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Designing Digital Scratch Media with Multiliteracy Strengthening Based: How to Improve Early Reading Skills?

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Abstract
The design of digital scratch media with multiliteracy reinforcement based on local wisdom is very important to be developed to improve early reading skills in elementary schools. This is important to do because the learning media used by teachers in early reading learning are not all interactive. The purpose of this study was to determine the effectiveness of designing digital scratch media to improve early reading skills in elementary schools. The method used in this study is Thiagarajan's Four-D with four stages, namely: Define, Design, Develop, Disseminate. The research area is Padalarang District, West Bandung Regency, West Java Province, Indonesia. Elementary schools in the area consist of 5 schools with the subjects of this study being first grade students. Data collection techniques were carried out by interviews, documentation studies, observations and tests. Data analysis techniques used with qualitative approaches (data reduction, data display, drawing conclusions and triangulation) and quantitative (t-test). The results of the study showed that the early reading ability of the group of students who learned using local wisdom-based Scratch media had a better average score compared to the early reading ability of the group of students who learned without using Scratch media. This shows that the design of Scratch media can help students to motivate students at the beginning of reading starting from pronunciation, intonation, fluency, clarity and completeness of reading. The design of Scratch digital media makes it easy for teachers to design learning steps, arrange interactive materials and media for early reading learning.

Keywords: Digital Scratch Media, Early Reading Skill, Multiliteracy.

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Introduction

The development of digital technology in the era of the industrial revolution 4.0 has brought major changes in various aspects of life, including in the field of education. Technology is no longer just a supporter, but has become a major component in the teaching and learning process. One form of utilization of technology in education is through the development of digital media that can accommodate students' learning needs, especially at the elementary school level (Hidayat & Khotimah, 2019). At this stage of education, reading skills are an important foundation that supports other academic skills.

However, the results of the literacy survey report in Indonesia show that the level of student literacy is still relatively low compared to other countries. One of the causes is the lack of innovation in teaching reading in schools (Manan, 2023). The conventional approach that only emphasizes the cognitive aspect often makes students lose interest in learning. To overcome this problem, a learning approach is needed that is not only innovative but also able to integrate local values that are relevant to students' lives.

The EGRA findings in ACDP Indonesia (2014) conducted on 24,812 grade 2 students, explained that less than 50% of the children were proficient in reading and understanding. A number of other studies indicate findings that early literacy skills in Indonesia are influenced by a number of difficulties, including difficulty reading fluently and difficulty understanding reading. (Oktadiana, 2019; Pratiwi, 2020; Widyaningrum, 2019; Chandra, et al., 2021).

In this context, the use of digital media based on multiliteracy is a relevant solution. Multiliteracy is a learning approach that combines various forms of literacy, including digital, visual, and cultural literacy. With this approach, students not only learn to read texts, but also understand the social, cultural, and technological contexts around them. One potential digital media to support multiliteracy is Scratch. Scratch is a visual programming platform that allows students to learn interactively and creatively (Sutikno, et. al, 2019). By utilizing Scratch, teachers can develop learning media based on local wisdom that is relevant to students' life experiences, so that learning becomes more interesting and meaningful.

Janssen and Erickson (2013) explained that in an educational setting where teachers are asked to do more and improve student outcomes. Through this multiliteracy learning model through digital Scracth, learning to read without books is done by teaching using media or teaching aids other than books, for example picture cards and digital tools that give an interesting impression so that children feel very happy. Children in the early grades (ages 6-8 years) are in the play phase. This is in accordance with research according to Ciampa. K. (2012).

Local wisdom is an important element in the development of this digital media because local values can provide identity and relevance in learning. Students can more easily understand abstract concepts if presented in a cultural context that is close to their lives (Shavira, 2021). For example, folklore, traditional games, and local cultural symbols can be integrated into learning media to increase students' learning motivation.

In the context of early reading learning, the integration of local wisdom with digital media can provide many benefits. Early reading is not just about recognizing letters and words, but also involves understanding the context of the story and the moral message in it (Desti, 2021). By using local wisdom as a theme in learning materials, students can be more emotionally and cognitively connected. This is important to help students develop better literacy skills.

Several studies have shown that local wisdom-based learning can increase student interest and motivation. For example, the use of folklore packaged in interactive digital form has been shown to be effective in helping students understand moral messages while improving reading skills. In addition, digital media such as Scratch allows students to actively participate in learning, for example by creating simple animations based on the stories they read. This approach not only improves reading skills, but also other skills such as critical thinking, creativity, and collaboration.

On the other hand, the development of digital media based on local wisdom presents its own challenges. Teachers need to have a good understanding of technology and creativity in designing interesting learning materials. In addition, collaboration between educators, cultural experts, and digital media developers is needed to ensure that the materials presented are relevant and in accordance with students' needs.

The level of digital literacy of students is also an important factor in the success of implementing this media. Students who are accustomed to using digital devices will find it easier to adapt to technology-based learning media. However, for students who are not yet accustomed, additional guidance is needed to ensure that they can utilize digital media properly. Therefore, the development of this media must consider the variation in students' abilities in using technology.

Within the framework of multiliteracy learning, *Scratc*h digital media can be used to combine various types of literacy. For example, students can read story texts, see visual illustrations, listen to narration, and even create their own animations based on their understanding of the story. In this way, learning becomes more holistic and involves various cognitive, emotional, and social aspects (Tsamrotuddiniyah, 2024).

In addition, strengthening local values through digital media can also help preserve regional culture. In the era of globalization, local culture is often marginalized by more dominant foreign cultures. By integrating local wisdom into learning, students not only learn to read, but also understand and appreciate their cultural heritage. This can help build a sense of identity and pride in local culture among the younger generation.

The use of Scratch-based digital media is also in line with the principles of 21st-century learning, which emphasize the development of critical thinking skills, communication, collaboration, and creativity (Chasannudin, Nuraini & Luthfiya, 2022). By using this media, students can learn actively and collaboratively, for example by working in groups to complete Scratch-based projects. In addition, students can also learn to solve problems and develop new ideas, which are important skills in the digital era.

However, the success of the development and implementation of this media is highly dependent on support from various parties, including teachers, parents, and policy makers (Arijumiati, Istininsih & Setiawan, 2021). Teachers need to be given training to master Scratch technology and how to integrate it into learning. Parents also need to be involved to support student learning at home, for example by providing access to digital devices. In addition, policy makers need to provide support in the form of adequate facilities and resources to support the development of digital media in schools.

Overall, the development of Scratch digital media based on multiliteracy with strengthening local wisdom is a strategic step to improve elementary school students' early reading skills. This media not only provides a fun learning experience, but also helps students develop various skills that are relevant to the needs of the 21st century. With this approach, it is hoped that students will not only become good readers, but also creative, critical individuals who appreciate local culture.

Method

Study Design

This study uses the Research and Development (R&D) method which aims to produce learning media products that can be implemented effectively in an educational context. This study aims to develop a Scracth digital media learning model with multiliteracy reinforcement based on local wisdom in early reading. This research method is a type of development research or Research and Development (R&D). The R&D method in educational research is needed to produce efficient and effective products or services related to educational or pedagogical practices (M. Romi et.al, 2023:45). Borg and Gall (1983:567) argue: "Educational R&D is an industry-based development model in which the findings of research are used to design new products and procedures, which are then systematically field-tested, evaluated, and refined until the meet specified criteria of effectiveness, quality or similar standards" Digital media was tested on elementary school students in a real learning environment.

The R & D (Research and Development) model used in this study refers to R & D from S. Thiagarajan, Dorothy S. Semmel and Melvyn I Sammel (2023). The 4-D model is an abbreviation of Define, Design, Development and Dissemination which was developed by S. Thiagarajan, Dorothy S. Semmel, and Melvyn I. Semmel in 1974. The 4-D development model is one of the learning device development models that is suitable for the Indonesian education system and tends to be chosen and used in educational research. The model includes 4 stages, namely define, design, develop and disseminate.2 The implementation of the main steps in this study is not only according to the original version but is adjusted to the characteristics of the subject, place of origin and development needs The quasi-experimental design enables a researcher to manipulate variables, establish cause-effect relationship between variables and apply the non-randomized approach in selecting participants (Gall, Gall & Borg, 2007). Specifically, the non- equivalent control-group pre-test and post-test experimental design was employed in this study. In this case, there was an intervention or experimental group who received the unusual treatment (planned and formal vocational mentoring) and a control group who received the usual treatment (unplanned and non-formal vocational mentoring). Consequently, both groups were pretested and post tested once. Therefore, this design is considered appropriate for this study in that there was manipulation of the independent variable (vocational mentoring), pre-test and post-test, non-randomization of sample. Overall, the design establishes cause-effect relationships between the independent, mediator, and dependent variables. in the field. The reason researchers chose this model is because the 4D model stages are arranged in a programmed manner, simple, easy to understand and more systematic implementation.

There are three techniques for collecting data in this study, namely using observation, documentation, and questionnaire methods.

The results of the observations used in this study are structured observations. Structured observations are observations that are systematically prepared about what will be observed. Observations aim to obtain problems that exist in early reading in elementary schools. Observations were carried out by researchers by observing early reading in grade I of elementary school.

Then to see the results of the study whether multiliteracy learning using scratch media is better than that without using it, a quantitative test is used, namely the normal test, homogeneous test and t-test, if the data is not normal, it is continued with the Mann Whitney test. Furthermore, to see the results of the influence of each indicator of multiliteracy ability, a Post Hoc Repeated Measure Anova test was carried out.

Area of the Study

The area of the study was Kecamatan Padalarang Kabupaten Bandung Barat, Propinsi Jawa Barat negara Indonesia, which has 681 sekolah dasar kabupaten government areas Bandung Barat, and 635 elementery School country. which 52 school primery at Padalarng The research area is Padalarang District, West Bandung Regency, West Java Province, Indonesia. Elementary schools in the area consist of 52 schools with the populasi penelitian 5 school primery at Padalarang. The research area is Padalarang District, West Bandung Regency, West Java Province, Indonesia. Elementary schools in the area consist of 5 schools with the subjects of this study being grade I students.

Population of The Study

The research area is West Bandung Regency, West Java Province, Indonesia. This study involved subjects, namely grade I students. The population of this study was all lower grade students (grade 1) at West Bandung Elementary School located in West Bandung Cluster 4, selected from schools implementing the 2013 curriculum towards the independent learning curriculum and driving schools that implement the independent learning curriculum.

Sample and Sampling Technique

The technique used in sampling Purposive Sampling with certain considerations. The reason why researchers use this technique is because of the consideration of the characteristics and abilities possessed by grade 1 elementary school students. The criteria sampling method in this study is a general sample selection strategy that emphasizes the review and examination of all cases that meet the predetermined and important criteria. In this study, the sampling technique was to first select the school where the research was conducted. To determine the school whose students had the most difficulty in reading the beginning. This is in accordance with Patton's opinion in Papatda (2016: 127) which states that school selection is a purposive sampling method used in selecting schools and students who meet the criteria. Observations were conducted at schools located in areas with high, middle, and low socioeconomic levels. While the sample taken in this study was 92 first grade students from 5 schools and what is meant by class IA students as the experimental class and the experimental class IB from each school as the control class. Meanwhile, the samples taken in this study were 92 first grade students from 5 schools and class IA students were referred to as the experimental class and the IB experimental class from each school as the control class.

Instrument for Data Collection

The instruments used in this study were observation, interviews, questionnaires (for expert and practitioner validation), test questions and documentation. During the preliminary study, observations were carried out by researchers by observing the beginning reading in grade I of elementary school. Observations were carried out directly and indirectly according to the format that had been made. Directly means that observations are carried out by directly seeing the process to be observed while the process is taking place, while indirectly means observing something through documents and existing evidence. This is done in the introduction and in the implementation of product trials at the development stage.

Validation of the Instrument

The validity of the research in the form of a Digital Scracth Media Validation Sheet and an initial reading observation sheet is a research instrument. This instrument is used to obtain data on expert assessments of the developed Scracth media and initial reading results. The results of this assessment are used as a basis for product improvement before being tested. The Digital Scracth media validation sheet was validation by a team of material and media experts before being distributed, which was carried out by 2 people and checked by expert lecturers and than filled class 1 teachers. The Scracth media validation sheet consists of a Scracth media feasibility assessment sheet compiled using a Likert scale. The compilation of this validity sheet was developed based on the Scracth media assessment instrument grid and the reading beginning reading instrument in the form of indicators of aspects of initial reading assessed by teams of material experts and teams of media experts.

Reliability of the Instrument

The overall alpha value for the questionnaire was 0.8On the other hand, the rating scale were collated and analysed, the alpha value was found to be 0.81 The data analysis technique that will be carried out in this study is a descriptive analysis technique. The descriptive analysis technique is carried out using descriptive statistics. Descriptive statistics are statistics used in analyzing data by describing or depicting the data that has been collected as it is without intending to make conclusions that can apply to the public or its generalization (Sugiyono, 2015: 207). To determine several categories of eligibility for this media, the Likert scale measurement scale is used. The data obtained from the results of Likert scale measurements are in the form of numbers. The numbers are then interpreted in a quantitative sense (Sugiyono, 2015: 141). Quantitative data that has been obtained from Likert scale measurements are converted based on the predetermined score weights, namely one, two, three, and four. This data is quantitative data which is then analyzed using descriptive statistics. Descriptive statistics are used to reveal a picture of elementary school students' early reading research with the result and stages.

Methods

The results of the experimental group assessment, namely the group whose learning uses digital scratch media, while the control group is the group whose learning does not use digital scratch media, can be seen from the results of multiliteracy abilities based on indicators, namely pronunciation, intonation, fluency, clarity, and complete reading.

Quantitative data obtained from Likert scale measurements are converted based on the predetermined score weights, namely one, two, three, and four. This data is quantitative data which is then analyzed using descriptive statistics. Furthermore, statistical analysis will be carried out. Statistical analysis is carried out to compare the average value of the experimental group that received learning with the digital scratch media development model with local wisdom-based multiliteracy reinforcement with control group data that used conventional learning methods. Then the data is processed using MS Excel 2021 software and Predictive Analytics software (PASW Statistics 22) or IBM SPSS version 22.0. Data in the form of the results of elementary school students' early reading abilities are analyzed quantitatively using statistical tests.

Analysis Data

Based on the results of data testing in the experimental group, namely the group whose learning uses scratch media, while the control group, namely the group whose learning does not use scratch media, can be seen from the results of multiliteracy abilities based on indicators, namely pronunciation, intonation, fluency, clarity, and reading completion.

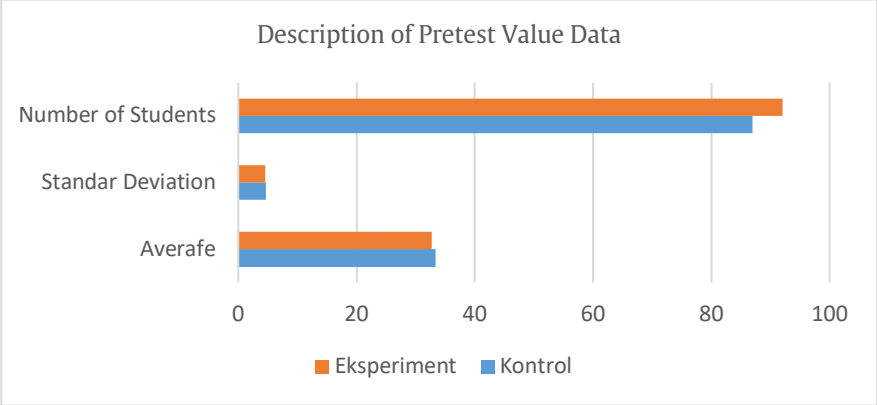

Figure 1. Description of Pretest Value Data

Based on the results of the pretest data, it is known that there is no significant difference in ability between the experimental group and the control group. In other words, the abilities of the two groups are considered equal to be given treatment. During the pretest, the results of the multiliteracy abilities of the control and experimental groups of students were not significantly different, and the distribution of data on each student's score was almost the same in relation to the average score as the data center.

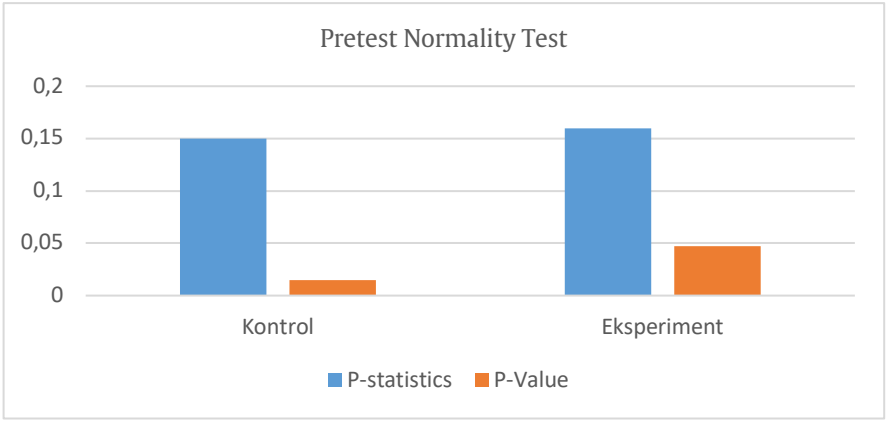

Figure 2. Pretest Normality Test

In the normal test during the pretest, the control class produced a p-value equal to 0.015 and the experimental class p-value was 0.047, meaning that both groups had p-values smaller than 0.05 using Kolmogorov-smirnov, meaning that both groups had abnormal value data. If both are normal, then proceed to

the Mann-Whitney average test. Based on the test of differences in the increase in elementary school students' early reading ability between the experimental and control groups, it shows that the probability value or sig. (2-tailed) is 0.000 which is smaller than a = 0.05, so Ho is rejected. Thus, there is a statistical difference in the increase in elementary school students' early reading ability between the experimental and control groups. When viewed from the average increase, it is obtained that the average n-gain of the experimental group (0.7376) is greater than the control group (0.4431). This means that the digital scratch media development model with multiliteracy reinforcement based on local wisdom is more effective in improving elementary school students' early reading ability.

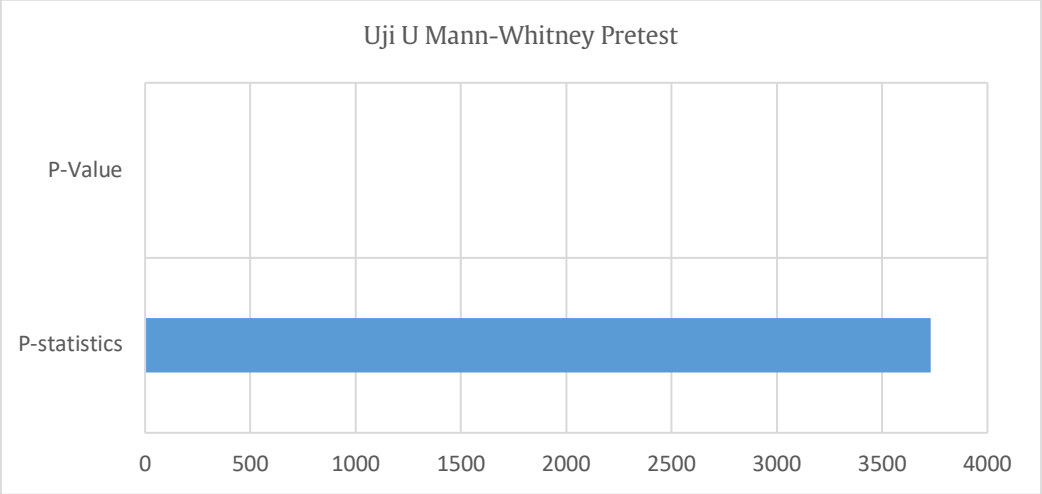

Figure 3. Uji U Mann-Whitney Pretest

In the Mann-Whitney U test for the difference in the average of the two groups, the p-statistic result is 3730 and the p-value result is equal to 0.43 more than 0.05 which means that there is no significant difference in the average of the two groups.

Results

The results of this research provide an overview of the process of developing digital media Scratch through strengthening multiliteracy for beginning reading with 4-D as follows:1) Definition (Define) to identify the goals of Scratch media development, context learning to read, and analysis of development needs for digital media Scratch, 2) Design forselection of storyboards, materials, media features, images, stories and scenarios, 3) Development involvesproduction, media development process, and testing of digital media by expert lecturers and teachers, and 4)Dissemination to spread Scratch digital media that has been developed as digital media through strengthening multiliteracy based on local wisdom to improve initial reading skills. This digital media development is tailored to needs and characteristics of the media**.** The application of Scratch digital media by strengthening multiliteracy to improve the initial reading ability of class I students in elementary schools in West Bandung which consists of 5 schools begins with a preliminary study first to determine media needs in the field and analysis of the curriculum used then data collection is carried out through

Observation then carried out a pretest on the experimental group and control group before being given treatment and giving treatment to the experimental group while the control group was not given treatment after which a posttest was carried out. Researchers observed 92 students as an experimental class and 87 students as a control class. Based on the post-test results, it was found that there was a statistical difference in the increase in elementary school students' initial reading ability between the experimental and control groups. If we look at the average increase, it is found that the average n-gain in the experimental group (0.8450) is greater than the control group (0.4495). This means that the digital scracth media development model by strengthening multiliteracy based on local wisdom is more effective in improving elementary school students' initial reading abilities. This can be seen in the graph below.

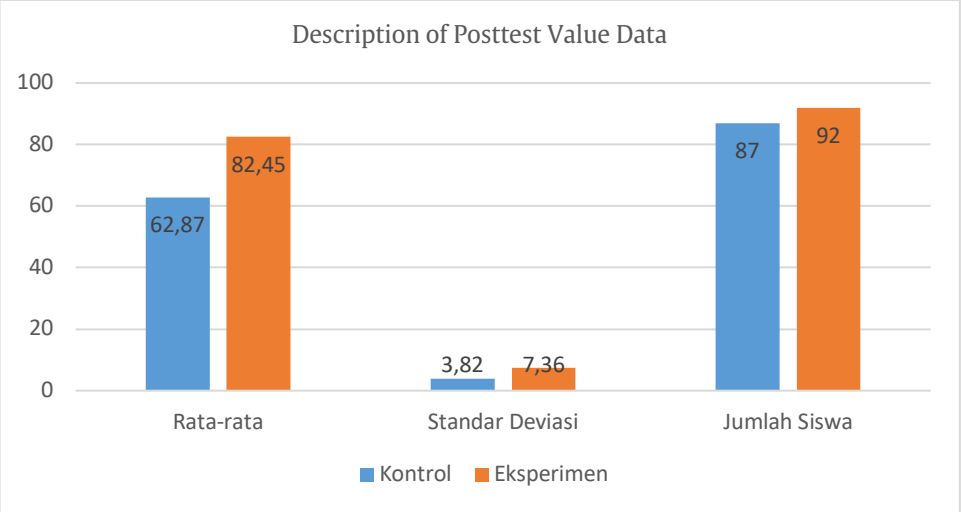

Figure 4. Description of Posttest Value Data

During the pretest, the results of the multiliteracy abilities of students in the control and experimental groups showed a difference in the average, where the experimental group was 82.45, which was greater than the control group, which was 62.87, while the distribution of assessment data for students in the experimental class was more varied than the control group, which was more homogeneous.

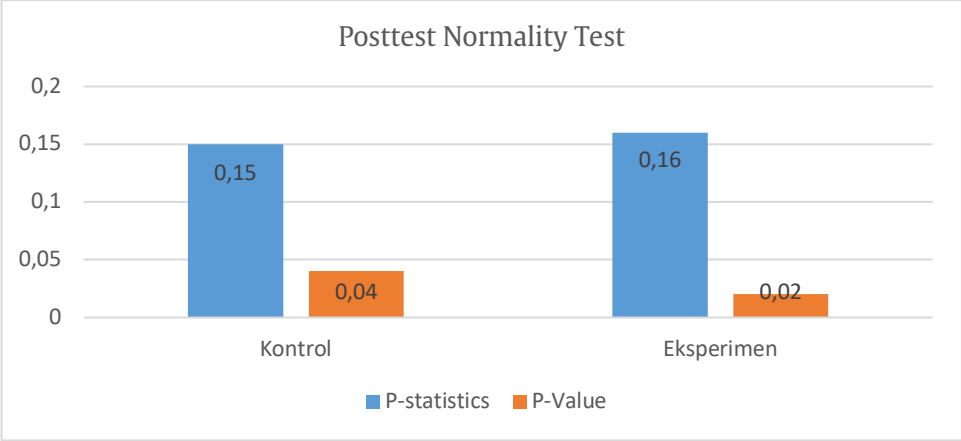

Figure 5. Posttest Normality Test

In the normal test at the time of the control class posttest, the p-value was 0.04 and the experimental class p-value was 0.02, meaning that both groups had p-values less than 0.05 using Kolmogorov-Smirnov, meaning that both groups had abnormal value data. If both are not normal, then continue to the Mann-Whitney average test.

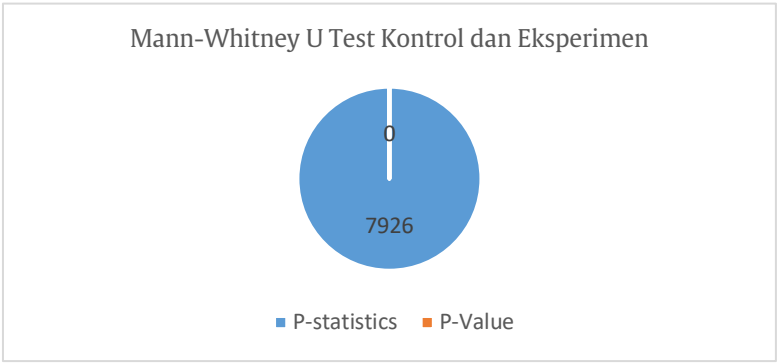

Figure 6. Mann-Whitner U Test

In the Mann-Whitney U test for the difference in the average of the two groups, the p-statistic result is 7926 and the p-value result is equal to 0.00 Less than 0.05 which means that there is a significant difference in the average of the two groups. Where the experimental class is better than the control class at the time of the posttest.

Furthermore, testing the average N-gain which aims to see whether the increase from pretest to posttest of the experimental group students' results is better than the increase in pretest and posttest of the control class.

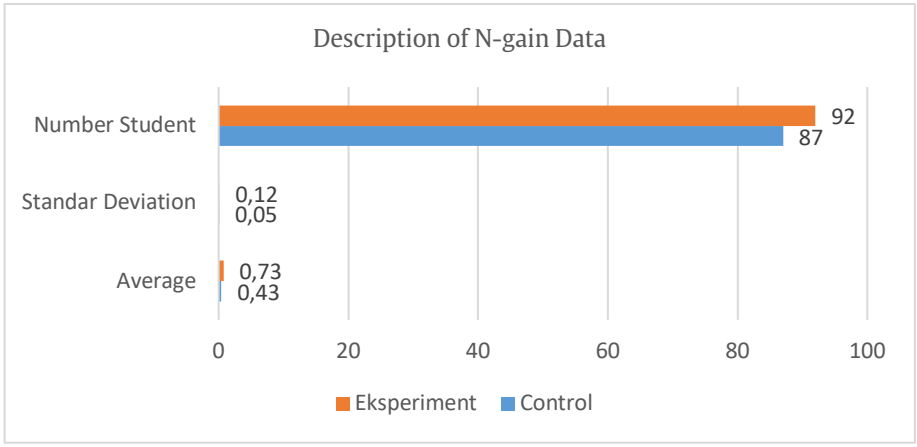

Figure 7. Description of N-Gain Data

At the time of the pretest, the results of the N-gain multiliteracy ability of students in the control and experimental groups showed an average difference where the experimental group was 0.73 greater than the control group, which was 0.43, while the distribution of assessment data for students in the experimental class was more varied than the more homogeneous control group.

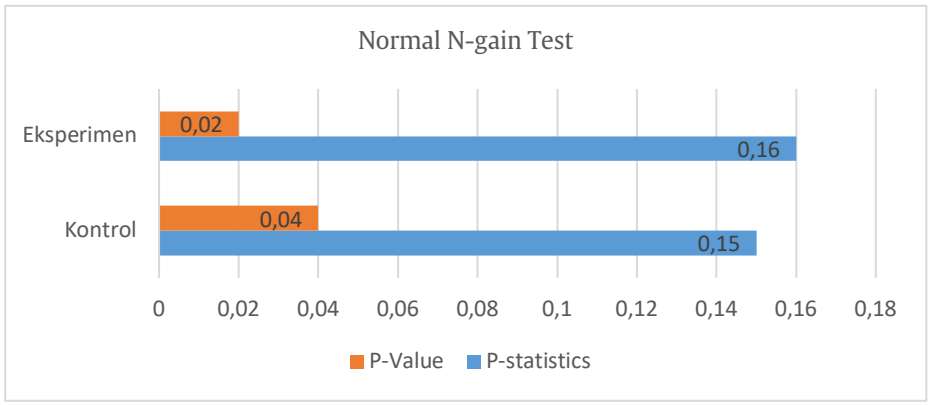

Figure 8. Normal N-Gain Test

In the normal N-gain test, the control class produces a p-value equal to 0.04 and the experimental class p-value is 0.02, meaning that both groups have a p-value of less than 0.05 using Kolmogorov-Smirnov, meaning that both groups have abnormal value data. If both are not normal, then continue to the Mann-Whitney average test.

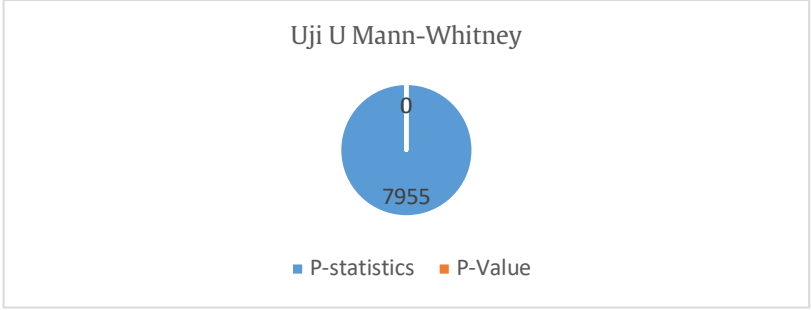

Figure 9. Normal N-Gain Test

In the Mann-Whitney U test for the difference in the average N-gain of the two groups, the p-statistic result is 7955 and the p-value result is equal to 0.00 Less than 0.05 which means that the two groups have a significant difference in the average N-gain. Where the experimental class has a better increase compared to the increase in the control class. In the experimental class, the average results during the posttest were better than the control class, as well as the increase in pretest to posttest scores better than the control class and then the multiliteracy indicators that affect literal ability.

Table 1. Correlation of Multiliteracy Indicators with Results

No	Indikator	Corelation	Keterangan
1	Pronunciation	0,86	Very Good
2	Intonatiom	0,78	Good
3	Fluency	0,82	Very Good
4	Clarity	0,72	Baik
5	Reading Complete	0,82	Very Good

Table 12 explains the strong relationship between multiliteracy indicators and learning outcomes where all indicators have a strong relationship or correlation value above 65 (Agustina & Noor, 2016) or above the sufficient category. Pronunciation is a very strong indicator in multiliteracy ability then fluency and complete reading. Then is there a significant difference between each multiliteracy indicator can use Repeated Measure Anova (Blanca, et. al, 2023).

Table 2. Correlation of Multiliteracy Indicators with Results

No	source	SS	DF	MS	F	P-unc	W-spher	p-spher
1	Indikator	30686.12	4	7671.530213	833.44	7.508605e-32	0.000148	1.561137e-08
2	Error	294.546688	32	9.204584				

Table 13 results using Repeated Measure Anova p-unc 7.508605e-32 is smaller than 0.05, meaning there is a difference in the average value of each indicator.

Table 3. Seeing the difference in the Average Pair of Indicators

No	Indicator	p-unc	p-corr	Adject.
1	Pronunciation-Intonation	0,00	0,00	There is no difference
2	Pronunciation-Fluency	0,04	0,42	There is no difference
3	Pronunciation- Full	0,00	0,00	There is a Difference
4	Pronunciation-Clarity	0,48	1,00	There is no difference
5	Intonation -Fluency	0,00	0,00	There is a Difference
6	Intonasi-Clarity	0,02	0,24	There is no difference
				There is no difference
7	Intonation-Reading Complete	0,00	0,00	There is a Difference
8	Fluency-Clarity	0,06	0,59	There is a Difference
9	Fluency-Reading Complete	0,06	0,59	There is no difference
10	Clarity-Reading Complete	0,00	0,00	There is a Difference

In table 14, the analysis uses post hoc (vorrisp, et. al, 2023) to explain the pair of indicators that there is no difference in the mastery of pronunciation indicators with fluency, complete reading but there is a significant difference with the mastery of clarity and intonation indicators, meaning that the pronunciation indicator is better than the clarity and intonation indicators, while the intonation indicator is not better than the fluency and complete reading indicators, meaning that fluency and complete reading are better than intonation. While intonation and clarity do not have a significant difference.

Discussion

Definition Stage

This discussion provides an opportunity for students, teachers and school institutions to share and share experiences. Based on the findings of observations and questionnaires conducted in the 2023/2024 academic year on 90 students consisting of 9 people in the control group and 9 people in the experimental group from 5 elementary schools in West Bandung, namely SD N Sudimampir 1, SD N Sudimampir 2, SD N Purabaya 4, SD N Jaya Mekar and SD Global Nusarata through a questionnaire which was first reviewed by a team of material and media experts and then processed and analyzed to develop appropriate media that can be used to improve children's beginning reading abilities. Observations and interview questionnaires are used to analyze data collected in developing learning media. The questionnaire was read and re-read to identify types of media, themes, materials, content and recurring teaching materials related to the development of appropriate learning media for lower elementary school students' initial reading learning.

The findings of this research indicate that there are several media that can be considered to be developed in beginning reading by strengthening multiliteracy. The findings of this research increase children's interest in reading. The major contribution of this research is the development of Scratch digital media in learning to improve children's early reading abilities. The results of this research cannot be separated from one of the reasons why researchers developed the digital media Scratch for early reading was because of previous findings, both from the findings felt by children based on observations and interviews at school and the results of previous research. This was done by researchers because before developing scratch media for students' multilateral abilities, initial research was needed, namely an analysis of the school curriculum currently in use, namely the 2013 curriculum, then children's initial multiliteracy abilities before using the media or pretest were very low in both the experimental group and the control group. . the control group scored below 40. And for each multiliteracy indicator, namely pronunciation, intonation, fluency, clarity and complete reading, the students' initial ability had almost the same score, namely 6.53 with the highest score being 20. The low scores for the five indicators were caused by reading ability and less varied use of media (Akbar, 2024), this is the reason for choosing the right media to help improve students' multiliteracy skills in elementary schools. And interesting and interactive learning media is an effective tool for students to improve their reading skills well (Dewi, 2024). Based on the findings in 5 elementary schools in West Bandung, there are still many students who are not motivated to be more active in reading activities. This is because students' interest or enthusiasm for reading is lacking, even though the literacy movement in schools has begun to be implemented, multiliteracy in elementary schools has not yet become the main program (Alam, Abustang & AMalina, 2023). There is a need to develop digital media through strengthening multiliteracy to improve students' reading abilities. This can be seen from the results of observations of student activities in learning to read in table 15 below.

Table 4. Observation of Student Activities in Reading Learning

No	Indicator Being Assessed	Yes (F)	%	No (F)	%
1	Students enjoy participating in reading lessons in class	5	55.56%	4	44.44%
2	Students are interested in participating in reading lessons in class	5	55.56%	4	44.44%
3	Students participate well in reading lessons in class	4	44.44%	5	55.56%
4	Students can read fluently without the teacher's assistance	3	33.33%	6	66.67%
5	Students can read with the correct intonation	2	22.22%	7	77.78%
6	Students read with the correct pronunciation	2	22.22%	7	77.78%
7	Students' voices are clear when reading	3	33.33%	6	66.67%
8	Students read words completely as they are written	2	22.22%	7	77.78%
9	Students are active in reading lesson activities	2	22.22%	7	77.78%
10	Students are earnest in participating in reading lessons	4	44.44%	5	55.56%
11	Students take turns participating in reading lesson activities	5	55.56%	4	44.44%

No	Indicator Being Assessed	Yes (F)	%	No (F)	%
12	Students pay good attention to the teacher during the reading lesson	4	44.44%	5	55.56%
13	Students listen attentively to their peers when taking turns reading	2	22.22%	7	77.78%

Table 15 explains the results of observations taken by 9 students to provide a positive and negative picture in learning to read. Numbers 1 to 3 are the preferences for learning to read that 51.85% stated positive and 48.15% stated negative, meaning that almost half of them do not like learning to read. Numbers 4 to 8 are multiliteracy abilities in learning to read that 26.67% stated positive and 73.33% stated negative, meaning that many students do not have multiliteracy abilities. And numbers 9 to 13 are students' motivation to be more active in learning to read that 37.78% stated positive and 62.22% negative, meaning that there are still many students who are not motivated to be more active in reading activities. Actually, the increase in students' liking or enthusiasm for reading is influenced by the existence of multiliteracy which should be implemented in elementary schools as a main program (Alam, Abustang & AMalina, 2023), of course how to increase multiliteracy when students have low abilities.

In the 21st century, increasing multiliteracy is assisted by using digital media as an alternative to physical media (Rahmansari, et.all, 2023) which aims to increase students' motivation to be more active in learning to read (Dewi, Suntini & Hamidah, 2023). Digital media is currently needed in every school because of the speed of information from science that must be mastered by elementary school teachers, so that teachers can utilize this technology to make it easier for students to learn to read, this is because there are still many teachers who have not mastered ICT which is applied to help children, one of which is reading, one of the factors is teacher creativity (Kusumandaru & Rahmawai, 2022) and choosing the right digital media that can be easily understood and can be applied.

Table 5. Teacher Ability and Digital Media Facilities.

No	Indicators Assessed	Yes		No	
		F	%	F	%
1	Teachers use media in reading learning activities	4	44.44	5	55.56
2	The media used by teachers varies so as to attract students' attention	3	33.33	6	66.67
3	The school has learning media related to beginning reading	3	33.33	6	66.67
4	The school provides complete learning media for beginning reading	3	33.33	6	66.67
5	The school has digital media of words related to beginning reading	1	11.11	8	88.89
6	The school has digital media created by teachers related to beginning reading	0	0.00	9	100.00
7	Schools have a variety of digital media related to early reading	0	0.00	9	100.00

Table 16 explains number 1 and number 2 are teachers' ability to use digital media that 61.11% are positive and 38.89% are negative. This means that most teachers have mastered digital media but there are still teachers who have not been able to master or understand the benefits of digital media. Numbers 3 to 7 are elementary school facilities that 15.55% are positive and 84.45% are negative. This means that very few schools provide facilities that support media to help students improve multiliteracy in reading learning. This is because teachers are more interactive in using media via WhatsApp to provide material information and assignments to students (Harahap, 2022).

Media Design

Teachers' expertise in utilizing technology online using WhatsApp has actually given rise to teachers' creativity in creating digital media. And it is necessary to add information that teachers can create easy and

interesting applications that can be shared with all students online or offline. Of course, by considering the letter format, images related to the material, and sound on a digital media.

With these three factors supporting students' multiliteracy skills, it motivates students to learn to read (Rachmawati, Kurnia & Laila, 2023). Scratch is a very suitable media that can be developed into an application that is easy for teachers to learn. This application can be used for reading learning for students and can be collaborated with local wisdom (Sembiring, et. Al, 2022). In addition, it is combined with materials adapted to the 2013 curriculum. In line with previous research, the findings of the Scratch digital application can be used to motivate and improve children's early reading abilities. This is evident from the findings that after the digital scracth media development model with strengthening multiliteracy based on local wisdom was obtained at Jayamekar Elementary School, 90% of students' initial reading was in the high category, 10% of students' initial reading was in the medium category, and 0% was in the low category. At SD Sudimampir 1 94.74% of students' initial reading was in the high category, 5.26% of students' initial reading was in the medium category, and 0% was in the low category. At SD Sudimampir 2 86.96% of students' initial reading was in the high category, 13.04% of students' initial reading was in the medium category, and 0% was in the low category. At Purabaya Elementary School, 76.92% of students' initial reading was in the high category, 23.08% of students' initial reading was in the medium category, and 0% was in the low category. At SD Global Nusantara 85.71% of students' initial reading was in the high category, 14.29% of students' initial reading was in the medium category, and 0% was in the low category.

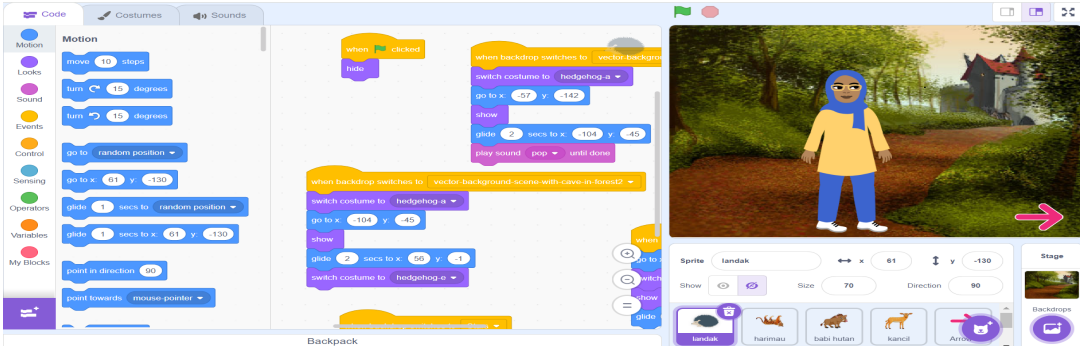

Figure 10. Reading the Relationship with Objects

Figure 10 explains designing media using easy and interesting language coding by arranging commands visually, the purpose of the initial media created is to introduce words related to objects around that students are familiar with, so that in the form of images, sounds and texts, students understand the first letter that forms then continues the next letter and becomes one word. This is to make it easier for students to read consonants and vowels (Lestari, et. Al, 2021).

Figure 11. Reading Consonant

Figure 11 explains the media that aims for students to learn to read consonants based on the number of syllables. The goal is as a first step to reading sentences (Mumpuni & Afifah, 2022).

Figure 12. Reading Consonant

Figure 3 explains the continuation of reading stories per sentence related to local culture so that students get to know the culture and at the same time increase their enthusiasm for reading (Khasanah, Ningrum & Huda, 2023).

Development Stage

This stage is the result of the initial design of digital media using scratch to increase multiliteracy based on local wisdom which will be implemented to students, but previously the media had to be tested by media experts and material experts for its feasibility. The results of the validation assessment from media experts were 91.56%, meaning that the media was in the very good category and 89.56% was in the very good media category too, so that the media could be continued to the distribution stage.

Distribution Stag

The first experiment the media was given to students at the stage of introducing words related to objects from the number per word, here students began to be actively motivated to learn to read. The second experiment where students were given reading learning media based on the number of words, and here students had mastered multiliteracy skills so that students were able to understand the types of letters, words and sentences, then continued with stories related to local wisdom. Then after that digital media development was made in accordance with on the steps in developing the digital media Scratch, learning with multiliteracy reinforcement is implemented so that this is learning that places reading skills as efficiently as possible to improve initial reading skills including pronunciation, intonation, voice clarity, fluency and completeness of reading. This is in accordance with previous findings where the multiliteracy model is defined as learning that places the ability to read, write, listen and speak, criticize, analyze and evaluate information from various sources in various scientific disciplines and the ability to communicate this information (Elendiana, 2020). Wulandari et al (2021) stated that multiliteracy learning provides more opportunities for students to reflect on learning (Wuladari et al (2021).

The implementation of the multiliteracy learning process is designed to be as interesting as possible for students by utilizing various sources of information, such as image, video or animation media. Multiliteracy learning provides students with the opportunity to observe, after that, with teacher guidance, they give multiliteracy learning the freedom to overcome problems that occur with planning steps, condition students to be ready to carry out the learning process, formulate conclusions, so that by implementing multiliteracy learning it is hoped that the conditions Finally, it can increase teacher and student activity so that student learning outcomes increase in reading.

Conclusion

Based on the results of the study, it states that the average value of the multiliteracy ability of students in the group using Scratch digital media is better than the average value of the multiliteracy ability of students in the group not using Scratch digital media, as well as the increase in multiliteracy ability before and after learning in groups using media is better than in groups without using media, this also increases multiliteracy ability from five indicators, namely pronunciation, intonation, fluency, clarity, and complete reading. This research can be concluded that by using Scratch digital media with strengthening multiliteracy based on local wisdom, the reading ability of grade I elementary school students in West Bandung Regency Elementary School

has increased. This can be seen from all indicators having a probability or sig value. (2-tailed) which is smaller than $\alpha = 0.05$ then Ho is rejected. Thus, there is a statistical difference in the increase in aspects of elementary school students' initial reading between the experimental group and the control group. If we look at the average n-gain, it is known that the average n-gain of the experimental group is greater than the control group, this means that the scracth digital media development model by strengthening multiliteracy based on local wisdom is effective in improving the early reading aspects of elementary school students. Based on these conclusions, the researcher conveys suggestions based on the results of the research, it turns out that the design and development of the digital media Scratch with the strengthening of multiliteracy is not yet perfect, there are still many shortcomings in terms of the quality of sound, images and stories written as well as factors that still need improvement and refinement. Therefore, for other researchers to continue research on the development of digital media Scratch by strengthening multiliteracy in initial reading with a wider sample and population. Apart from that, the Scratch digital media with strengthening multiliteracy is considered a new model in Indonesia, therefore it is hoped that other researchers will be able to do better research in learning using the Scratch digital media with strengthening multiliteracy.

References

Agustina, W., & Noor, F. (2016). Hubungan hasil belajar dan tingkat berpikir kreatif siswa dalam pembelajaran matematika. Math Didactic: Jurnal Pendidikan Matematika, 2(3), 191-200.

Akbar, K. (2024). PENINGKATAN KETERAMPILAN MEMBACA PERMULAAN MELALUI PENGGUNAAN MEDIA BUKU BACAAN BERJENJANG PADA SISWA KELAS I SDN 225 ALLU KABUPATEN BULUKUMBA.

Alam, S., Abustang, P. B., Amalina, R. N., & FJ, N. H. (2023). Implementasi Kebijakan Merdeka Belaja untuk Peningkatan Karakter Gemar Membaca melalui Program Literasi Kampus Mengajar. SELAPARANG: Jurnal Pengabdian Masyarakat Berkemajuan, 7(2), 1022-1027.

Arijumiati, R., Istiningsih, S., & Setiawan, H. (2021). Analisis Penggunaan Media Pembelajaran oleh Guru pada Masa Pandemi di SDN 1 Lajut Lombok Tengah. Jurnal Ilmiah Profesi Pendidikan, 6(4), 698-704.

Azwar, Saifuddin. 2014. Metode Penelitian. Yogyakarta: Pustaka Pelajar.

Blanca, M. J., Arnau, J., García-Castro, F. J., Alarcón, R., & Bono, R. (2023). Repeated measures ANOVA and adjusted F-tests when sphericity is violated: which procedure is best?. Frontiers in Psychology, 14, 1192453.

Borg and Gall (1983). Educational Research, An Introduction. New York and London. Longman Inc.

Chasannudin, A., Nuraini, L., & Luthfiya, N. A. (2022). Pelatihan Aplikasi Scratch Untuk Meningkatkan Kemampuan Computational Thinking Pada Guru. Kifah: Jurnal Pengabdian Masyarakat, 1(2), 153-168.

Desti, F. M. (2021). Mengembangkan Kemampuan Membaca Permulaan Anak Melalui Permainan Kartu Huruf Anak Usia 5-6 Tahun di Paud Perintis Desa Karang Rejo Jati Agung Lampung Selatan (Doctoral dissertation, UNIVERSITAS ISLAM NEGERI RADEN INTAN LAMPUNG).

Dewi, F. I., Suntini, S., & Hamidah, I. (2023). Pelatihan multiliterasi untuk meningkatkan motivasi minat baca siswa SDN 2 Tugumulya. Jurnal Pengabdian Masyarakat Indonesia, 3(1), 127-132.

Dewi, Y. S. (2024). Efektivitas Penggunaan Media Puzzle terhadap Keterampilan Membaca Permulaan Siswa Kelas 1 MI Kresna Mlilir Madiun (Doctoral dissertation, IAIN PONOROGO).

Desti, F. M. (2021). Mengembangkan Kemampuan Membaca Permulaan Anak Melalui Permainan Kartu Huruf Anak Usia 5-6 Tahun di Paud Perintis Desa Karang Rejo Jati Agung Lampung Selatan (Doctoral dissertation, UNIVERSITAS ISLAM NEGERI RADEN INTAN LAMPUNG).

Emzir. 2013. Metodologi Penelitian Pendidikan: Kuantitatif dan Kualitatif. Jakarta: PT Raja Grafindo Persada.

Harahap, A. R. (2022). Kelebihan dan Kekurangan Pembelajaran Berbasis TIK di SD IT Al-Khoiriyah Dalam Penerapan Berbasis Online. SHANUN: Jurnal Pendidikan Madrasah Ibtidaiyah, 1(1), 44-49.

Hidayat, N., & Khotimah, H. (2019). Pemanfaatan teknologi digital dalam kegiatan pembelajaran. Jurnal Pendidikan Dan Pengajaran Guru Sekolah Dasar (JPPGuseda), 2(1), 10-15.

Khasanah, L. A. I. U., Ningrum, I. E., & Huda, M. M. (2023). Pengembangan Game Edukasi Berbasis kearifan Lokal Berorientasi dalam Peningkatan Kemampuan Membaca Permulaan di Sekolah Dasar. Jurnal Basicedu, 7(1), 760-770.

Kusumandaru, A. D., & Rahmawati, F. P. (2022). Implementasi Media Sosial Aplikasi Tik Tok sebagai Media Menguatkan Literasi Sastra dalam Pembelajaran Tematik di Sekolah Dasar. Jurnal Basicedu, 6(3), 4876-4886.

Lestari, N. D. D., Ibrahim, M., Amin, S. M., & Kasiyun, S. (2021). Analisis faktor-faktor yang menghambat belajar membaca permulaan pada siswa sekolah dasar. Jurnal Basicedu, 5(4), 2611-2616.

Lukman Solihin. 2019. Indeks Aktivitas Literasi Membaca 34 Provinsi. Jakarta: Puslitjakdikbud.

Manan, A. (2023). Pendidikan Islam dan Perkembangan Teknologi: Menggagas Harmoni dalam Era Digital. SCHOLASTICA: Jurnal Pendidikan dan Kebudayaan, 5(1), 56-73.

Moleong J. Lexy. 2014. Metodologi Penelitian Kuantitatif. Bandung: PT. Remaja Rosdakarya.

Mumpuni, A., & Afifah, N. (2022). Analisis Pembelajaran Membaca Dan Menulis Permulaan Siswa Sekolah Dasar. Buletin Ilmiah Pendidikan, 1(2), 73-80.

Rahmasari, F., Muchtar, F. F., Imtinan, S. N., Kamilah, Z. N., & Wulan, N. S. (2023). Analisis Penerapan Pembelajaran Multiliterasi Di Sekolah Dasar. EduCurio: Education Curiosity, 1(2), 645-651.

Rachmawati, D. N., Kurnia, I., & Laila, A. (2023). Multimedia interaktif berbasis articulate storyline 3 sebagai alternatif media pembelajaran materi karakteristik geografis Indonesia di Sekolah Dasar. Jurnal Pemikiran Dan Pengembangan Sekolah Dasar (JP2SD), 11(1), 106-121.

Sembiring, T. Y., Hutauruk, A. J., Marbun, Y., & Manalu, J. B. (2022). Pengembangan Media Pembelajaran Scratch Berbasis Kearifan Lokal pada Materi Himpunan. Jurnal Curere, 6(2), 109-119.

Scandura, T. A. (1992). Mentorship and career mobility: An empirical investigation. *Journal of Organizational Behavior, 13*, 169-174.

Shavira, L. E. (2021). Penggunaan alat peraga ABD Ajaib dalam pembelajaran matematika realistik berbasis budaya. AKSIOMA: Jurnal Matematika dan Pendidikan Matematika, 12(2), 225-235.

Sugiyono. 2016. Metode Penelitian Kuantitatif, Kualitatif, dan RnD. Bandung: Alfabeta.

Sutikno, S., Susilo, S., & Hardiyanto, W. (2019). Pelatihan pemanfaatan scratch sebagai media pembelajaran. Rekayasa: Jurnal Penerapan Teknologi Dan Pembelajaran, 16(2), 173-178.

Tinto, V. (1997). Classrooms as communities: Exploring the educational character of student persistence. The Journal of Higher Education, 68, 599-623.

Tsamrotuddiniyah, T. (2024). Penggunaan Teknik Pembelajaran Cerita Bergambar Melalui Media SCRATCH Untuk Meningkatkan Kemampuan Membaca (Studi Eksperimen Dikelas 9 MTs. Al Khairiyah Macute Mancak Serang Banten) (Doctoral dissertation, UIN Sultan Maulana Hasanuddin Banten).

Tumba, I. & Shuaibu, H. (2016). Strategies for improving students' acquisition of practical skills in electrical installation and maintenance work trade in technical colleges in Kano State. The International Journal of Engineering and Science, 5(10), 30-40.

Voorrips, S. N., Boorsma, E. M., Beusekamp, J. C., De-Boer, R. A., Connelly, M. A., Dullaart, R. P. F., ... & Westenbrink, B. D. (2023). Longitudinal changes in circulating ketone body levels in patients with acute heart failure: a post hoc analysis of the EMPA-response-AHF trial. Journal of Cardiac Failure, 29(1), 33-41.

Weigold, A., Weigold, I.K., Gregor, M.A. & Thornton, E.M. (2021). Factor structure of the Vocational Identity Status Assessment (VISA) in university, liberal arts, and community college students. J. Career Assess., 29, 355–373.

Wulandari, P., Raihan, S., Card, F., & Permulaan, K. M. (2022). Peningkatan Keterampilan

Literasi Membaca Permulaan Melalui Media Flash Card Siswa Sekolah Dasar. Pinisi Jurnal of Education, 2(6), 8–19

Zhang, A., Olelewe, C. J., Orji, C. T., Ibezim, N. E., Sunday, N. H., Obichukwu, P. U., & Okanazu, O. O. (2020). Effects of innovative and traditional teaching methods on technical college students' achievement in computer craft practices. *SAGE open*, *10*(4), 2158244020982986.