

Development of Evaluation Tools Using Quizizz for Elementary School

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ABSTRACT: This study aims to test the validity of the validation sheet instrument used in the development of Quizizz-based evaluation media for elementary school students. The research adopts a Research and Development (RnD) method, focusing on the instrument validation stage. The validation process was carried out by three groups of experts: subject matter experts, media experts, and education practitioners. The instrument was assessed using a 1–5 Likert scale, which was then analyzed using Aiken's V technique to measure the validity level. The validation results show that the Aiken's V values for each expert were 0.88 (subject matter expert), 0.85 (media expert), and 0.91 (education practitioner), all of which fall into the "Highly Valid" category. Based on these results, the instrument is deemed suitable for use in the development of Quizizz-based evaluation media as an aid in the learning process at the elementary school level.

KEYWORDS: Instrument Validation, Evaluation Media, Quizizz, Aiken's V, Learning Media Development.

A. INTRODUCTION

The Fourth Industrial Revolution (Industry 4.0) has had a significant impact on various aspects of life, one of which is education. This digital era requires the education system to adopt technology to improve the efficiency and quality of learning. The concept of Education 4.0 aims at utilizing information and communication technology (ICT) to create a more adaptive, interactive, and efficient learning experience (Ismuhadi et al., 2023). In this context, managing technology-based learning has become a necessity to enhance the effectiveness of the teaching and learning process and meet the needs of the millennial generation, who are accustomed to technological advancements (Agustian, 2024).

One of the major changes resulting from the Fourth Industrial Revolution is the implementation of digital-based learning. Technology has brought changes in the way teaching and learning are conducted, from the use of learning software to application-based learning. The presence of digital learning media, such as applications and technology-based learning platforms, has shifted the paradigm of education that previously relied on conventional methods (Hidayatullah et al., 2023). Digital learning provides opportunities for students to access information more easily, interact more dynamically, and receive immediate feedback, which overall enriches their learning experience (Bates, 2020).

In the context of learning evaluation, the role of technology is just as important. Evaluation is a key component of the education system that functions to measure the achievement of learning goals. A good evaluation not only helps teachers to determine the extent to which students understand the material taught but also provides constructive feedback to improve the quality of the learning process. Effective evaluation must be supported by valid and reliable instruments so that the results obtained can be accounted for (Al-Faruq, 2023). Unfortunately, many teachers in schools still rely on conventional evaluation methods, such as written exams conducted manually. These methods often fail to fully explore the potential of students and can reduce the appeal of learning, especially in the digital age, which is filled with new challenges and opportunities (Ayu et al., 2021). Several studies have shown that the use of technology-based learning platforms can increase student motivation and learning outcomes. One such platform that is widely used is Quizizz, a gamified evaluation application that offers a more interactive and enjoyable learning experience. Quizizz allows teachers to create quizzes that can be tailored to the needs of the learning process, as well as features such as randomization of questions, real-time rankings, and automatic result reports that provide immediate feedback to students. These features not only increase student motivation but also accelerate the evaluation process for teachers (Bury, 2017; Zhao, 2019; Rajendran, Naaim, & Yunus, 2019). Several previous studies have shown that the use of Quizizz in learning has been proven to significantly improve student learning outcomes, both in terms of knowledge and skills (Albeta, Nofianti, & Rahmadani, 2020; Grinias, 2017). This platform also provides an opportunity for students to learn in a more enjoyable way, thus reducing boredom and increasing their involvement in the learning process.

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However, despite the many benefits offered by digital platforms such as Quizizz, many schools have yet to utilize them to their full potential. Based on observations made at SDN 29 Sungai Limau, most teachers still rely on manual, more conventional evaluation methods. This presents a challenge in the learning process, given the need to improve the quality of evaluation and adapt technological advancements in the education sector. Therefore, the development of a Quizizz-based evaluation media is needed to address this issue.

The development of Quizizz-based evaluation media is expected to improve the effectiveness of learning evaluation at SDN 29 Sungai Limau and make it easier for teachers to conduct valid and reliable evaluations. The development of this media requires a valid instrument for validation to ensure the quality of the developed evaluation media. This validation instrument will involve various experts, including subject matter experts, media experts, and education practitioners, to ensure that the evaluation media meets the established standards. This validation is crucial to ensure that the Quizizz-based evaluation media is not only effective in improving student learning outcomes but also widely accepted by teachers and students in the evaluation process.

B. RESEARCH METHODOLOGY

This research aims to develop and validate an evaluation instrument based on Quizizz for learning Science and Social Studies (IPAS) in Grade IV of elementary school. To achieve this goal, the approach used is Research and Development (R&D), adopting the ADDIE development model (Analysis, Design, Development, Implementation, Evaluation). This research focuses on the development and validation of instruments, particularly in the Development stage. Below is a detailed explanation of the methodology used in this study.

1. Research Paradigm and Approach

The paradigm used in this study is a quantitative and qualitative approach based on Research and Development (R&D). This approach was chosen because R&D research is designed to develop specific products or instruments aimed at solving problems found in the field, in this case, the development of Quizizz-based evaluation instruments (Borg & Gall, 1983). This approach allows researchers to design and test instruments in real contexts to assess how well the instrument meets the desired objectives (Richey & Klein, 2007).

2. Development Model

The development model used is ADDIE, a model widely used in various media development research. This model consists of five main stages:

a. **Analysis:** At this stage, the researcher identifies the existing problems and analyzes the need for the development of Quizizz-based evaluation instruments. This analysis is conducted by considering the needs of IPAS learning for Grade IV elementary school and the constraints in the previous evaluation process (Dick & Carey, 2005). The researcher also surveys teachers and students to determine the media commonly used and the challenges faced in the existing learning process.

b. **Design:** In this stage, the researcher designs the validation instrument consisting of indicators related to the content, appearance, and interactivity of the media. These indicators are important to ensure that the developed instrument meets the quality standards related to the learning objectives. The design of the instrument is created with consideration of the characteristics of Grade IV students, ensuring that the instrument is suitable for their level of understanding (Gagne, Briggs, & Wager, 2005).

c. **Development:** In this stage, the researcher develops the instrument based on the design that has been previously created. This instrument development involves competent parties such as subject matter experts, media experts, and education practitioners to validate the developed instrument. After the instrument is developed, the next step is to conduct an instrument validity test by validators to ensure the instrument's feasibility and effectiveness (Richey & Klein, 2007).

d. **Implementation:** Although the implementation stage is not carried out in this research, this stage generally involves applying the instrument in actual classroom activities where the instrument is tested on students to see how it functions in daily learning contexts.

e. **Evaluation:** Evaluation is conducted to determine the extent to which the developed instrument achieves the desired objectives. This evaluation is performed by measuring the effectiveness of the instrument in improving student learning outcomes and assessing its validity, practicality, and effectiveness.

However, this research only reaches the Development stage, where the researcher develops the instrument and conducts validation of the instrument.

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3. Research Location and Time

This research is conducted at SDN 29 Sungai Limau, Sungai Limau District, Padang Pariaman Regency, one of the elementary schools in West Sumatra. The location was chosen because the school has access to the technology required to implement Quizizz-based learning media and has a sufficient number of students to represent the research sample. This research is conducted from June to August 2025. During this period, the developed instrument will be tested on Grade IV students to obtain valid data on the effectiveness and practicality of the developed instrument.

4. Data Types and Sources

In this research, the data collected consists of two types of data: quantitative and qualitative data.

a. **Quantitative Data:** Quantitative data is obtained from the validation scores given by the validators. These scores use a Likert scale of 1–5, covering indicators related to the content, appearance, and ease of use of the instrument. This data also includes the practicality and effectiveness scores of the media, measured through questionnaires filled out by teachers and students.

b. **Qualitative Data:** Qualitative data is obtained from interviews with teachers, students, and education practitioners involved in this study. Interviews are conducted to explore more deeply the media learning needs and their responses to using the developed instrument.

5. Data Collection Instruments

The instrument used in this research is a validation sheet, which is filled out by subject matter experts, media experts, and education practitioners. This validation sheet contains indicators that assess aspects such as content feasibility, appearance quality, and ease of use of the instrument by teachers and students. The assessment uses a Likert scale of 1–5, with five answer choices that reflect the instrument's feasibility level: very unsuitable, unsuitable, fairly suitable, suitable, and very suitable.

6. Data Analysis Techniques

The data analysis techniques used in this research are several methods suitable for testing the Quizizz-based evaluation instrument.

a. **Instrument Validity Test:** The instrument validity test is conducted using Aiken's V technique. This test measures how well the developed instrument meets the validity criteria established by the experts. The formula used in calculating Aiken's V is as follows:

$$V = \frac{\sum s}{n(c-1)}$$

where:

- a. s is the score given by the validator minus the minimum score,
- b. n is the number of validators,
- c. c is the number of rating scales used in the instrument.
- d. Interpretation of Aiken's V values is as follows:
- e. **0.667:** Valid
- f. **86–100%:** Very Valid
- g. **76–85%:** Valid
- h. **60–75%:** Fairly Valid

This formula allows the researcher to determine whether the developed instrument meets validity standards or needs further improvement (Aiken, 1985).

- a) **Practicality Test:** The practicality of the media evaluation is measured using a questionnaire filled out by teachers and students. Practicality is measured using the following formula:

$$DP = \frac{\sum \text{Actual Scores}}{\text{Maximum Ideal Score}}$$

Practicality criteria are divided into three categories:

- a. **86–100%:** Very Practical
- b. **76–85%:** Practical
- c. **60–75%:** Fairly Practical

This practicality test aims to assess how feasible the developed evaluation media is to use in real learning situations and whether the instrument is easy for teachers and students to use.

- b) **Effectiveness Test:** Effectiveness is tested by examining two important aspects:

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1. **Practitioner Assessment:** Education practitioners, such as teachers and supervisors, will assess the feasibility of the media based on their experience using it in learning.
2. **Comparison of Student Learning Outcomes:** A comparison of student learning outcomes before and after using the Quizizz-based media will be analyzed to see the impact of using the media on students' learning outcomes. This effectiveness test aims to measure whether the Quizizz-based evaluation media can improve student learning outcomes (Clark & Mayer, 2016).

C. RESULTS

The results of the validation of the instrument are shown in the following table:

Aspect Evaluated	Validator	Aiken's V Score	Interpretation
Content Suitability	Subject Matter Expert	0.87	Very Valid
Display Quality	Media Expert	0.83	Very Valid
Interactivity	Education Practitioner	0.79	Valid

In this study, validation was performed on the validation sheet instrument used in the development of Quizizz-based evaluation media. The validation process involved three types of validators: a subject matter expert, a media expert, and an educational practitioner. The results of this validation were obtained using the Aiken's V scale, which measures the extent to which the instrument meets the pre-established validity criteria. The Aiken's V scores obtained show the validity level of the instrument in various evaluated aspects.

1. **Content Suitability (Aiken's V Score = 0.87)**
 - a. Validator: Subject Matter Expert
 - b. Interpretation: Very Valid
 - c. The assessment of content suitability was conducted by the subject matter expert to ensure that the content in the instrument aligns with the learning objectives and material being taught. The Aiken's V score of 0.87 indicates that the content of this instrument is very valid and can be used to support the established learning objectives. This shows that the material presented is in line with the applicable educational standards.
2. **Display Quality (Aiken's V Score = 0.83)**
 - a. Validator: Media Expert
 - b. Interpretation: Very Valid
 - c. The assessment of the display quality of the instrument was carried out by the media expert to evaluate the design and visual presentation of the instrument. The Aiken's V score of 0.83 indicates that the display of the instrument is very valid and engaging. A good display quality is essential to support student comfort and engagement in using the learning media. An appealing and appropriate display will facilitate students' understanding of the material being presented.
3. **Interactivity (Aiken's V Score = 0.79)**
 - a. Validator: Education Practitioner
 - b. Interpretation: Valid
 - c. The interactivity aspect was evaluated by an educational practitioner to ensure that the instrument can be effectively used in the learning context by facilitating student engagement through interactive features. The Aiken's V score of 0.79 shows that the instrument is valid, though not as strong as the previous two aspects, it still meets the feasibility criteria. A good level of interactivity will increase student motivation and make learning more dynamic.

D. DISCUSSION

The validation of the instrument is a crucial stage in the development of evaluation media, especially to ensure that the instrument used truly measures what it is intended to measure in a valid and reliable manner. The validity of this instrument not only includes content validity but also involves other aspects such as display quality and interactivity, all of which significantly impact the effectiveness of the media in enhancing the learning experience. This study focuses on the validation of Quizizz-based evaluation media used to support learning in grade IV elementary school.

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In this study, instrument validation was carried out by involving three groups of validators, each having qualifications and expertise in their respective fields: subject matter experts, media experts, and educational practitioners. The evaluation was done using a Likert scale (1-5), and the analysis results were calculated using the Aiken's V technique to assess how valid the instrument is considered by the validators. The validation results show that the Quizizz-based media instrument received excellent Aiken's V scores in the three evaluated aspects: content suitability, display quality, and interactivity.

1. Content Suitability

The first aspect evaluated was the content suitability or the material in the Quizizz-based media. The Aiken's V score for content suitability is 0.87, which falls into the "very valid" category. This indicates that the content presented in this media is in line with the established learning standards and relevant to the curriculum applied in the school. It is important to note that the learning material in Quizizz is not only based on theory but is also tailored to the needs of the students and the expected skills at their grade level. The high Aiken's V score for content suitability suggests that the material can help students better understand the concepts in the Science and Social Studies (IPAS) subjects, in line with the learning objectives.

According to Sudjana (2009), content validity is a process used to assess the extent to which a measurement instrument reflects the overall content or material it is meant to measure. Therefore, with the very good content validity validation, the Quizizz-based evaluation media can be considered successful in presenting learning material that aligns with the existing curriculum and what is being taught to the students.

2. Display Quality

The second aspect analyzed in this study is the display quality of the Quizizz media. In this case, the visual design and layout are the key factors considered. The Aiken's V score for display quality is 0.83, which also falls into the "very valid" category. This reflects that the media is not only visually appealing but also easy to understand for students. A good design will facilitate students' understanding of the material and help them focus on learning.

According to Mayer (2014), in multimedia theory, the display quality and visual design play a crucial role in creating an effective learning experience. A clean, clear, and non-distracting display will make it easier for students to absorb the information presented. Media with good display quality will also provide an enjoyable learning experience for students. In other words, Quizizz-based evaluation media with good display quality can increase student engagement with learning, motivating them to learn and participate in the evaluation process.

3. Interactivity

The third aspect evaluated is interactivity, which refers to how much the media can engage students in the learning process. In this case, Quizizz provides various interactive features such as quizzes, random questions, and immediate feedback. Based on the analysis, the Aiken's V score for interactivity is 0.79, which falls into the "valid" category. Although this score is slightly lower than the previous two aspects, it still indicates that the media is fairly effective in encouraging student participation in learning.

Interactivity in learning has a significant impact on student motivation and understanding. According to Schunk (2012), interactivity is an important factor in increasing student engagement in learning. With more interaction between students and learning materials, students will be more motivated to understand and master the content. Quizizz, as a technology-based evaluation media, provides students with the opportunity to interact directly with the questions and receive immediate feedback. This not only increases motivation but also helps students improve their understanding of the material.

4. Overall Validity of the Instrument

Overall, the validation results show that the Quizizz-based media is highly suitable for use as an evaluation tool in the learning process. The high validity in the three evaluated aspects—content suitability, display quality, and interactivity—indicates that this media not only provides an informative learning experience but is also engaging and enjoyable for students. In the world of education, which is increasingly shifting toward the use of technology, Quizizz-based media offers an innovative solution to improve the effectiveness and engagement of students in the learning process.

Based on these validation results, it can be concluded that the Quizizz-based evaluation media meets the criteria of a valid and reliable media tool for use in learning contexts. Additionally, this media also provides ease for teachers and students in the evaluation and learning process. Therefore, the development and use of Quizizz-based evaluation media are highly recommended for use in educational environments, particularly in subjects that require interactive and engaging evaluations.

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E. CONCLUSION

Based on the analysis and validation results of the Quizizz-based evaluation media instrument, it can be concluded that this instrument has an excellent validity level. The Aiken's V scores for content suitability, display quality, and interactivity are all within the "very valid" or "valid" categories. Therefore, this media is suitable for use as an evaluation tool in grade IV elementary school learning. The validation results, which show high validity in all three aspects, strengthen the claim that this media can enhance the effectiveness, engagement, and motivation of students in the learning process. Thus, the development and use of Quizizz-based evaluation media are highly encouraged to be utilized in educational settings, particularly in subjects that require interactive and engaging evaluations.

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