Prima Magistra: Jurnal Ilmiah Kependidikan
Volume 7 – Number 2, April 2026, pp 289-299
https://doi.org/10.37478/jpm.v7i2.7185
Open Access: https://e-journal.uniflor.ac.id/index.php/JPM/article/view/7185

ISSN 2721-8112 (print)
ISSN 2722-4899 (online)

DEVELOPING AKM NUMERACY QUESTIONS IN OKU TIMUR'S AGRICULTURAL CONTEXT USING QUIZIZZ FOR STUDENTS

Nikmah Nurvicalesti[1]*, Mewa Zabeta[2], Dessy Aprima[3], Amelia Fitriani[4]
[1,2,3,4]Universitas Muhammadiyah OKU Timur, Martapura, Indonesia
**Corresponding Author:* nikmahnurvicalesti@gmail.com

Article History
Received : 06/12/2025
Revised : 12/03/2026
Accepted : 30/03/2026
Keywords:
AKM, Agricultural context, Numeracy, Development, Quizizz.

Abstract. This development research was motivated by the low level of students' numeracy skills and the lack of contextualized AKM-type questions that relate mathematics to students' real-life experiences, particularly in agricultural settings. Therefore, this study aimed to develop AKM numeracy questions in an agricultural context for elementary school students, covering numbers, geometry and measurement, algebra, and data. The Tessmer development model was applied through the preliminary, self-evaluation, expert review, one-to-one, small-group, and field-test stages. Preliminary findings showed high student interest in interactive, game-based numeracy questions. Draft I (20 items) was validated by four experts, achieving 78.3% (very valid) and revised to enhance content, context, language, and technical aspects. Practicality tests in the one-to-one (3 students) and small-group (9 students) stages reached 94.44% and 91.39%, respectively (very good), indicating ease of use and understanding. Field testing with 15 students resulted in an average score of 71.4 (good), with 13.3% achieving very good results. Interviews revealed that agricultural-context questions promoted critical thinking, though some students faced challenges. Overall, the agricultural context-based AKM numeracy instrument proved valid, practical, and effective, though findings remain indicative due to the pre-experimental design. Further studies using stronger experimental methods are recommended to confirm its effectiveness.

How to Cite: Nurvicalesti, N., Zabeta, M., Aprima, D., & Fitriani, A. (2026). DEVELOPING AKM NUMERACY QUESTIONS IN OKU TIMUR'S AGRICULTURAL CONTEXT USING QUIZIZZ FOR STUDENTS. *Prima Magistra: Jurnal Ilmiah Kependidikan*, 7(2), 289-299. https://doi.org/10.37478/jpm.v7i2.7185

Correspondence address:
Jl. Pujorahayu, Harjo Winangun, Kec. Belitang, Kabupaten Ogan Komering Ulu Timur, Sumatera Selatan 32382, Indonesia.
nikmahnurvicalesti@gmail.com

Publisher:
Program Studi PGSD Universitas Flores. Jln. Samratulangi, Kelurahan Paupire, Ende, Flores.
primagistrauniflor@gmail.com

INTRODUCTION

The Ministry of Education, Culture, Research, and Technology (Kemdikbud) improved the quality of education through an evaluation program called the National Assessment (Asesmen Nasional or AN) (Kemendikbudristek, 2023). The AN program evaluates students through the Minimum Competency Assessment (Asesmen Kompetensi Minimum or AKM) to measure cognitive learning outcomes, a character survey to measure non-cognitive outcomes, and a learning environment survey to assess the quality of educational settings (Kemendikbudristek, 2021). The AKM measures cognitive learning achievement to promote innovative learning that focuses on developing reading literacy and numeracy skills (Rohim, 2021). In the 21st-century era of revolution, literacy and numeracy are essential skills that every student must possess (Rezky et al., 2022). The AKM also serves as a government initiative to strengthen students' critical thinking, creativity, communication, and collaboration (Andiani et al., 2021). One key skill assessed in AKM is numeracy. The AKM test items follow the Content Standards stated in Regulation of the Minister of Education, Culture, Research, and Technology (Permendikbudristek) Number 8 of 2024 (Kemendikbud, 2024), aligning with expectations set by the National Council of Teachers of Mathematics (NCTM, 2000; Tout & Gal, 2015), which emphasize that students must play an essential role in the mathematics curriculum by managing real-life situations and engaging in problem-solving represented through mathematical ideas. So, AKM is the government's effort to improve the quality of education by assessing and strengthening reading literacy, numeracy, and 21st-century skills through assessments that align with national and international standards.

Despite the recognized importance of numeracy, national and international test results show that students' numeracy performance remains moderate. The 2024 national AKM results indicated that students scored 62.62% at the elementary level, 65% at the junior high level, and

66.3% at the senior high level (Kemendikbud, 2024). These scores suggest that students' numeracy skills remain below 70%, placing them in the moderate category. Similarly, the 2022 International Programme for International Student Assessment (PISA) results showed that Indonesian students scored 366, below the global average of 472, ranking 68th (OECD, 2023). These PISA and AKM scores serve as benchmarks for improving learning outcomes in Indonesia. One major factor contributing to these low scores is the lack of assessment instruments that effectively explore students' numeracy skills.

According to Cahyanovianty & Wahidin (2021), Kurniawan et al. (2022), and Sani (2022), numeracy test items must include contextual elements that serve as stimuli to engage students with the problems presented. Differences in students' numeracy skills are also influenced by unfamiliar problem contexts (Nurvicalesti et al., 2021; Sari et al., 2021). Aulia & Mutaqin (2022) emphasized the importance of using everyday, familiar contexts to help students better understand the relevance of mathematics. Roth (1996) classified context into three categories: using text to describe problem conditions, transforming real-world problems into mathematical forms, and connecting problems with students' surrounding environments. The Organisation for Economic Co-operation and Development (OECD, 2019) further categorized contexts into occupational, personal, sociocultural, and scientific. Among these, the sociocultural context is the most interesting to explore due to its unique characteristics that differ across communities. Therefore, numeracy items need to be presented in relevant, familiar, and varied contexts, as context has a significant impact on students' understanding and numeracy achievement, making the use of sociocultural contexts specific to each community the most promising option to optimize.

Integrating cultural contexts into mathematics learning can help students connect mathematical concepts with their surrounding environment (Rosa & Orey, 2016). Steen (2001) stated that numeracy is concrete and contextual, offering contingent solutions to real-world problems. Wijaya et al. (2022) found that using AKM literacy media or contextualized materials in learning increases student engagement. Both OECD reports and previous studies have shown that Indonesian students' numeracy skills remain relatively low and have not yet been effectively connected to real-life or cultural contexts (Kemendikbud, 2024; Mariska et al., 2024; Nurvicalesti et al., 2025; Nurvicalesti & Ratnasari, 2023). In addition to cultural contexts, technological integration also enhances students' learning motivation (Kristanto & Yunianta, 2021). The current study employs the Quizizz application, aligning with findings by Putri & Dwijayanti (2020), who demonstrated that Quizizz can serve as an effective evaluation tool. Setiawan & Sibarani (2024) also suggested the need for AKM assessment methods that are easily accessible to students. Integrating cultural and technological contexts, including the use of Quizizz, can enhance the connection between mathematics and real life, strengthen learning motivation, and help overcome students' low numeracy skills, which have so far not been effectively connected to their socio-cultural context.

In this study, the researchers developed AKM-style numeracy items using agricultural contexts relevant to the local conditions of East Ogan Komering Ulu (OKU Timur) Regency, supported by the Quizizz platform. The agricultural context was chosen because OKU Timur is one of the main rice-producing regions in South Sumatra Province. Utilizing this local potential is expected to enhance students' numeracy skills and foster awareness of agricultural issues in their communities. Therefore, this study aims to determine the validity, practicality, and effectiveness of AKM-type numeracy items with agricultural contexts in OKU Timur supported by Quizizz. The contributions of this study are expected to provide both theoretical and practical benefits. Theoretically, this research enriches the literature on numeracy learning by integrating local contexts and technology-based assessment. In practice, it offers innovative AKM-style numeracy items that teachers can use as alternative assessment tools, particularly in regions with strong agricultural potential. Furthermore, this study supports the integration of digital platforms such as Quizizz to enhance interactive, contextual mathematics learning.

RESEARCH METHODS

This Research and Development used the Tessmer model, the Formative Evaluation. The

Copyright (c) 2026 Nikmah Nurvicalesti, Mewa Zabeta, Dessy Aprima, Amelia Fitriani. This work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

model stages were preliminary design, self-evaluation, expert review, one-to-one, small group, and field test (Tessmer, 1998). The development specifically targeted elementary schoolers in Public Elementary School Kumpul Rejo. The researchers developed 10 question items to analyze with classical test theory. The development process in this study consisted of two main stages: the preliminary stage and the formative evaluation stage. In the preliminary stage, the researchers established the theoretical foundation, aligned the study with the curriculum, analyzed user needs, and conducted contextual and needs analyses. They also determined the learning objectives or competencies to be achieved and designed the specifications for agriculture-based numeracy items.

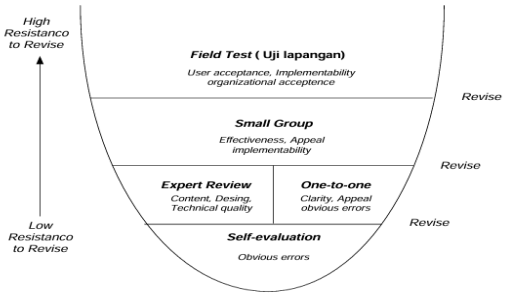


Figure 1. Tessmer Model Flowchart

The formative evaluation stage was the second phase of the development process, during which the designed product was expected to meet criteria for content, construct, and language quality. This stage followed Tessmer's prototyping approach, as illustrated in Figure 1. The Tessmer Model Flowchart, which included several sub-stages. First, in the self-evaluation stage, the researchers identified initial errors in the first prototype, reviewed and revised it, and produced Prototype-1. Next, during the expert review stage, three experts evaluated Prototype-1 on content, design, and language, providing feedback and suggestions for improvement. Then, in the one-to-one evaluation stage, six students with varying ability levels were involved to assess readability, identify errors, and evaluate clarity, leading to revisions that produced Prototype-2. After that, in the small-group evaluation stage, Prototype-2 was tested with 12 students to assess usability and effectiveness, and their feedback was used to refine the product into Prototype-3. Finally, in the field test stage, Prototype-3 was implemented with the actual research subjects without further revisions, aiming to determine its potential effectiveness in developing AKM-style numeracy items using agricultural contexts in OKU Timur, supported by Quizizz.

This study collected data using validation sheets, interview sheets, student response questionnaires, and test items. The validation sheet, based on a Likert scale, was used to assess the quality of the test items in terms of content, construct, and language, and the results were analyzed using Aiken's formula to determine their validity. Interviews were conducted during the one-to-one and small-group stages, and the findings served as a basis for revising and improving the numeracy test items. In addition, student response questionnaires were administered to evaluate the clarity, readability, usefulness, and time efficiency of the items, with the results analyzed to determine their practicality. Finally, test items were used to identify the potential effects of developing AKM-type numeracy items with an agricultural context in OKU Timur supported by Quizizz, and students' test results were used to measure the effectiveness of the developed items.

RESULTS AND DISCUSSION

This research is a development study that aims to produce AKM-type numeracy test items for junior high school students, covering four content domains: numbers, geometry and measurement, algebra, and data and uncertainty. The researchers developed the product using the Tessmer model, which consists of several stages: preliminary, self-evaluation, expert reviews, one-to-one, small group, and field test.

In the preliminary stage, the researchers reviewed information on the Ministry of Education and Culture's (Kemendikbud) policy on the Asesmen Kompetensi Minimum (AKM) as an

Copyright (c) 2026 Nikmah Nurvicalesti, Mewa Zabeta, Dessy Aprima, Amelia Fitriani. This work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

instrument for assessing students' reading and numeracy literacy. Interviews revealed that assessments during online learning remained suboptimal and that teachers had not yet used game-based interactive quizzes. Questionnaire results showed that most students rarely encountered math literacy questions (73.68%) and had never experienced interactive quizzes (78.94%). However, 47.36% of students were interested, and 52.63% were very interested in more engaging mathematics assessments. Based on these findings, the researchers identified the need for innovative, enjoyable assessment instruments using agriculture-based numeracy items, given that the students' environment is predominantly agricultural. Therefore, an online game-based platform, such as Quizizz, was selected to support the assessment process.

In the formative evaluation stage, the process began with self-evaluation, during which the researcher reviewed the grid design, AKM questions, and the validation sheet. Based on this review, a blueprint and 20 AKM questions were developed as Draft I, comprising various item types, including multiple-choice, complex multiple-choice, fill-in-the-blank, and essay, covering all AKM content domains and assessing reasoning, comprehension, and problem-solving skills. This draft was then evaluated in the expert review stage by four validators: a lecturer, a teacher, an agricultural expert, and a media expert, identified by the initials EKC, KBP, MK, and RA. Using validation sheets, the experts reviewed the blueprint and test items and provided comments and suggestions to improve the quality, clarity, and effectiveness of the developed AKM questions before proceeding to the next stages.

The following section presents the validators' assessment results for the AKM questions developed using Quizizz. The four validators' validation results are combined to obtain a total score for validating draft I.

Table 1. Validation and Expert Validation Results

Validator	% Aspek Kevalidan	Criteria
EKC	73	Valid
KBP	78,12	Extremely valid
MK	88,6	Extremely valid
RA	77	Extremely valid
Percentage average	78,3	Extremely valid

Table 1 shows that the validation results of the developed AKM-type numeracy items fall into the extremely valid category, with an average score of 78.3%. Most validators rated the items as extremely valid, while one validator categorized them as valid. Overall, these findings indicate that the items are suitable for use with only minor revisions.

Table 2. Draft I Revision Results by EKC Validator

Revision Suggestion	Revision
For question number 3, the item is too complex for elementary school students, so it should present only information on the harvest yield, without including the land area.	The researcher revised question number 3 by removing the land area from the numeracy question passage.
For question number 4, the harvest yield should use numbers that are easier for students to calculate.	The researcher revised question number 4 by changing the rice harvest from 2,225 kg to 2,000 kg.
For question 5, the wording asking for the amount of money needed is too wordy and should be simplified.	The researcher revised question 5 to: "If Mr. Apri buys four packs of lettuce seeds, how much money does he need to spend?" The researcher revised question 15 to ensure that only one option contained the correct answer.
For question number 15, both options a and d are correct, so the choices need revision.	The researcher revised question number 18 by adding the land area allocated for secondary crops to the total land area.
For question number 18, the passage does not specify the portion of land used to plant secondary crops, yet the question asks students to compare the land areas used for rice and secondary crops.	The researcher revised question number 3 by removing the land area from the numeracy question passage.

Table 2 presents the revisions to Draft I based on the EKC validator's suggestions. Overall,

Copyright (c) 2026 Nikmah Nurvicalesti, Mewa Zabeta, Dessy Aprima, Amelia Fitriani. This work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

the revisions focused on simplifying the questions, improving their clarity, ensuring the accuracy of the answer options, and aligning them with the given context. Several items were revised by reducing unnecessary complexity, using simpler numerical values, clarifying question instructions, correcting multiple correct answers, and adding missing information in the problem context. These improvements were made to ensure that the numeracy items are more understandable, appropriate for students' level, and meet the required assessment standards.

Table 3 presents the revisions to Draft I based on the KBP validator's suggestions. The revisions focused on improving the structure and completeness of the questions. Question 7 was revised by adjusting the instruction to better reflect an essay-type question, and question 19 was improved by adding relevant context or discourse to support the question. These revisions aimed to enhance the clarity and appropriateness of the items.

Table 3. Draft I Revision Results by KBP Validator

Revision Suggestion	Revision
Question number 7 does not resemble essay questions but instead a short essay.	Revising the question by adjusting the imperative speech of the essay question
Question 19 does not include an interview component.	Revising the question by adding relevant discourse

Table 4 presents the revisions to Draft I based on the MK validator's suggestions. The revisions focused on improving the accuracy and contextual relevance of the items. Question number 5 was revised by adjusting the listed product prices to better reflect real conditions in agricultural stores, while question number 20 was improved by correcting the pesticide dosage to ensure an appropriate ratio between land area and water mixture. These revisions aimed to enhance the realism and validity of the numeracy items.

Table 4. Draft I Revision Results by MK Validator

Revision Suggestion	Revisions
In question 5, the list of product prices at the agricultural store did not reflect real field conditions.	Revising question numbered 5 by detailing the good prices in the agriculture shop based on the factual price (contextually)
In question number 20, the pesticide dosage was inaccurate.	Revising the numbered 20 questions by adjusting the utilization of pesticides based on the correct ratio between the area and the water mixture

Table 5 presents the revisions to Draft I based on the RA validator's suggestions. The revisions mainly focused on technical accuracy and consistency between the questions and their implementation on the Quizizz platform. Improvements included correcting answer keys, refining multiple-choice options, adjusting answer formats to match platform requirements, ensuring consistency between the blueprint and question types, and clarifying question wording. These revisions were carried out to enhance the accuracy, clarity, and overall quality of the numeracy items.

Table 5. Draft I Revision Results by RA Validator

Revision Suggestion	Revisions
In question 1, the Quizizz answer differed from the official answer key.	The researcher corrected the correct-answer settings on the Quizizz platform.
In question number 3, two identical answers appeared in the multiple-choice options.	The researcher revised question 3 by adjusting the multiple-choice options.
In question number 16, the researcher revised the short-answer format so that students could enter only numerical responses on the Quizizz platform.	The researcher modified question number 16 by changing the Quizizz answer from "25 hectares" to "25" and adjusting the question accordingly.
Question 18 was listed as a complex multiple-choice item in the blueprint, but Quizizz used a simple multiple-choice format.	The researcher reconfigured question number 18 by resetting the question type to a complex multiple-choice format.
In question number 19, the researcher changed the question to: "Therefore, the area of the land is … hectares."	The researcher revised question number 19 based on the validator's suggestions.

Copyright (c) 2026 Nikmah Nurvicalesti, Mewa Zabeta, Dessy Aprima, Amelia Fitriani. This work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

Figure 2 shows question number 3 after revision, presented through the Quizizz platform using an agricultural context in OKU Timur. The item displays data on rice harvest yields from 2021 to 2023 and is designed in a multiple-choice, more than one correct answer (MSQ) format. The revisions improved the clarity of information, simplified the data presented, and ensured that the answer options were accurate and aligned with the given context. As a result, the question is more understandable, visually engaging, and appropriate for students' level while effectively assessing their numeracy skills.



Figure 2. Question Number 3 After Revision

Figure 3 shows the Quizizz home screen used in this study. This interface provides various features, such as options to start a quiz as a student, challenge friends, or access flashcards. It also includes settings for time, automatic question progression, and power-ups to enhance interactivity. This platform supports the implementation of AKM-type numeracy items in a more engaging, interactive, and user-friendly learning environment.

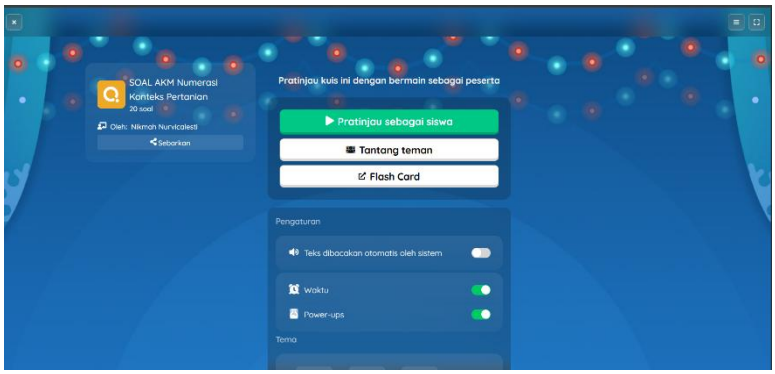


Figure 3. Quizizz Home Screen

Based on the validators' assessments of Draft I and the provided revisions, several questions were deemed suitable for use. The researcher then revised Draft I based on the validators' feedback and produced Draft II, which was tested during the one-to-one stage. Draft II was tested one-to-one with three students for 60 minutes to assess the readability of the questions. The results showed that the students understood the language, context, and images in the questions, though some still answered incorrectly, especially on picture questions. Since the questions were still well understood, no revisions were made at this stage.

Table 6. One-to-One Practivability Results

Subjects	% Practicality aspect	Qualification
S1	96,67	Extremely excellent
S2	91,67	Extremely excellent
S3	95,00	Extremely excellent
Percentage mean	94,44	Extremely excellent

Table 6 shows the results of the one-to-one practicality test, indicating that the developed numeracy items fall into the extremely excellent category, with an average score of 94.44%. All subjects provided very high ratings, demonstrating that the items are clear, easy to use, and highly

Copyright (c) 2026 Nikmah Nurvicalesti, Mewa Zabeta, Dessy Aprima, Amelia Fitriani. This work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

practical for students at the individual level.

The researcher revised the first prototype based on the expert review and one-to-one findings, producing the second prototype. The researcher then tested this prototype during the small-group stage, involving nine students selected by the classroom teacher's recommendation. The small group test revealed that some diagrams and images were unclear or too small. Therefore, the researcher improved the image quality and rechecked the readability of all visual elements.

Table 7. Small Group Practicality Results

Subjects	% Practicality aspect	Qualification
S1	91,67	Extremely excellent
S2	86,67	Extremely excellent
S3	95,00	Extremely excellent
S4	91,67	Extremely excellent
S5	93,33	Extremely excellent
S6	90,00	Extremely excellent
Percentage mean	91,39	Extremely excellent

Table 7 shows that the results of the small group practicality test fall into the extremely excellent category, with an average score of 91.39%. All students provided high ratings, indicating that the developed numeracy items are practical, easy to use, and well understood in a group setting. This suggests that the items are suitable for broader classroom implementation.

Figure 4 illustrates the small-group testing process, in which students tried out the developed numeracy items using the Quizizz platform. This stage aimed to observe students' interactions, engagement, and responses while completing the tasks, thereby providing further evidence of the product's practicality and usability.



Figure 4. Small Group

In a field test, the researcher developed Prototype-3 based on previous revisions and tested it with 15 fifth-grade students. The numeracy test results based on AKM through Quizizz were categorized into five levels (very good to very poor). The average scores were then converted to qualitative data to assess the effectiveness of the questions, and the percentages for each category are presented in Table 8.

Table 8. Field Test Frequency Distribution

Score interval	Frequency	(%)	Categories
85 – 100	2	13,3	Excellent
65 – 84	9	60	Good
45 – 64	4	26,7	Fair
25 – 44	0	0	Poor
0 – 24	0	0	Very poor
Total	15	100	
Mean score		71,4	
Category		Baik	

The field test results indicate that the AKM-type numeracy questions, using an agricultural context in OKU Timur, with the assistance of Quizizz, demonstrated a potential

Copyright (c) 2026 Nikmah Nurvicalesti, Mewa Zabeta, Dessy Aprima, Amelia Fitriani. This work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

effect, with an average test score of 71.4, which is categorized as good. In addition, 13.3% of students achieved scores in the very good category, 60% in the good category, and 26.7% in the fair category. During the field test stage, the researcher also interviewed five students from the test class to explore why the AKM-type numeracy questions, using an agricultural context in OKU Timur, on Quizizz showed this potential.

Figure 5 shows the field test stage, in which the developed AKM-type numeracy items were implemented with actual research subjects in a real classroom setting using the Quizizz platform. This stage aimed to evaluate the overall effectiveness, usability, and students' engagement when interacting with the numeracy items. The field test results provided evidence of the product's feasibility and its potential to support interactive, context-based mathematics learning.



Figure 5. Filed Test

The instrument's validity includes content, construct, and language validity. The initial draft of the agriculture-based AKM numeracy questions received a validation score of 78.3% and is considered highly valid. Expert revisions improved content and language quality (Effendi & In'am, 2024; Yudha et al., 2022), in line with international studies that reported high validity following expert evaluation (Dahal et al., 2023; Utami et al., 2022). However, construct validity tests such as EFA and CFA have not yet been used (Hidayat et al., 2024) and are therefore recommended for future research.

The aspect of practicality includes the ease of use of the instrument, the comprehensibility of the questions, and the smooth use of diagrams and online platforms. The one-to-one test obtained a practicality score of 94.44%, and the small-group test, 91.39%, after improving the image readability, indicating that the instrument is easy to use (Amsul et al., 2022; Syahri et al., 2024). These findings align with national and international studies that confirm that digital media such as Quizizz, Google Sites, and guided inquiry e-modules are practical and easily accessible (Ramadani, 2025; Ravista et al., 2021; Shard et al., 2024). However, challenges such as image size and students' readiness for contextual questions still need to be considered in further development.

The instrument was assessed as effective based on learning outcomes, motivation, and student responses. An average score of 71.4 falls into the "Excellent" category, and interviews indicated that contextual questions help promote critical thinking. These findings are consistent with studies reporting improvements in learning outcomes, motivation, and positive responses through digital media such as Quizizz (Apriadi & Zulfadewina, 2024; Effendi & In'am, 2024; Syahri et al., 2024).

Internationally, studies show that online-based courses and assessments are effective and receive high ratings for validity and practicality (Dahal et al., 2023; Shard et al., 2024). However, because this study used only a field test with a pre-experimental design and no control group, the effectiveness results remain indicative. Further research needs a stronger experimental design and a more diverse sample.

Copyright (c) 2026 Nikmah Nurvicalesti, Mewa Zabeta, Dessy Aprima, Amelia Fitriani. This work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

CONCLUSIONS AND SUGGESTIONS

This research successfully developed an AKM-type numeracy instrument for the agricultural context of East OKU, supported by the Quizizz platform, that meets the criteria of validity, practicality, and potential effectiveness. The validity aspect showed that the instrument achieved a very valid category, indicating that it is appropriate in terms of content, construct, and language. In terms of practicality, the results demonstrated that the instrument is easy to use, understandable, and engaging for students in both individual and small-group settings. Furthermore, the effectiveness aspect revealed that the instrument has the potential to improve students' numeracy skills, particularly in fostering critical thinking through contextual agricultural problems, although some students still require adaptation to this type of question.

Overall, this study confirms that integrating local contexts with digital platforms can support the development of meaningful and interactive numeracy assessments. However, future research is recommended to employ more rigorous experimental designs, involve larger sample sizes, and conduct deeper construct validity testing to obtain more comprehensive and generalizable findings.

REFERENCES

Amsul, K. M., Irmayanti, I., Fitriani, F., & P, S. (2022). Efektifitas Penggunaan Media Pembelajaran Quizizz Terhadap Minat Dan Hasil Belajar Matematika Siswa Kelas XI IPA MAN 2 Sinjai. *JTMT: Journal Tadris Matematika*, *3*(1), 10–17. https://www.journal.uiad.ac.id/index.php/Jtm/article/view/973

Andiani, D., Hajizah, & Dahlan. (2021). Analisis Rancangan Asesmen Kompetensi Minimum (AKM) Numerasi Program Merdeka Belajar. *Jurnal Matematika Dan Pendidikan Matematika (Majamath)*, *4*(1), 80–90. https://ejurnal.unim.ac.id/index.php/majamath/article/view/1010

Apriadi, M. L., & Zulfadewina, Z. (2024). The Effect of Using Quizizz Paper Mode Learning Media on Student Learning Outcomes in Mathematics Subjects at SDN Setu 02 Jakarta. *Eduvest - Journal of Universal Studies*, *4*(9), 7890–7900. https://doi.org/10.59188/eduvest.v4i9.1673

Aulia, M., & Mutaqin, A. (2022). Pengembangan Instrumen Numerasi pada Konteks Pertanian untuk Siswa SMP. *Jurnal Cendekia: Jurnal Pendidikan Matematika*, *6*(3), 2454–2466. https://doi.org/10.31004/cendekia.v6i3.1562

Cahyanovianty, A., & Wahidin. (2021). Analisis Kemampuan Numerasi Peserta Didik Kelas VIII dalam Menyelesaikan Soal Asesmen Kompetensi Minimum. *Jurnal Cendekia: Jurnal Pendidikan Matematika*, *5*(2), 1439–1448. https://doi.org/10.31004/cendekia.v5i2.651

Dahal, N., Pant, B. P., Luitel, B. C., Khadka, J., Shrestha, I. M., Manandhar, N. K., & Rajbanshi, R. (2023). Development and Evaluation of E-Learning Courses. *International Journal of Interactive Mobile Technologies (IJIM)*, *17*(12), 40–60. https://doi.org/10.3991/ijim.v17i12.40317

Effendi, M. M., & In'am, A. (2024). Android-Based Quizizz: Media for Students' Learning Motivation and Mastery of Mathematical Concepts. *International Journal on Emerging Mathematics Education*, 61–72. https://doi.org/10.12928/ijeme.v8i2.29749

Hidayat, R., Imami, M. K. W., Liu, S., Qudratuddarsi, H., & Mohd Saad, M. R. (2024). VALIDITY OF ENGAGEMENT INSTRUMENT DURING ONLINE LEARNING IN MATHEMATICS EDUCATION. *Jurnal Ilmiah Ilmu Terapan Universitas Jambi*, *8*(2), 467–484. https://doi.org/10.22437/jiituj.v8i2.34453

Kemendikbud. (2024). *Rapor Pendidikan Nasional 2024*. https://data.kemendikdasmen.go.id/publikasi/p/rapor-pendidikan-indonesia/rapor-pendidikan-indonesia-2024

Kemendikbudristek. (2021). *Permendikbudristek Nomor 17 Tahun 2021 Tentang Asesmen Nasional*. https://www.peraturan.go.id/id/permendikbudristek-no-17-tahun-2021

Kemendikbudristek. (2023). *Asesmen Nasional Berbasis Komputer*. https://anbk.kemdikbud.go.id

Copyright (c) 2026 Nikmah Nurvicalesti, Mewa Zabeta, Dessy Aprima, Amelia Fitriani. This work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

Kristanto, B. P., & Yunianta, T. N. H. (2021). Pengembangan Media Evaluasi Pembelajaran Matematika Berbasis Aplikasi Quizizz dengan Soal PISA Konten Quantity. *Edumatica*, *11*(2), 64–72. https://doi.org/10.22437/edumatica.v11i02.12449

Kurniawan, A. P., Budiarto, M. T., & Ekawati, R. (2022). Pengembangan Soal Numerasi Berbasis Konteks Nilai Budaya Primbon Jawa. *JRPM (Jurnal Review Pembelajaran Matematika)*, *7*(1), 20–34. https://doi.org/10.15642/jrpm.2022.7.1.20-34

Mariska, R., Ratnasari, R., & Nurvicalesti, N. (2024). KEMAMPUAN NUMERASI SISWA SMP MENGGUNAKAN SOAL TIPE ASESMEN KOMPETENSI MINIMUM. *Differential: Journal on Mathematics Education*, *2*(2), 141–155. https://doi.org/10.32502/differential.v2i2.233

NCTM. (2000). *Curiculum and Evaluation Standards for School Principles and Standards for School Mathematics*. Reston VA. https://www.nctm.org/standards2000

Nurvicalesti, N., Dewi, N. R., & Walid. (2021). Mathematics Literacy Skill Seen from Self-Regulated Learning (SRL) in SQ4R Learning with Mathematics Realistic Approach. *Unnes Journal of Matehmatics Education Research*, *10*(1), 68–74. https://journal.unnes.ac.id/sju/ujmer/article/view/34668

Nurvicalesti, N., & Ratnasari, R. (2023). Self-Regulated Learning dalam Pembelajaran Matematika pada Peserta Didik dalam Menyelesaikan Soal Literasi Numerasi. *Journal of Mathematics Education and Science*, *6*(2), 159–165. https://doi.org/10.32665/james.v6i2.1460

Nurvicalesti, N., Ratnasari, & Wardani, I. K. (2025). The The Identification of Student Numerical Skill in Solving AKM (Minimum Assessment Competency) Question Type Assisted with Collaborative works platform at JHS. *INOMATIKA*, *7*(1), 13–28. https://doi.org/10.35438/inomatika.v7i1.477

OECD. (2019). *"Survey International Program for International Student Assessment (PISA)*. https://www.oecd.org/pisa/publications/pisa-2018-results.htm

OECD. (2023). *HASIL PISA 2022 (Volume I)*. https://www.oecd-ilibrary.org/education/pisa-2022-results-volume-i_53f23881-en

Putri, N., & 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. Putri, N. W., & Dwijayanti, R. (2020). Array . *Jurnal Pendidikan Tata Niaga (JPTN)*, *8*(3), 985–991. https://doi.org/10.26740/jptn.v8n3.p985-991

Ramadani, D. (2025). VALIDITY AND PRACTICALITY OF PHYSICS LEARNING MEDIA ON MEASUREMENT TOPIC USING GOOGLE SITES. *Physics Learning and Education*, *3*(2), 254–261. https://doi.org/10.24036/ple.v3i2.238

Ravista, N., Sutarno, S., & Harlita, H. (2021). Validity and Practicality of Guided Inquiry-Based E-Modules accompanied by Virtual Laboratory to Empower Critical Thinking Skills. *Jurnal Penelitian Pendidikan IPA*, *7*(SpecialIssue), 331–339. https://doi.org/10.29303/jppipa.v7ispecialissue.1083

Rezky, M., Hidayanto, E., & Parta, I. N. (2022). KEMAMPUAN LITERASI NUMERASI SISWA DALAM MENYELESAIKAN SOAL KONTEKS SOSIAL BUDAYA PADA TOPIK GEOMETRI JENJANG SMP. *AKSIOMA: Jurnal Program Studi Pendidikan Matematika*, *11*(2), 1548. https://doi.org/10.24127/ajpm.v11i2.4879

Rohim, D. C. (2021). Konsep Asesmen Kompetensi Minimum untuk Meningkatkan Kemampuan Literasi Numerasi Siswa Sekolah Dasar. *Jurnal VARIDIKA*, *33*(1), 54–62. https://doi.org/10.23917/varidika.v33i1.14993

Rosa, M., & Orey, D. . (2016). Ethnomodelling as a theoretical framework for research on ethnomathematics and mathematical modelling. *Journal of Urban Mathematics Education*, *6*(2), 62–80. https://doi.org/10.21423/jume-v6i2a195

Roth, W. M. (1996). Where IS the Context in Contextual Word Problem?: Mathematical Practices and Products in Grade 8 Students' Answers to Story Problems. *Cognition and Instruction*, *14*(4), 487–527. https://doi.org/10.1207/s1532690xci1404_3

Copyright (c) 2026 Nikmah Nurvicalesti, Mewa Zabeta, Dessy Aprima, Amelia Fitriani. This work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

Sani, R. A. (2022). *Pembelajaran Berorientasi AKM*. Jakarta: Bumi Aksara. https://books.google.co.id/books/about/Pembelajaran_Berorientasi_AKM.html?id=vo8lEAAAQBAJ&redir_esc=y

Sari, D. R., Lukman, N., & Muharram. (2021). ANALISIS KEMAMPUAN SISWA DALAM MENYELESAIKAN SOAL GEOMETRI PADA ASESMEN KOMPETENSI MINIMUM-NUMERASI SEKOLAH DASAR. *FONDATIA : Jurnal Pendidikan Dasar*, *5*(2), 153–162. https://doi.org/10.36088/fondatia.v5i2.1387

Setiawan, M. A., & Sibarani, A. J. P. (2024). The Design of Web Service-based Minimum Competency Assessment Application with the REST Method in Senior High Schools. *International Journal of Advanced Science Computing and Engineering*, *6*(1), 1–6. https://doi.org/10.62527/ijasce.6.1.150

Shard, Kumar, D., & Koul, S. (2024). Investigating students' perception about LMS-based online examination practices. *The International Journal of Information and Learning Technology*, *41*(1), 36–60. https://doi.org/10.1108/IJILT-12-2022-0219

Steen, L. A. (2001). Mathematics and numeracy: Two literacies, one language. *The Mathematics Educator*, *6*(1), 10–16. https://math.nie.edu.sg/ame/matheduc/tme/tmeV6_1/Doc%20p2.pdf

Syahri, A. A., Gaffar, A., & Ma'rup. (2024). EFFECTIVENESS OF LEARNING MEDIA BASED ON QUIZIZZ APPLICATION WITH REALISTIC MATHEMATICS EDUCATION APPROACH. *MATEMATIKA DAN PEMBELAJARAN*, *12*(1), 17–37. https://doi.org/10.33477/mp.v12i1.7097

Tessmer, M. (1998). *Planning and Conductioning Formative Evaluation*. Kogan. https://doi.org/10.4324/9780203061978

Tout, D., & Gal, I. (2015). Perspectives on numeracy: reflections from international assessments. *ZDM Mathematics Education*, *47*, 691–706. https://doi.org/10.1007/s11858-015-0672-9

Utami, W. A., Harlita, H., & Karyanto, P. (2022). Validity and Practicality of Discovery Learning E-Modules on environmental change material to Empower Critical Thinking Skills. *Jurnal Penelitian Pendidikan IPA*, *8*(3), 1593–1598. https://doi.org/10.29303/jppipa.v8i3.1726

Wijaya, H., Maryanti, R., Wulandary, V., & Irawan, A. R. (2022). Numerical Minimum Competence Assessment for Increasing Students' Interest in Mathematics. *ASEAN Journal of Science and Engineering Education*, *2*(3), 183–192. https://doi.org/10.17509/ajsee.v2i3.38660

Yudha, C. B., Dwiprabowo, R., & Budiono. (2022). DEVELOPMENT OF EVALUATION TOOLS USING QUIZIZZ APPLICATION IN MATHEMATICS. *Jurnal Pendidikan Dan Kebudayaan (JURDIKBUD)*, *2*(2), 134–147. https://doi.org/10.55606/jurdikbud.v2i2.269

Copyright (c) 2026 Nikmah Nurvicalesti, Mewa Zabeta, Dessy Aprima, Amelia Fitriani. This work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.