



Learning Evaluation Design Using Quizizz in Mathematics Subjects at Elementary School

Sandra Aryani Agustin^{1*}; Hendra Nelva Saputra²; Darman³

^{1,2,3}Information Technology Education, Universitas Muhammadiyah Kendari, Indonesia
^{1*}Corresponding Email: sandraaryaniagustin@gmail.com, Phone Number: 0851 xxxx xxxx

Article History:

Received: Apr 09, 2025
 Revised: Apr 29, 2025
 Accepted: May 16, 2025
 Online First: Jun 13, 2025

Keywords:

Learning Evaluation,
 Mathematics,
 Quizizz.

Kata Kunci:

Evaluasi Pembelajaran,
 Matematika,
 Quizizz.

How to cite:

Agustin, S. A., Saputra, H. N., & Darman, D. (2025). Learning Evaluation Design Using Quizizz in Mathematics Subjects at Elementary School. *Edunesia : Jurnal Ilmiah Pendidikan*, 6(2), 1070-1085.

This is an open-access article under the CC-BY-NC-ND license.



Abstract: This study aims to design a valid, reliable, and effective mathematics learning evaluation tool using Quizizz for grade VI students at SDN 1 Toronipa. The method used in this study is Research and Development (RnD) with a 4D development model. The validity test results showed that out of 25 questions tested, 15 were declared valid, while 10 other questions were invalid. The reliability test conducted using the Alpha Cronbach method produced a reliability coefficient of 0.960, indicating a very high level of Reliability. Analysis of the difficulty level of the questions revealed that 80% of the questions were in the "moderate" category, while the other 20% were in the "easy" category. The discrimination test results showed that most questions had "good" or "excellent" discrimination power. This study proves Quizizz is a practical, engaging, interactive evaluation tool. The evaluation tool developed meets the criteria of validity, Reliability, appropriate level of difficulty, and good discrimination power, so it can potentially increase student motivation and learning outcomes. This study provides empirical evidence that Quizizz can be an effective alternative in evaluating mathematics learning at the elementary school level.

Abstrak: Penelitian ini bertujuan untuk merancang alat evaluasi pembelajaran matematika yang valid, reliabel, dan efektif dengan memanfaatkan platform Quizizz bagi siswa kelas VI di SDN 1 Toronipa. Metode yang digunakan adalah Research and Development (RnD) dengan model pengembangan 4D. Hasil uji validitas menunjukkan bahwa dari 25 soal yang diuji, 15 di antaranya dinyatakan valid, sedangkan 10 soal lainnya tidak memenuhi kriteria validitas. Uji reliabilitas yang dilakukan dengan menggunakan metode Alpha Cronbach menghasilkan koefisien reliabilitas sebesar 0,960, yang menunjukkan tingkat reliabilitas yang sangat tinggi. Dari analisis tingkat kesulitan soal, terungkap bahwa 80% soal berada dalam kategori "sedang," sementara 20% lainnya termasuk dalam kategori "mudah." Hasil uji daya beda menunjukkan bahwa mayoritas soal memiliki daya beda yang tergolong "baik" atau "sangat baik." Secara keseluruhan, penelitian ini memberikan bukti bahwa Quizizz adalah alat evaluasi yang efektif, menarik, dan interaktif. Alat evaluasi yang dikembangkan memenuhi kriteria validitas, reliabilitas, tingkat kesulitan yang sesuai, serta daya pembeda yang baik. Dengan demikian, alat ini berpotensi meningkatkan motivasi dan hasil belajar siswa. Penelitian ini memberikan bukti empiris bahwa Quizizz dapat menjadi alternatif efektif untuk evaluasi pembelajaran matematika di tingkat sekolah dasar.

A. Introduction

In the 21st century, we are witnessing rapid changes and developments in various fields, including technology, communication, education, information, and the economy. One aspect that is very important to pay attention to is education because education is the initial process of shaping a person's character that can trigger various changes. The main challenge in learning in the 21st century lies in improving the quality of character, competence, and basic literacy (Putri & Dwijayanti, 2020).

In education, evaluation is used to formulate policies that support the creation of competitive human resources for the current globalization era. That is why evaluation/assessment is an inseparable part of a unified process in every educational institution. There are at least two purposes for holding an evaluation, namely, to find out / prove the extent of the evaluation participants' understanding after the process, and the evaluation results are used as a benchmark for improving the process (Son, 2019). Competencies expected from learning are not only understanding but also skills. Skills related to student understanding with critical thinking skills. Teachers should build critical thinking skills for students starting from the elementary school level. Critical thinking skills are part of students' ability to observe, analyze, and evaluate previously acquired knowledge based on logical reasoning (Nasution & Nasution, 2020). However, the evaluation approach with conventional test tools and paper media is often less interesting for students and does not fully reflect their abilities holistically.

In the context of learning, data and information are obtained through various activities and events during the teaching and learning process. These activities include actions taken by the teacher, dynamics in the classroom as various activities are carried out, and results obtained by students. Regarding the assessment of mathematics learning in grade VI elementary schools, the evaluation must align with the general objectives and characteristics of mathematics learning (Muhyidin et al., 2017).

Evaluation has an important role in education. It is a tool to measure how students achieve learning objectives with appropriate materials because it can express learning outcomes effectively and clearly (Idrus, 2019). Through evaluation, students can be encouraged to be more active in the continuous learning process, and teachers can improve the quality of learning and present innovations in teaching methods. In addition, schools can also use evaluation results to improve the quality of facilities and the overall teaching and learning process.

Quoted by (Salsabila et al., 2020), learning is the main activity of the educational process in schools, which aims to produce behavioral changes. These changes include cognitive, affective, and psychomotor. This activity requires active learning, participation, and interactive communication between teachers and students. Learning activities must be designed in such a way as to achieve learning objectives. So, it is necessary to innovate by renewing learning evaluation using technology to design interactive evaluation media involving students. As well as the use of technology in evaluation, such as the utilization of Quizizz in grade VI mathematics subjects, can help increase student involvement in the

learning process. This platform allows teachers to provide interactive questions that measure student understanding and make learning more fun.

Mathematics learning needs to be developed because mathematics is closely related to everyday life (Proborini, 2021). Zakaria says, "At present, mathematics is widely used in various fields and covers a wide range of activities," which translates to "Nowadays mathematics is often used in a wide range of things" (Zakaria, 2010). Mathematics learning has a strategic position to develop students' reasoning abilities and can be seen as an exercise to organize students' reasoning, especially in mathematics subjects (Noto, 2014).

However, many students still have difficulty and feel afraid to learn math. This is due to monotonous learning or because it is not fun to learn math, especially when facing exams or tests. Therefore, alternative technology uses are needed to make math fun, one of which is using existing applications provided by third parties (Agustina & Indra, 2019).

Another problem that grounds the need to conduct self-assessment is aroused by the students themselves (Rahayu & Purnawarman, 2019). Moreover, in conducting learning evaluations, it is important to find practical learning assessments for students, especially in mathematics subjects. One possible assessment is learning evaluation using Quizizz.

This quiz is a mobile web application used by users to create learning and quizzes and to take interactive tests (Agustina & Indra, 2019). These quizzes are a great way to help teachers understand the questions. Studies on the use of Quizizz are often conducted. The study entitled "The Effect of using quiz media as an assessment tool in basic accounting learning." This study's results indicate that using Quizizz media as an assessment tool in basic accounting learning provides different results depending on student answers. Seven of the 58 students surveyed stated that they regularly use Quizizz, while the rest (51 students) rarely use this learning media. This result highlights that Quizizz may be used more frequently in specific learning contexts. Interestingly, according to students, Quizizz reduces the intensity of cheating by randomizing the completion time and questions, thus creating a problematic situation for cheating. These results provide valuable insights into the effectiveness of Quizizz in increasing engagement and reducing deception in basic accounting learning (Ramadhani et al., 2022).

The support of media features and learning quizzes in Quizizz also supports achieving more modern and efficient assessment goals by providing data and statistics on student learning outcomes. Statistics can be downloaded as an Excel file. Teachers can track the number of student responses. Quizizz helps teachers conduct assessments without being limited by location, with an attractive presentation and clear time management, guiding students to focus (Purba, 2019). To determine the increase in student concentration, it is necessary to go through an evaluation where the use of the Quizizz platform in grade VI mathematics subjects, a design is made for evaluation in mathematics subjects. With the application of Quizizz as an evaluation tool for grade VI math learning at SDN 1 Toronipa, teachers can design various types of questions that adjust to the level of student understanding. Using gamification features in Quizizz can also increase students' motivation to do questions because they can learn in a more interesting and less boring way. In addition,

the score and ranking system provided in this application encourages students to continue improving their learning outcomes.

Based on the observation of the researcher's discussion with one of the grade VI teachers at SDN 1 Toronipa, it is known that in the learning evaluation process, they still use conventional test tools in the form of paper media when learning *offline*. In addition, for the questions used, the teacher has never used an evaluation that uses technology for students – utilizing Chromebooks from the Konawe district government and smartphones owned by students becomes a solution for designing evaluations. Students often consider mathematics difficult because it requires a deep understanding of concepts and good problem-solving skills. The results of observations at the school show that some grade VI students still have difficulty understanding basic mathematical concepts. Because these students feel that the concept of boring math learning wants to be more interactive and fun in the tests given, it is necessary to innovate the learning evaluation method at the school to provide students with understanding and learning outcomes. To overcome this, it is necessary to design an evaluation tool using Quizizz, which will be used to support math learning. Amany (2020), suggests that the features of Quizizz are very supportive of being used as a fundamental learning evaluation tool. Therefore, it is necessary to describe the features and uses of Quizizz so that users can make the most of it and students can get used to thinking critically and be more motivated to do evaluations.

This study aims to design learning evaluation tools using Quizizz in mathematics subjects that are valid, practical, and effective. Based on the above background, researchers tried to raise this issue in the title "Designing Learning Evaluation Using Quizizz in Mathematics Subjects Class VI SD Negeri 1 Toronipa". This research can also provide information for teachers in implementing Quizizz as an evaluation tool. This research has benefits for students, teachers, and schools. The benefit for students is that they can hone their abilities in technology and increase their interest in math lessons to be more fun. The benefit for teachers is that they can provide knowledge and make modern innovations. The benefit for schools is that it can be used to improve facilities and infrastructure in the quality of teaching and learning.

This research is expected to improve the quality of mathematics learning, facilitate the evaluation process for teachers, and provide a more enjoyable and meaningful learning experience for students by developing an evaluation tool using Quizizz. This study also contributes to further research exploring the effectiveness of digital evaluation in education.

B. Method

The type of research used in this study is R&D (Research and Development) development research. In this design research, researchers used the 4D development model developed by Sivasailam Thiagarajan, Dorothy S. Semmel, and Melvyn I. Semmel in 1974. With the *defining stage* or *define*, the *design stage* or *design*, the development stage or *develop*, and the *dissemination stage* or *disseminate*. This development research aims to design a valid, reliable, and effective mathematics learning evaluation tool using Quizizz. According to

(Zahroh & Sudira, 2014), the *define* stage includes literature and field survey study activities for problem identification and needs analysis, and the *design* stage includes initial product design activities. The *developing* stage includes expert validation activities, product reviews, and individual and small group tests, while the *disseminated* stage includes field activities. Field activities. Social media activities and product reviews have been completed.

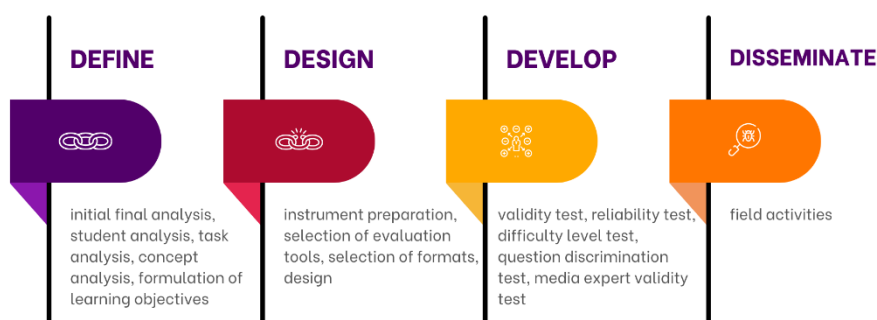


Figure 1. 4D Development Model

The subject of this study was grade VI of SDN 1 Toronipa. Mr. Maldisan had 10 students or respondents, with details of female and male each. This research was conducted at SDN 1 Toronipa in the 2024/2025 school year, which is located in Atowatu village, esotropia sub-district, Kona we district. Data collection techniques were carried out by observation to explore existing evaluation methods in the classroom with discussions with the VI-grade teacher. Testing is done by applying a test with 25 multiple-choice questions.

This instrument is a math evaluation question developed and presented through the Quizizz platform, which amounts to 25 multiple-choice questions arranged based on the fundamental competency indicators of the grade VI curriculum. The choices use a multiple-choice format with four answer choice options to measure students' understanding of mathematical concepts, especially in materials such as fractions, decimals, percentages, whole numbers, and building spaces. The test results were used to analyze the questions' validity, Reliability, difficulty level, and differentiation. To obtain information related to the analysis of test instruments about validity, Reliability, differentiation of questions, and difficulty tests, several references, books, articles, and literature are needed according to the needs of writing this article. Thus, the *research and development* method with the 4D model is used (Saputri et al., 2023).

In this study, the data obtained were analyzed using statistical techniques and validation methods to test the quality of instrument evaluation and media validity in the validity test using Pearson product-moment correlation to measure the relationship between the score on each item and the total test score. The item is declared valid if the correlation between the item and the total score is high and significant. The reliability test used the Cronbach's Alpha formula, which calculates the internal consistency between items in the instrument. Test of difficulty This IndexIndex is calculated based on the proportion of correct answers to total participants. Test of item discrimination Grouping participants into two

groups based on their total score: the group with the highest score and the group with the lowest score. Media or instrument experts conducted The Media Expert Test using Aiken's V formula. This formula calculates the validity value based on the score given by the expert on a certain number of aspects (e.g., appearance, ease of use, etc.).

C. Result and Discussion

Result

The stages in designing a math learning evaluation using Quizizz are as follows.

Defining Stage (*Define*)

In this definition, development needs analysis activities are carried out, product development requirements are based on user needs, and research and development models (Mulyatiningsih, 2016) R&D are suitable for developing products. The defining stage includes five main steps, which are as follows.

- 1) Early-late analysis was carried out by collecting information in the form of problems in the learning process and examinations (*tests*), which were obtained through discussions with the VI-grade homeroom teacher at SDN 1 Toronipa. It was known after the results of the observation on Monday, December 23, 2024. The class teacher has never used an evaluation tool using Quizizz, and students have also never carried out learning evaluations using technology in the form of Quizizz.
- 2) Learner Analysis aims to provide a deeper analysis of students' characteristics related to background knowledge in mathematics subjects.
- 3) Task Analysis prepared based on the basic competencies and indicators of achievement of grade VI competencies. The evaluation tool consists of one package of questions with 25 multiple-choice questions each.
- 4) Concept Analysis, arranged systematically according to the material studied. The material used in this evaluation tool is fractions, including ordinary fractions, mixed fractions, decimals, percentages, whole numbers, and building space.
- 5) Formulation of Learning Objectives, analyzed based on the indicators listed in the syllabus and lesson plans, and its elaboration based on concept and task analysis results. The distribution of test instruments to students was carried out on Monday, December 30, 2024, and accompanied by the homeroom teacher of grade VI SDN 1 Toronipa.



Figure 2.
Test Instrument
Deployment



Figure 3.
Execution of the test
instrument



Figure 4.
Final
result/
documentation

Design Stage

The design stage includes four main steps, the details of which are as follows.

- 1) Preparation of Instruments: This stage aims to compile instruments, namely indicator statements, into specific instrument items.
- 2) Selection of Evaluation Tools, namely the Quizizz application, for the evaluation tool used.
- 3) Format selection: This is used to design an evaluation by making a question grid according to the curriculum.
- 4) Design: At this stage, a design is made using Figma for evaluation using Quizizz, and questions are first compiled directly in Quizizz. The questions designed amounted to 25 multiple-choice questions with *multiple-choice* features that have four answer-choice options.

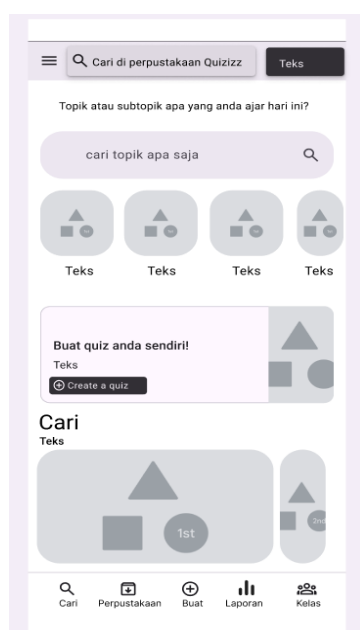


Figure 5.
Home Menu



Figure 6.
Quiz Menu

Development Stage (*Develop*)

After the design stage has been completed, the development stage is then carried out by testing the validity, Reliability, differentiation test of the questions, and difficulty test by processing the items quantitatively to determine the level of validity or invalidity of a systematic question covering aspects of the material that has been studied in mathematics learning at SDN 1 Toronipa. The trial was conducted on 10 students in class VI. The test results were administered by administering a quiz sheet with several questions. These 25 multiple-choice numbers have been compiled and will have a validity of approximately 10 questions (Purnamasari, 2015).

Validity Test

Validity shows the extent to which the instrument measures what should be measured. Sugiyono stated that the validity test is a testing step carried out on an instrument's content to measure the instrument's accuracy used in a study (Azhar & Adri, 2008).

Table 1. Problem Validity Test Results

Respondent	Number of Questions	R table	R count	Status
10	25	0,632	0,911 \geq 0,632	Valid
		0,632	0,007 \leq 0,632	Not Valid
Total Valid	15			
Number of Invalid	10			

Table 1 shows that the data has 10 student respondents, and the questions tested amounted to 25 multiple-choice numbers. With each response, "1" indicates the correct answer, and "0" indicates the wrong answer. In calculating the total score of one student answering 25 questions correctly, the "SUM" formula in EXCEL calculates the total number of student responses to the questions tested. The determination of the R table value depends on the selected significance level ($\alpha = 0.05\%$), and the degree of freedom (df) is calculated based on the number of students and questions so that the R table value is (0.632). The determination of the calculated R-value is the correlation coefficient between the item score and the total score. It measures the strength of the relationship between students' performance on that item and their overall performance on the test; a high R-value indicates that the item is a consistently stronger measure of the test as a whole. Determining the validity status of whether the question is valid or invalid is based on comparing the R count and the R table. We take a sample of questions with the highest value numbered 24, with R counts totaling (0.911) and R tables totaling (0.632). The status is declared "Valid," while for R counts with the lowest value numbered 15 totaling (0.007) while R tables (0.632), then the status is declared "Invalid." The recapitulation of the number of valid and invalid questions provides a quantitative summary of the validity results to evaluate the quality of the questions with the valid number "15" and invalid "10".

Reliability Test

According to (Sugiyono, 2012), Reliability Reliability measures the consistency of an instrument's results when used repeatedly. Reliability refers to the understanding that the instruments used in research to obtain information can be trusted as data collection tools and can reveal actual information in the field (Aniceto, 2015). In this study, the reliability test used is a measuring instrument with the *Cronbach Alpha* technique from (Yusup, 2018) with the formula.

$$r_{11} = \frac{k}{k - 1} x \left\{ 1 - \frac{\sum S_i}{S_t} \right\}$$

- r_{11} : Cronbach's Alpha Coefficient 0.2 Very low
- k : Number of items 0.4 Low
- $\sum S_i$: Total variance of each item 0.6 fair
- S_t : Total variance 0.8 high
- 1.0 very high

The significance level is 95%, so the items are declared reliable, which means that to find the correct data, the authors use an error rate of 5% with the help of Microsoft EXCEL.

Table 2. Problem Reliability Test Results

Respondent	r_{11}	k	$\sum S_i$	S_t
10	0,960	15	3.111	30.044
Status	Very High			

Table 2 shows the results of reliability analysis using the *Cronbach Alpha* method, which is commonly used to measure the internal consistency of a test or instrument. From the respondents' data and the answers studied, "Abu Risal and Muh Andi Fajar" have inconsistent answer patterns with many "0" answers, which can also affect overall Reliability. Whereas "Nesa Astiani and Muh Akbil" show a consistent answer pattern, with most answers "1", this contributes to high Reliability. Inconsistent answers could be due to a lack of understanding of the questions, lack of motivation, or other technical issues. In further analysis, it is important to investigate the reasons behind the inconsistent answer patterns.

The significance of *Cronbach's Alpha* value (0.960) indicates that this instrument has a very high level of Reliability, with each line item variance value of (0.226, 0.233) and so on. This means that the items in this test consistently measure the same construct. Statistically, *Alpha Croncah* measures the proportion of total score variance attributable to the actual score variance. The value (0.960) means that 96.05% of the total score variance is due to the actual score variance, and only 3.95% is due to measurement error. It can be concluded that there is strong evidence that the instrument tested has excellent Reliability with a high *Cronbach's Alpha* value (0.960), which is supported by the corresponding item variance and total variance. With the following calculation formula.

- $R_{11} = (k / (k - 1)) * (1 - (\sum s_i / S_t))$
- $K =$ number of items (15)
- $\sum s_i =$ sum of item variances (3,111)
- $S_t =$ total variance (30.044)
- $R_{11} = (15 / (15 - 1)) * (1 - (3,111 / 30,044)) = 0,9605.$

Test Item Level of Difficulty

The Item level of difficulty is a crucial statistical measure in item analysis and test development. This difficulty analysis is important in ensuring that the test has an appropriate

difficulty level and can provide accurate information about test takers' abilities. This study's difficulty level analysis used the formula from Arikunto (2015).

$$P = \frac{B}{Js}$$

- P = Question difficulty level
- B = number of correct students
- Js = Total number of students taking the test

The P value ranges from 0.00 to 1.00. A value of 0.00 means no students answered correctly (the question is very difficult). Whereas if the value is 1.00, it means that all students answered correctly (the question is very easy). In evaluation terms, this difficulty index is given the symbol P (large p), which stands for the word "proportion." Thus, a question with P = 0.70 is easier when compared to P = 0.20. Conversely, questions with P = 0.30 are more difficult than questions with P = 0.80.

Table 3. Results of Problem Difficulty Level

Problem	Index	Criteria
Problem 1	0,60	Medium
Problem 2	0,70	Medium
Problem 3	0,60	Medium
Problem 4	0,60	Medium
Problem 5	0,90	Easy
Problem 6	0,70	Medium
Problem 7	0,60	Medium
Problem 8	0,70	Medium
Problem 9	0,90	Easy
Problem 10	0,70	Medium
Problem 11	0,70	Medium
Problem 12	0,60	Medium
Problem 13	0,60	Medium
Problem 14	0,70	Medium
Problem 15	0,80	Easy

The research concluded from the results of the formula calculation of 15 questions, of which 12 questions were categorized as "MEDIUM" and three as "EASY." In calculating the percentage of "MEDIUM," where (number of moderate questions / total questions) * 100%, then (12 / 15) * 100% = 80%. Meanwhile, in the percentage of "EASY," where (number of easy questions / total questions) * 100% and then (3 / 15) * 100% = 20%.

Of the 15 questions analyzed, 80% are categorized as questions with a difficulty level of "MEDIUM." This means that most of the questions in this test have a moderate level of difficulty, which is not too difficult and not too easy for the students being tested. Meanwhile, 20% of the questions are categorized with an "EASY" difficulty level. This indicates that a small number of questions in this test are relatively easy for students to answer. So, it can be

concluded that most of the questions in this test have a "MEDIUM" level of difficulty, with a small number of "EASY" questions.

However, in this context, the difficulty level of questions that tend to be "MEDIUM" is not the main problem because the research focuses on designing mathematics evaluation using quizzes as an effective and engaging evaluation tool. The level of difficulty of the questions can be adjusted based on student needs and learning objectives. This research can provide useful information on how Quizzes can be used to improve the quality of learning, especially in mathematics lessons in class VI SDN 1 Toronipa.

Question Differentiability Test

Differentiability analysis refers to a study related to a test's ability to distinguish students from the low and high categories. Distinguishing power measures the ability of a problem to distinguish between high and low-ability students. In this study, the differentiation analysis was carried out using a certain formula Magdalena et al. (2021). The results of the differentiation analysis are as follows:

$$ID = \frac{UG - LG}{N}$$

Description:

ID = Index of discrimination (differentiating power)

N = Half of the number of test takers in two groups

UG = number of groups for the correct answer

LG = number of groups for wrong answers

If the number of test takers is more than 30, the division of the lower group is 27%. Meanwhile, if the number of test takers is less than 30, the division of the upper and lower groups is 50%. Half the number of students is 50%, whereas 10 students are divided into two groups: five with the highest and five with the lowest.

Table 4. Differentiated Test Results

Problem	UG	LG	Index	Category
Problem 1	5	1	0,80	Very Strong
Question 2	5	2	0,60	Good
Problem 3	4	2	0,40	Medium
Problem 4	4	2	0,40	Medium
Problem 5	5	4	0,20	Weak
Problem 6	5	2	0,60	Ok
Question 7	5	1	0,80	Very Strong
Problem 8	5	2	0,60	Good
Problem 9	5	4	0,20	Weak
Problem 10	5	2	0,60	Ok
Problem 11	5	2	0,60	Ok
Problem 12	4	2	0,40	Medium
Problem 13	5	1	0,80	Very Strong
Problem 14	5	2	0,60	Good

Problem	UG	LG	Index	Category
Problem 15	5	3	0,40	Medium

Item Differentiation Level:

- 0,71 - 1,00 = Extreme differentiating power, excellent question
- 0,41 - 0,70 = Good differentiating power, good question
- 0,21 - 0,40 = Moderate discriminating power, fair question
- 0,00 - 0,20 = Weak differentiating power. The question is not good.

Media Expert Validation Test: A quiz evaluation tool is used after revising the responses and suggestions of the supervisor, and then it is submitted to three media experts. The results of the validity assessment were calculated using the Aiken formula (1985) with the following formula.

$$V = \frac{\sum S}{[N(C - 1)]}$$

Content validity criteria:

- 0,8 - 1 = Very high validity
- 0,6 - 0,79 = High validity
- 0,40 - 0,59 = Medium validity
- 0,20 - 0,39 = Low validity
- 0,00 - 0,19 = Very low validity

Table 5. Summary of Media Expert Validation Test Results

Indicator	Media Expert			S1	S2	S3	Σs	n(c-1)	V	Note
	I	II	III							
Item 1-20	78	80	92	58	60	72	190	240	0.792	High

From Items 1-20, this indicates that media experts assess 20 statements or aspects. Expert Assessment (I, II, III): 78, 80, and 92 are the scores or values the three media experts gave for the overall aspects assessed. S₁, S₂, S₃: 58, 60, 72 These are scores or values for specific sub-aspects or separate assessments from media experts. Sigma s 190 is the sum of S₁, S₂, and S₃: 58 + 60 + 72 = 190. N(c-1), 240 is the ideal maximum value or criteria used in the validity calculation. 'n' could be the number of items (20), and 'c' could be the rating scale used by the media expert. If the scale is 5, then (5-1) = 4, and 20 * 4 = 80. However, the value of 240 is much higher, so it is necessary to ascertain how this value was obtained. V: 0.792 This is the validity coefficient calculated based on the assessment of media experts. Note: High. This is the interpretation of the validity coefficient, indicating high validity.

Disseminate Stage

In the context of research on designing learning evaluations using Quizizz in mathematics subjects in class VI SDN 1 Toronipa, field activities are the core of the dissemination stage. It is not just about conveying the research results but also about

ensuring that the evaluation tools developed can be implemented effectively and provide real benefits for students and teachers.

By conducting structured and interactive field activities, researchers can ensure that the research results are disseminated and effectively implemented to improve the quality of learning at SDN 1 Toronipa.

Discussion

Designing a valid learning evaluation using Quizizz with validity testing to measure the accuracy of the evaluation instrument. The result is that 15 out of 25 questions were declared valid, indicating an adequate level of accuracy. Reliability, or reliability test using the *Cronbach Alpha* method, measures the instrument's internal consistency, with results (0.960) indicating very high Reliability. Test the difficulty level of the questions, ensuring that the questions have an appropriate level of difficulty. The result is that 80% of the questions are categorized as medium and 20% easy, showing a proportional distribution. Moreover, the test of the questions' differential power shows the questions' ability to distinguish students with high and low scores. As a result, most of the questions have good or excellent differentiation.

Based on the formulation of the problems described, learning evaluations that still rely on conventional paper tests in face-to-face learning require innovative solutions. One alternative that can be applied is to make updates in learning evaluation by utilizing technology to design interactive evaluation media that involve students (Agustina & Indra, 2019). In addition, finding effective assessment methods for students, especially in mathematics subjects, is significant in implementing learning evaluation. One possible assessment method is learning evaluation through the Quizizz platform. Quizizz is a platform that can be accessed for free, both in the form of applications and websites, which are designed to compile interactive test games and can be used to assess student learning outcomes. Amany (2020), suggests that the features of Quizizz are very supportive of being used as a fundamental learning evaluation tool.

The evaluation test results at SDN 1 Toronipa show that some students in grade VI still have difficulty understanding basic math concepts. The evaluation results conducted at SDN 1 Toronipa show that some students in grade VI still have difficulty understanding basic math concepts. This research indicates that grade VI students at SDN 1 Toronipa, in general, still face challenges in understanding basic mathematics materials. This can be seen from the difficulty level test results, where most of the questions presented are in the medium to easy difficulty category. Quizizz, which is equipped with various interactive features, can help students in the math learning process more interestingly. The feedback provided directly by the platform also plays an important role in helping students understand concepts that are considered difficult (Purba, 2019). In addition, teachers can more easily identify where students are having difficulties, allowing them to provide appropriate interventions.

According to the validation test from media experts, the evaluation tool for learning mathematics created using Quizizz shows high validity with a coefficient of 0.792. This

indicates that the tool is considered suitable and quality by media experts regarding design, use of Quizizz features, and ability to assess student understanding and skills.

D. Conclusion

This study successfully designed and developed a math learning evaluation tool using Quizizz on fraction material, namely ordinary fractions, mixed fractions, decimals, percentages, whole numbers, and building space, for grade VI students of SDN 1 Toronipa. This evaluation tool has proven valid and reliable, has an appropriate difficulty level, and has good differentiating power. The results showed that Quizizz is effective as an engaging and interactive evaluation tool and can increase student motivation and learning outcomes.

This research provides empirical evidence that Quizizz can be an effective alternative for evaluating mathematics learning in elementary schools. Teachers can use Quizizz to create more interesting and interactive evaluations, increasing student engagement and motivation in mathematics learning.

Further research that implements these points will significantly contribute to improving the quality of mathematics learning and evaluation. Thus, this study provides valuable insights for educators and researchers about Quizizz's potential as an effective and innovative mathematics learning evaluation tool.

References

- Agustina, L., & Indra, M. R. (2019). Pembelajaran Matematika Menyenangkan dengan Aplikasi Kuis Online Quizizz. *AL-IDARAH Jurnal Kependidikan Islam*, 9.
- Amany, A. (2020). Quizizz sebagai Media Evaluasi Pembelajaran Daring Pelajaran Matematika. *Buletin Pengembangan Perangkat Pembelajaran*, 2(2), 1-11.
- Aniceto, S. E. V. A. (2015). *Analisis Faktor-Faktor Penyebab Keterlambatan pada Proyek Konstruksi Pemerintah dan Swasta di Timor Leste* (Doctoral dissertation, UAJY).
- Azhar, N., & Adri, M. (2008). Uji Validitas dan Reliabilitas Paket Multimedia Interaktif. Retrieved from https://www.academia.edu/download/11234617/nelda_adri_makasemnas2008.pdf
- Idrus, L. (2019). Evaluasi dalam Proses Pembelajaran. *Adaara: Jurnal Manajemen Pendidikan Islam*, 9(2), 920-935. <https://doi.org/10.35673/ajmpi.v9i2.427>
- Magdalena, I., Fauziah, S. N., Faziah, S. N., & Nupus, F. S. (2021). Analisis Validitas, Reliabilitas, Tingkat Kesulitan dan Daya Beda Butir Soal Ujian Akhir Semester Tema 7 Kelas III SDN Karet 1 Sepatan. *Bintang: Jurnal Pendidikan dan Sains*, 3(2), 198-214. <https://doi.org/10.36088/bintang.v3i2.1291>

- Muhyidin, A. (2017). Evaluasi Pembelajaran Membaca Permulaan di Kelas Awal Sekolah Dasar. *MODELING: Jurnal Program Studi PGMI*, 4(2), 139-146. <https://doi.org/10.69896/modeling.v4i2.115>
- Mulyatiningsih, E. (2016). Pengembangan Model Pembelajaran. Retrieved from <https://www.academia.edu/download/32798229/7cpengembangan-model-pembelajaran.pdf>
- Nasution, W. H. R., & Nasution, A. S. (2021). Quizizz: Science Learning Media in Elementary School in Developing Critical Thinking Skills. *Journal of Science Education Research*, 5(1), 26-30.
- Noto, M. S. (2014). Perangkat Pembelajaran Matematika Berbasis SMART (Specific, Measurable, Achievable, Realistic, and Time-bound). *Infinity Journal*, 3(1), 18-32.
- Proborini, E. (2021). Evaluasi Pembelajaran Matematika Secara Daring Pada Siswa Kelas VI SD Karangturi. *Intelligentes: Jurnal Pendidikan Fisika dan Sains*, 2(2), 1-7.
- Purba, L. S. L. (2019). Peningkatan Konsentrasi Belajar Mahasiswa Melalui Pemanfaatan Evaluasi Pembelajaran Quizizz pada Mata Kuliah Kimia Fisika I. *Jurnal Dinamika Pendidikan*, 12(1), 29-39.
- Purnamasari, A. (2015). Pengembangan Alat Evaluasi Pembelajaran Berbasis Teknologi Informasi dan Komunikasi dengan Wondershare Quiz Creator Materi Sistem Penilaian Persediaan. *Jurnal Pendidikan Akuntansi (JPAK)*, 3(2), 1-10.
- Putri, N. W., & Dwijayanti, R. (2020). Pengembangan Alat Evaluasi Bantuan Aplikasi "Quizizz" pada Mata Pelajaran Marketing Kelas X Jurusan BDP di SMK Negeri 10 Surabaya. *Jurnal Pendidikan Tata Niaga (JPTN)*, 8(3), 985-991. <https://doi.org/10.26740/jptn.v8n3.p985-991>
- Rahayu, I. S. D., & Purnawarman, P. (2019). The Use of Quizizz in Improving Students' Grammar Understanding Through Self-Assessment. In *Eleventh Conference on Applied Linguistics (CONAPLIN 2018)*, 102-106. Atlantis Press. <https://doi.org/10.2991/conaplin-18.2019.235>
- Ramadhani, M., Zulfa, N. F., Pasha, P. R., Fauzan, S., & Ashad. (2022). Efektivitas Penggunaan Media Quizizz sebagai Alat Evaluasi dalam Pembelajaran Akuntansi Dasar. *Prosiding National Seminar on Accounting, Finance, and Economics*, 2(3), 134-144.
- Salsabila, U. H., Habiba, I. S., Amanah, I. L., Istiqomah, N. A., & Difany, S. (2020). Pemanfaatan Aplikasi Quizizz sebagai Media Pembelajaran Ditengah Pandemi pada Siswa SMA. *Jurnal Ilmiah Ilmu Terapan Universitas Jambi*, 4(2), 163-172. <https://doi.org/10.22437/jiituj.v4i2.11605>
- Saputri, H. A. S., Zulhijrah, Nabila Joti Larasati, & Shaleh. (2023). Analisis Instrumen Assesmen: Validitas, Reliabilitas, Tingkat Kesukaran dan Daya Beda Butir

Soal. *Didaktik: Jurnal Ilmiah PGSD STKIP Subang*, 9(5), 2986-2995.
<https://doi.org/10.36989/didaktik.v9i5.2268>

Son, A. L. (2019). Instrumentasi Kemampuan Pemecahan Masalah Matematis: Analisis Reliabilitas, Validitas, Tingkat Kesukaran dan Daya Beda Butir Soal. *Gema Wiralodra*, 10(1), 41-52. <https://doi.org/10.31943/gemawiralodra.v10i1.8>

Yusup, F. (2018). Uji Validitas dan Reliabilitas Instrumen Penelitian Kuantitatif. *Tarbiyah: Jurnal Ilmiah Kependidikan*, 7(1), 17-23. <https://doi.org/10.18592/tarbiyah.v7i1.2100>

Zahroh, S. M., & Sudira, P. (2014). Pengembangan Perangkat Pembelajaran Keterampilan Generik Komunikasi Negosiasi Siswa SMK dengan Metode 4-D. *Jurnal Pendidikan Vokasi*, 4(3), 379-390. <https://doi.org/10.21831/jpv.v4i3.2561>

Zakaria, E., Chin, L. C., & Daud, M. Y. (2010). The Effects of Cooperative Learning on Students' Mathematics Achievement and Attitude Towards Mathematics. *Journal of Social Sciences*, 6(2), 272-275. <https://doi.org/10.3844/jssp.2010.272.275>