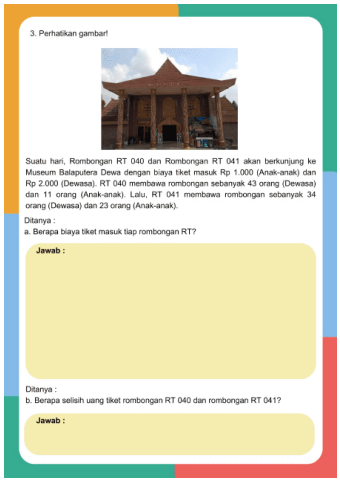

Figure 3. LKPD and Quiz display

The media that has been developed will be validated by experts including material experts, media experts, and class teacher practitioners. Furthermore, the media will be revised according to suggestions/input from experts, after revision, it will be continued with trials on students. The results of interactive media validation are in the Table 3, Table 4, and Table 5.

Table 3. Material Expert Validation

No	Assessment Aspects	Number of Instrument	Items Number of Scores	Maximum Score	Average	Category Value
1.	Content Eligibility	3	12	12	4.00	Very Valid
2.	Accuracy of Material	7	27	28	3.85	Very Valid
3.	Language Eligibility	5	18	20	3.6	Very Valid
	Total	15	57	60	3.81	Very Valid

Table 4. Media Expert Validation

No	Assessment Aspects	Number of Instrument	Items Number of Scores	Maximum Score	Average	Category Value
1.	Appearance	5	18	20	3.60	Very Valid
2.	Writing	4	16	16	4.00	Very Valid
3.	Technical Ease	4	15	16	3.75	Very Valid
4.	Voice	3	10	12	3.33	Very Valid
	Total	16	59	64	3.67	Very Valid

Table 5. Classroom Teacher Practitioner

No	Assessment Aspects	Number of Instrument	Items Number of Scores	Maximum Score	Average	Category Value
1.	Content Eligibility	7	25	28	3.57	Very Valid
2.	Language Eligibility	3	10	12	3.33	Very Valid
3.	Feasibility of Presentation	7	24	28	3.42	Very Valid
	Total	17	59	68	3.44	Very Valid

The fourth stage is Implementation or Student Trial (Figure 4 dan Table 6), the activity of testing interactive learning media products through three stages, namely trials of three students called individuals, trials of six students called small groups, and trials of ten students called groups. big. This activity aims to determine students' responses to the practicality of using interactive learning media as material for literacy and numeracy at Rumah Limas, Campurera Dewa Museum by class 4 students (phase B) in learning at school.

Figure 4. Student Trial

Table 6. Recapitulation of Student Trial Questionnaire Assessment Results

No	Student Trial	Number of Scores	Maximum Score	Value	Category
1.	Individual Trial	38	39	97%	Very Practical
2.	Small Group Trials	65	78	83%	Very Practical
3.	Large Group Trials	117	130	90%	Very Practical
	Total	220	247	89%	Very Practical

The final stage is Evaluation (Table 7), using formative evaluation which is used by researchers to compile and collect data in the process of improving media products in the form of assessments and suggestions as guidelines for improving the products produced. The results of the three expert validations were found to be in a very valid category. At the Implementation stage, during the individual trial stage, there were suggestions from students regarding the questions on the quiz, but in the small group and large group trials, no suggestions were given. Through trials, students obtained a percentage score from the three trial stages of 89% in the very practical category.

Table 7. Evaluation of interactive learning media from expert advice

No	Aspects	Suggestions/Input by experts
1.	Materials Expert	1. Sort the material according to your needs by starting with the picture of the pyramid house at the Bala Putra Dewa Museum, don't start with the picture of the Bala Putera Dewa Museum. 2. Add material for the pyramid house beside the Bala Putera Dewa Museum.
2.	Media Expert	1. In the program instructions menu, explain the instructions for the learning stages so that students can learn the media effectively and explain the menus on the media. 2. Add subject identity to the main menu.
3.	Classroom Teacher Practitioner	1. Subtitles for learning materials should be made into separate sections with material menu names so that students can use the media more interactively. 2. Add elements that attract students such as cartoons, books, etc.

Through this data, the results of the assessment carried out by material experts on interactive learning media products obtained an average score of 3.81, which means the X value is ≥3.25, so this is classified as very valid and can be tested after revision. The results of the assessment carried out by media experts on interactive learning media products obtained an average score of 3.67, which means the X value is ≥3.25, so this is classified as very valid and can be tested after revision. The results of the assessment carried out by classroom teacher practitioners on interactive learning media products obtained an average score of 3.44, which means the X value is ≥3.25, so this is classified as very valid and can be tested after revision.

4. Discussion

This development research produced interactive learning media for literacy and numeracy at Rumah Limas, Racutera Dewa Museum in phase B or class 4. This development was carried out using the ADDIE development model. This model was chosen because there are Development and Implementation stages so that it can create a product that is suitable for use in the learning process. Through the results of assessments carried out by three experts and student trials, interactive learning media can be classified

as suitable for use in the learning process. This is because interactive learning media is by the material aspects, learning outcomes, and learning objectives contained in the science and science subject in class 4 Chapter 6 Indonesia is Rich in Culture on topic B Indonesia's Cultural Wealth. Based on the research results, the results of the assessment carried out by material experts on interactive learning media products obtained an average score of 3.81, which means the X value is ≥3.25, so this is classified as very valid and can be tested after revision. The results of the assessment carried out by media experts on interactive learning media products obtained an average score of 3.67, which means the X value is ≥3.25, so this is classified as very valid and can be tested after revision. The results of the assessment carried out by classroom teacher practitioners on interactive learning media products obtained an average score of 3.44, which means the X value is ≥3.25, so this is classified as very valid and can be tested after revision. Literacy and numeracy can be linked to local culture such as historical places or field trips in an area where students live so that a real daily life context and global diversity can emerge. This is supported by the fact that mathematical competence is not the same as numeracy ability (Putri et al., 2022). Numeracy is an important part not only in mathematics learning but also in other fields of study. The material is presented interactively to support students in understanding the material concretely in learning which is still abstract (Havizul, 2020). In interactive learning media, practice questions are given to better understand concepts according to phases, learning outcomes, and learning objectives. Choosing learning media can help concretize abstract objects by displaying pictures, schemes, models, graphs, and others to reduce the occurrence of verbalism (Abrahamson et al., 2020). This is supported by Ruan et al. (2020) stating that learning media can encourage students to continue learning in the learning process well.

Students are very enthusiastic when using learning media, especially literacy and numeracy material. This is caused by adapting the material to where students live. Most students already know the pyramid house from its external appearance alone. Through interactive learning media, students not only know the external image, but can also know the history, characteristics, ornaments, examples of pyramid houses, and others. According to Gever et al (2021), learning will be more effective and efficient if the learning process uses learning media. Supported by research results that state that the development of digital literacy and numeracy-based media can bridge teachers during the learning process in the classroom (Borzekowski et al., 2019). Other research shows that interactive learning media for early childhood numeracy has a very positive response and is very amenable to being applied to early childhood in improving literacy and numeracy skills (Ramlah et al., 2023). Then other research shows that in literacy and numeracy in social studies learning through the Tadabur Alam method, the activities carried out are very meaningful, active, and motivating, especially learning that develops students' contextual analysis power towards the meaningfulness of material in everyday life using a social science approach (Waluyati et al., 2023). By this discussion, interactive learning media is suitable for use in the classroom learning process. Through suggestions and input made by experts and student trials, it can be concluded that the interactive learning media for the Liquor House literacy and numeracy material in phase B has been classified as valid and practical so that it can help teachers achieve learning goals and motivate students in learning, especially the material. literacy and numeracy.

The advantage of this research is that it discusses literacy and numeracy according to the real context of the closest example in the environment where students live in Palembang. Limas houses are traditional houses from Palembang so students, especially at the elementary school level, must know Palembang culture, using the latest curriculum in The educational unit is the independent curriculum, the media used is appropriate to the characteristics of elementary school students, helping to concretize abstract subject matter and the learning process becomes more interactive.

5. Conclusions

Through the results of this research, it was found that the learning media development model uses the ADDIE development model which consists of several stages in sequence, namely 5 stages, Analysis, Design, Development, Implementation, and Evaluation. The media was created and tested on students and followed up by being assessed by experts. The assessment results given by material experts reached 3.81, the media expert's assessment was 3.67, and the class teacher practitioner's assessment reached 3.44. All assessments from these experts show a level of validity in the very valid category.

The trial included 19 students and was divided into three stages. The first stage, trials with a total of three students are individuals, then the second stage of trials with a total of six students is a small group, and the third stage of trials with a total of ten students is a large group. This trial aims to assess the practicality of interactive learning media products in their use. The practicality level for individual trial results was 97%, small group trial results reached 83%, and large group trial results reached 90%. All results from trials by students are included in the very practical category. In the results of trials conducted on 19 students, the average percentage value reached 89%, which was categorized as very practical. Through this description, the interactive learning media product with the title "Interactive Learning Media for Rumah Limas Literacy and Numeracy Materials in Phase B" is considered very valid and very practical to use in the context of learning at school.

Based on the results of this research, the researcher suggests that future researchers conduct research on Interactive Learning Media for Rumah Limas Literacy and Numeracy Materials with broader research subjects.

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