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Development of Basic Level Mandarin Reading Learning Media Based on Android

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Abstract

Study This aims To develop and test the effectiveness of learning media Android based on increasing skills in base Mandarin for students in Grade I Elementary School. Method study uses a mixed method approach with an R&D (Research and Development) model, following ADDIE stages (Analysis, Design, Development, Implementation, and Evaluation). A sample study involved 20 students in class I with various ability levels. Research results show that the learning media developed succeed increase skills read by students, with an improvement average score of 62.5 on the test First to 87.5 on the test run second. Media validation by experts material and media experts shows very decent results, with an average quality score material of 92.30% and media quality of 86.55%. In addition, this media also gets positive responses from students, with 75% strongly agreeing that the media helps the learning process. Research This proves that using Android-based learning media increases involvement and facilitates understanding in reading Mandarin. This result has important implications for future digital learning development, especially in support of learning language at a level base.

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INTRODUCTION

In the development of the adult world, this need will be to speak Mandarin on the side of English. The learning process in Mandarin is eye lessons that involve listening, speaking, reading, and writing. The four aspects of skills are essential for teaching students from the beginning until the end (Zhang et al., 2019). One of the crucial aspects of teaching is reading skills. Skills read shared become two types based on level class: reading base For class beginning and reading

understanding For class continue. At the beginning level, teaching skills reading the beginning is crucial For improving and developing effective communication in students (Rasyid, 2019).

Reading at school focuses on understanding, absorbing, and delivering a message or the expressed idea. To reach this objective, a student must recognize the word f and word and understand groups of words or phrases, sentences, and texts in a way overall (Harianto, 2020). At the beginning of class, basic reading skills are taught in grades I, II, and III, known as class low. This needs attention, seriousness, and handling from the teacher. The ability to read students in the class is essential for evaluating successful activities. Study them. Reading base aims to understand text reading and sentences in a simple context (Riyanti, 2021).

Although essential, many students at the beginning level experience difficulty learning skills to read Mandarin. Based on results observed at the Darma Foundation Mother of Love, some students in class I show difficulty reading Because the teaching method is still conventional. The absence of interactive and exciting media causes students to feel bored and lose motivation to learn. The challenge is the complexity of Mandarin characters and limitations source relevant learning, so the learning process becomes ineffective. Therefore, the development of learning media that is innovative and exciting interests students is essential for supporting skills in the reading base.

In context education language, the use of digital media has proven compelling in increasing the interest and understanding of students. According to Rahmana & Damariswara (2022), varied and interactive learning media can increase the focus and motivation of Study students. Salamun et al. (2023) added that Android-based media is very suitable for supporting learning language because it can integrate text, images, and sound so students can easily understand the material. In learning Mandarin, this digital media also supports students' digital literacy, including using device technology to understand the text effectively.

According to Harianto (2020), reading is an integrated activity involving letters and words and connecting with sound. This taught him to read basics. The student was expected to read simply, smoothly, and accurately because his reading ability greatly influenced him.

In the learning process, skills reading, material reading, and motivation are the main influencing factors that interest reading students. Materials reading that are not attractive and lack motivation can cause students to feel too lazy to read. On the other hand, exciting reading material can increase motivation for students. Therefore, the material readings used should varied and exciting so that you can Motivate students and make them more enthusiastic about studying reading Mandarin (Pratiwi, 2020).

Many types of media can be used For material reading, including visual media, audiovisual, cards, and multimedia. In choosing media to teach reading, it is better to use media that can interest students so that they focus more and easily understand the material taught by the teacher (Pranata, 2024). Effective media in learning can make it more accessible for students to absorb and increase their motivation. Thus, learning media functions To assist teachers in conveying material in an easy way to understand students and grow high motivation (Rahmana & Damariswara, 2022).

From various types of learning media, the most appropriate media for material-read-based students is an Android-based learning medium. According to Amil et al. (2020), this can increase the skills of beginning students and make it easier for them to learn to read and understand text with clear visual support.

Based on the results of observation and interview at the Darma Foundation Mother Loves Students class, I found that several students experience difficulty in reading. School moment This does Not yet have learning media teachers use to support skills reading beginning in class I due to limitations in facilities and infrastructure. Teachers still teach with the method, and the absence of media makes the students not enthusiastic enough during the learning process because they feel bored and lack motivation. Media or means of supporter learning is essential to increase Spirit students' learning in the following activities.

Therefore, developing learning media is very appropriate for students to support reading from the beginning. Learning media is designed with exciting and well-written images in a learning format that is thematic to the needs of students. With the existence of Android-based learning media, researchers hope this media will be beneficial in developing cultural literacy in schools. Cultural literacy in schools is essential for students. According to Rusniasa et al. (2021), individuals interested in reading tend to do active reading more often to form a good reading habit Because of reading needs. Reading is emphasized in eye Mandarin lessons, and all eye lessons are based on the learning theme. Some teachers face difficulty teaching reading skills, especially essential reading skills.

Based on the background behind said research, This is done To develop media that can make it easier for students to learn essential level reading. Formulation Problem in Study This is as follows: (1) How is quality development of learning media read elemental in grade I school? (2) How does procedure development of learning media learning read essential in grade I school? (3) How effective is the development of learning media read essential in grade I school base?

Objective Study This is : (1) To know the quality development of learning media, read on a primary grade I school basis. (2) To describe the procedure for developing learning media, read the essentials in grade I school. (3) learning media development is essential in grade I school basics for test effectiveness. Benefits from Study This is as follows: (1) Benefits theoretical: Research This can give additional guidelines in the development of learning media (2) Benefits practical a) For teachers, research This can encourage teachers to be more creative in designing learning media, so student No feel bored during the learning process in class. b) Share school, results study can help strengthen culture literacy in the environment school and support facility new helpful in the learning process. c) for the researcher, research can give valuable insights . For teaching at school, with a method to expand knowledge about developing effective learning media to increase interest in reading students. d) Share research with others. This can become an essential reference for the development of learning media in the future.

METHODS

Stages in research and development with the ADDIE model are as follows: 1) Stage Analysis (Analysis). This is done through observation and interviews with guardian class I. From the observation of the results, it is known that the method of learning to read Mandarin is Still naturally conventional, namely with the method lecture (Muruganantham, 2015). The teacher does not use learning media, so the atmosphere is not enjoyable enough. Until now, book lessons were the only media used by teachers and students, resulting in a monotonous learning atmosphere. Lack of facility learning, such as LCD, also makes the archers

1. Steganalysis consists from

a) Analysis curriculum

In step this, the researcher analyzes the use of the curriculum implemented in place of the Study done. The purpose of the curriculum analysis is to adapt the content material in learning media with the curriculum implemented in place research so that the development of learning media is according to needs.

b) Analysis needs student

The Study also analyzes student characteristics based on the design of the learning media that will be developed. Analysis must be done by observing the learning process taught and through interviews with teachers and students. From the analysis of the results, it is known that students have diverse academic levels. Interview with Guardian class I shows that several students experience difficulty reading, so they do not understand the material quickly enough. The lack of media teachers use in the learning process causes many students to have a hampered reading ability to read (Nadiya & Faaizah, 2015). Activity students in the class are also very minimal, making the class quiet and learning boring; students tend to be more interested in visual media, pictures, and videos, compared with method learning that does not use media. Interviews with students also showed they are more interested in learning with visual media such as pictures or videos. Based on the observation results, students are more interested in learning using visual media such as pictures or videos.

c) Content/ Material Analysis Learning

Students adjust to the applicable curriculum, namely core competencies and competencies basics (Rasyid, 2019). Learning media was developed because of problems faced in the learning process in class, such as low interest in students reading Mandarin.

2. Design Phase

At this stage, this is done with media design. The design results are Still in the form of the concept that became a guide base For development to continue. There are two main :

a) Storyboard design :

Learning media is similar to learning media but with different media usage. The media consists of material reading, a book guide for teachers (Mou et al., 2013), one game, guess the Word, and material reading addition.

b) Design Instrument Evaluation

Instrument evaluation is made For assessing learning media, considering various factors like characteristics of students, learning strategies teaching, organizing group learning, allocation time, and procedures assessment. The researcher will design an instrument evaluation through a questionnaire and checklist used by expert material, media experts, expert devices, and student class I (Scantlebury et al., 2001). In addition, guidelines are also compiled for interviews for trial on teachers.

3. Stage Development

Making learning media: This media used application design Corel Draw X7 graphics, developed by materials and concepts previously designed.

a) Expert Validation

After the media design is complete, the next step is to validate it with the experts. Two types of validation are carried out, namely validation materials and media, with expert material and media experts. Validation results are used as a base for revision Stage I.

b) Design Revision / Revision I

If validation has finished, revision can be done based on input from expert materials and media experts. This Can Be done more than once to fit the need.

4. Stage Implementation

Stage next is media implementation, which includes several steps:

a) One-to-One Trial

Trials begin on a scale limited to two students from a selected class based on different abilities. Students will study using Android-based learning media and then be given a questionnaire to evaluate their responses to the media.

b) Trials Small Group

At this stage, the media is tested on ten students randomly selected from Class I. A Questionnaire will be shared to evaluate media suitability for helping the learning process. In the trial, ten students will follow an activity to determine what media is worthy of use by students.

c) Trials Field

A feasibility test was conducted on a group of students consisting of about 20 people representing the target media usage. At this stage, media was tested on 20 students in the class, representing the expected number of students in research. A questionnaire was returned to evaluate students' opinions about products that have been developed and to identify necessary improvements .

5. Stage Evaluation

The final stage of this ADDIE development model is evaluating learning media. Evaluation measures the success of the goal development product.

Study This was implemented at the Darma Foundation Mother of Love Indonesia Bogor, with the subject Study as student class I in the 2023/2024 academic year. The election location is because the Study has not yet been done on developing Android-based learning mediating basic level reading in school.

A sample study was conducted using a saturated sampling technique, where the entire population was made into a sample to get accurate data. The samples used in the Study were from all students in class I, which had 20 students.

Instrument research consisted of user questionnaires and observations designed to evaluate students' interest in using learning media. The questionnaire used is a closed questionnaire with a choice answer based on a Likert scale, where students choose between five options: really like (5), like (4), enough (3), no like (2), and very much dislike like (1). Observation is done in two stages, namely observation beginning To identify problems in class and observation during the media trial to gather bait and related repair. Interviews were structured with class I teachers to get qualitative data about challenges in the learning process. This uses descriptive quantitative analysis for data from questionnaires, observations, and interviews from expert material, media experts, expert devices, and students. Quantitative data from the questionnaire was converted to a scale of five to

make it easier to analyze. In contrast, qualitative data from interviews and observations were used To enrich findings and fix media development.

Table 1. S Validation Correspondence

Score	Information
5	Very Worth It
4	Worthy
3	Enough Worthy
2	Less Worthy
1	Very Less Worthy

The analysis in this Study uses a quantitative descriptive analysis method to describe and summarize data obtained from the results of questionnaires, observations, and interviews. This descriptive analysis is carried out by calculating the average value of each indicator, which is then interpreted qualitatively based on categories such as "Very Eligible," "Eligible," and "Very Less Eligible," according to the predetermined score interval. In addition, this analysis also considers the ideal standard deviation to assess the consistency of the score and its distribution so that the results are more objective.

RESULT AND DISCUSSION

Research results related to the development of learning media android will be discussed based on basic-level reading, including the media development process, media quality, suitability, and test results of media implementation.

1. Validation Result Data Material

Table 3. Material Validation

Percentage Mark	Score	Category
Validation I	88, 6	4.43
Validation II	9 6	4.8
Average	92, 30 %	4.61
It is very worth using without revision		

Table that the percentage marked the validation First is 88.6%, while the validation second gets 96%. After calculating marks from both validators, the obtained percentage of the average value is 92.30%. This value is taken from a score of 3.85 based on the evaluation of aspects that have been validated. This result shows that the material presented in learning media is considered very worthy and appropriate with needs learning by experts. Evaluation validation: It can be concluded that the validation material reached a score of 3.85 in the material category worthy of use and testing in the field.

2. Questionnaire results evaluation media experts on the media developed

Table 4. Media Validation

Percentage Mark	Sco re	Category
Validation I	82, 3	4.10
Worthy		

Validation II	90.8	4.54	Very Worthy
Average	86, 55 %	4.32	It is very worth using without revision

From the results of the evaluation of the learning media android-based developed, the average score of validation I and validation II was 86.55, based on the evaluation of aspects of learning media that have been validated. From the results, it can concluded that the score of media validation reached 3.75, which places it in the very worthy category For use and testing in the field.

3. Validation results in device learning

Media Development in Study This refers to device learning that includes syllabus, plan implementation learning (RPP), and worksheets for Work participant education (LKPD). Validation device This aims to evaluate eligibility device learning as a Guide. The validation process involves competent and understanding validators compiling device learning and ensuring that the developed device is by the standard expected learning.

Table 5. Validation Of Learning Devices

No	Instrument	Validators	Percentage Value	Score	Category
1	Devices Learning	Validation I	84	4.20	Very Worth It
		Validation II	98	4.90	Very Worth It
2	Lesson Plan	Validation I	85	4.25	Very Worth It
		Validation II	93.5	4.67	Very Worth It
3	Worksheet	Validation I	84	4.20	Very Worth It
		Validation II	89	4.45	Very Worth It
		Average	88.91%	4.44	Very Worth It

From the results of the learning media assessment based on AndroidAndroid developed, the data was obtained as follows: Assessment device Learning: Validation I provides a value of 84, and validation II gives a value of 98, entering a very worthy category For testing in the field. Assessment Plan Implementation Learning (RPP): Validation I provides a value of 85, and validation II gives a value of 93.5, which is also in the very worthy category For testing in the field. Worksheet Assessment Participant Educate (LKPD): Validation I provides a value of 84, and validation II gives a score of 89, entered in the very worthy and ready category tested.

From the results, both validators obtained an average score of 88.91% for the third aspect of device learning that has been validated. Based on these results, we can conclude that the device developed is learning worthy of use and testing in the field.

4. Effectiveness of learning media

After learning media is validated and revised, the next step is to test the media to determine its effectiveness in increasing the skills of basic-level reading students.

a) One-to-one evaluation trial results

Table 6. O Ne -To- Ne Evaluation

Statistics	Trial Class
Lowest Value	2
The highest score	3
Amount Sample	2
Mean (X)	62.5

From the table above, it is known that the average percentage of one-to-one test results for basic skills level reading students reached 62.5%, obtained from two students in the class I, selected as a sample from 20 students. (b) Results of the small group evaluation trial: At this stage, the trial product was done against ten selected students in a way random from Class I. Results of stage This will describe media acceptability by students and potential necessary improvements before being continued to the trial field.

b) Trials Small Group

Table 7. Small Group Test

Statistics	Experimental Class
Lowest Value	3
The highest score	4
Amount Sample	10
Mean (X)	87.5

From the table, In trial I, the average obtained was 62.5, while in trial II, the average obtained was 87.5 after revision on trial I. Then, based on the acquisition of the data, the average of the II trial is more excellent compared to the average in trial I; thus, results evaluation skills read the beginning of trial I and trial II increased in a way significant after using learning media Android-based. Therefore, we can conclude that learning media effectively evaluates basic-level reading students.

Assessment results skills read the beginning student in Study This focused on the trial class because the learning media used has developed unique For class The average value of skills read student moment using learning media android based is 84, with average score 5, which is acceptable in the outstanding category. Based on the table, 15 students got scores ≥ 85 (outstanding), three students obtained marks between 70 and 80 (good), and two students got marks between 50 and 65 (enough). Thus, skills read, the beginning student using learning media reached an average value of 84 and a score of 5 in the outstanding category.

Response results can be obtained through a questionnaire distributed to students in class 1. Objectives from this data collection are To describe The opinions and responses of students about learning that has been implemented using learning media. Questionnaire response: This contains ten statements about the learning process. After that, the data was analyzed with an average answer from all students, namely with add-up answers from every student with use scoring. Total value ends from each statement item shared with the ideal amount (maximum). Amount score maximum on the questionnaire response student namely $5 \times 10 = 50$ and multiplied with 100% for know big presentation answer student.

c) Trials Field

Table 8. Field Test

No	Category	Amount Student	Percentage
1	Strongly agree	15	75%
2	Agree	5	25%
3	No Agree	0	0

From the results of the students' data responses regarding learning, the media can conclude that the average of total indicator items statement answers of students reached 75%, with category answers strongly agreeing and 25% with category answers agreeing. So, it can be concluded that learning media that is Android-based can attract students' attention and interest during follow-up implementation learning.

The research results on quality materials get an average value of 92.30% with a score of 4.61, so it is rated worthy for use and testing. The media quality obtained an average value of 86.55% with a score of 4.32, while device learning got an average score of 88.91%, so it is worth using and testing in the field. The effectiveness of the media in the first trial reached an average score of 62.5 and increased in the second trial to 87.5. Assessment skills read the base also shows significant improvement between trials first and second after media usage, with an average value of 84 and a score of 5 in a very worthy category. Research results This shows that influential media's quality, procedures, and effectiveness are positive for skills read base students.

Based on the explanation, the effectiveness of learning media Android based on increased skills read base students in trial I and trial II showed varying results. Using this media produced high scores in skills read by more students. Therefore, we can conclude that there are quality, procedures, and effectiveness in using media for learning to read early in grade I of school base.

DISCUSSION

In general, overall, the research contributes to the development of learning media language, especially at the level levels offering benefits practical for teachers and schools in increasing creativity and motivating learning; the results of the Study also provide a new outlook for researchers and can become a reference For the development of learning media strengthens there. Research strengthens the idea that, particularly, Android-based can become effective Android-based in increasing students' skills and cognitive skills in reading, enriching the experience of studying on a school basis.

a) Quality Development of Learning Media

Based on results validated by experts materials and media experts, learning media Android-based developed is rated very worthy of use. Validation material obtained an average score of 92.30%, while media validation obtained a value of 86.55%. This result shows that the quality of the developed media fulfills expected standards, both from the aspect of relevant material and media design (Scantlebury et al., 2001). These media succeed in interesting interest students with interactive visual presentations and customized materials with curriculum, which can increase involvement and understanding of students during the learning process.

b) Procedure Development of Learning Media

Media Development in Study This follows the ADDIE model, which includes five stages: Analysis, Design, Development, Implementation, and Evaluation. The analysis needs students and the curriculum to be studied at this stage to determine appropriate media content and features. Next,

the stage design produces media concepts, storyboards, and instrument assessment (Astra et al., 2015). Media was then developed using application design graphics and validated by experts to ensure the material conforms to the display (Zulbahri et al., 2022). Media implementation is done through one-to-one trials, small trial groups, and trial fields. Stage evaluation measures media effectiveness and provides bait to come back for repair before being used in a way broad.

c) Effectiveness Development of Learning Media

Trial results show that learning media Android effectively increased reading base students' skill scores in the trial First reached 62.5, while in the second trial, it increased significantly to 87.5. In addition, assessment skills read students show excellent results, with an average value of as much as 84, and the majority of students obtain incoming scores outstanding a category (Adi et al., 2022). Response to students towards the media is also very positive, where 75% of students strongly agree that this media helps the learning process (Retnowati et al., 2019).

CONCLUSIONS

Based on the research results, it can be concluded that the development of learning media Android-based on increased skills in reading in grade I school to succeed reach the expected goals. This media has proved to be very good quality based on results from validation expert materials and media experts, with average scores of 92.30% and 86.55%, respectively. High media quality is reflected by conformity material with the curriculum, interactive design, and the media's ability to interest students.

Procedure development follows the systematic ADDIE model, from analysis need until stage evaluation, ensuring that the media is developed with a practical and precise target. Implementing media through various trial phases also shows its effectiveness in increasing skills in reading students, where the average score increased from 62.5 on the first test run to 87.5 on the second.

Besides that, the positive response from students, with 75% stating they strongly agree that the media helps them learn, indicates that this media is relevant and successful in Motivating students to study more.

This Study strengthens the importance of using digital media in education, especially in learning language at the primary level, and gives practical contributions for teachers and schools to create an innovative and fun learning environment.

CONFLICTS OF INTEREST STATEMENT

The authors declare that there are no conflicts of interest regarding the publication of this paper. No financial or personal relationships have influenced or could potentially influence the research and results presented in this study.

AUTHOR CONTRIBUTIONS

David Darwin conceived of the presented idea, developed the theory, and was the primary researcher responsible for the study design. He led the data collection, performed the analysis, and interpreted the results. David also contributed to the development of the learning media, as well as the writing and final revisions of the manuscript. Moh Al-Farizali Aditia contributed to the development of the research methodology and the design of the learning media. He assisted in the analysis and interpretation of the data and contributed significantly to the writing of the manuscript,

particularly in the sections discussing the methods and results. Nabila Halifi contributed to the validation of the learning media, providing insights on content development. She participated in data analysis and interpretation and contributed to drafting the manuscript, focusing on the literature review and educational implications of the study.

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