



Design: An interactive e-module based on ethnomathematics to improve numeracy skills of slow learners

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Abstract. The numeracy skills of slow learners are very low, especially in understanding information, analyzing strategies, contextualizing solutions, and interpreting them. This study aims to analyze needs and design an interactive e-module based on ethnomathematics to improve numeracy skills of slow learners. This study employs the ADDIE model, focusing on the analysis and design stages. The subjects of this study involved mathematics teachers and slow learners. Slow learners were selected using purposive sampling techniques. Data were obtained through observations, interviews, questionnaires, and tests using instruments such as observation sheets, interview guidelines, questionnaires, and numeracy tests. Data analysis employed descriptive, qualitative, and quantitative approaches. The study's results indicate a gap between the availability of technological facilities and their use in mathematics learning. Technology

integration remains limited, and ethnomathematics is rarely used as a learning context. The design stage produced an interactive e-module that integrates learning objectives, numeracy content, display design, interaction flow, and evaluation instruments tailored to the characteristics of slow learners. Therefore, it is necessary to develop an interactive e-module based on ethnomathematics to create an inclusive, engaging, and meaningful learning experience that supports the numeracy skills of slow-learning students.

Introduction

In the 21st century, students must possess critical thinking, creativity, communication, collaboration, character, and citizenship skills, collectively known as the 6Cs (Anggraeni et al., 2022; Khotimah et al., 2024). Furthermore, every student must possess skills in all other dimensions, including numeracy skills. Numeracy skills refer to a person's ability to comprehend, manipulate, and solve quantitative information, concepts, and solutions in everyday life (Astuti et al., 2024a; Goos et al., 2014; Hall, 2019; Mahsup et al., 2026). In the fourth industrial revolution, where technology and information develop rapidly, the value of numeracy is undeniable. Students lacking sufficient numeracy skills, as identified in the literature, will struggle to adapt to and thrive in a transformed educational system and workforce (Khoirunnisa et al., 2023). One way to enhance students' numeracy skills is to integrate educational activities with the culturally relevant contexts in which students live.

There is a strong emphasis on making the learning content relevant to students' lives, especially in mathematics. One of the many possible ways to achieve these goals is through ethnomathematics. Ethnomathematics integrates contextualized mathematics and culture, offering a powerful

opportunity to enrich learning in students' surroundings (Astuti et al., 2024b; Rosa & Orey, 2012). Ethnomathematics is the intertwining of math with the culture, practices, and everyday life of a community (D'Ambrosio, 2013). Therefore, ethnomathematics is the teaching of mathematics through a community's cultural artifacts and practices. The role of ethnomathematics is crucial in providing contextual learning because it encourages students to understand that mathematical concepts exist in everyday activities, such as batik motifs, traditional number systems, traditional house architecture, traditional games, and local trade activities (Astuti et al., 2019; Purwoko et al., 2019; Risdiyanti et al., 2018). Integrating ethnomathematics into mathematics learning helps students see mathematics as something real, relevant, and meaningful (Permana, 2023; Sari et al., 2023; Sintiya et al., 2021). By linking mathematical concepts to cultural practices, students are trained to analyze, explore, and discover mathematical patterns in surrounding phenomena within a broader context (Sumandya et al., 2025).

The rapid development of digital technology has significantly impacted all aspects of life, including education and, in this case, the learning process. Learning that follows technological developments must be designed innovatively (Anaktototy, 2023; Astuti et al., 2021; Legi et al., 2023). One innovation that can facilitate the learning process is interactive e-modules. Interactive e-modules are digital teaching materials that incorporate multimedia features, such as animation, audio, video, simulations, and interactive quizzes (Yulando et al., 2019). Interactive e-modules support active student engagement. Teachers can create contextual, creative, and innovative learning (Manggala et al., 2024). This finding indicates that interactive e-modules are digital teaching materials that have become essential in contemporary life and cultural contexts, as well as in 21st-century competencies, facilitating mathematics learning and developing students' numeracy skills.

However, according to the Programme for International Student Assessment (PISA) 2022, Indonesian students continue to demonstrate weak numeracy skills (OECD, 2023). Students who lack adequate numeracy skills, as identified in the literature, will struggle to adapt and thrive in the changing education system and workplace (Khoirunnisa et al., 2023). Observations indicate that the integration of ethnomathematics and the incorporation of technology into teaching and learning processes remain suboptimal, particularly in meeting the learning needs of slow learners. Extensive research has examined various learning strategies for slow learners; however, they still exhibit low numeracy skills (Putri et al., 2024). Due to their weak understanding of basic mathematical concepts, difficulty remembering problem-solving steps, and inability to connect their knowledge to real-life situations, they achieve lower numeracy levels than their peers (Devina et al., 2019; Wafiqoh et al., 2022). There remains a gap in the availability of adaptive learning media that meets the educational needs of students with learning disabilities. The use of ethnomathematics approaches to develop contextual, culturally relevant, and educationally meaningful learning materials remains very limited (Jayani et al., 2020; Sintiya et al., 2021). There is also a perception regarding the lack of development of interactive digital learning media that can help slow learners understand mathematical concepts through visualization, concrete mental imagery, and practice during learning (Griseldis et al., 2024; Widana et al., 2023b).

Adaptive efforts are needed to make mathematics learning constructive for all students, especially slow learners. Teachers can create contextual, creative, and innovative learning (Manggala et al., 2024). Studies show that interactive e-modules based on ethnomathematics support active engagement (Asmianto et al., 2022; Ramdhani et al., 2025) and improve numeracy skills (Payadnya et al., 2025; Safitri et al., 2023). Using e-modules can accommodate learning strategies and methods for slow learners (Kurniasih & Wanabuliandari, 2020). Technology-based learning also helps slow learners (Sutarto et al., 2022). More adaptive, innovative, and inclusive strategies are needed. Examples include electronic teaching materials, interactive media, and the integration of local cultural values through ethnomathematics. A useful innovation is combining ethnomathematics

and technology through interactive e-modules. The novelty of this study lies in the design of an ethnomathematics-based interactive electronic module to improve numeracy skills in slow-learning students.

The research problem formulation in this study is to analyze the needs and to design an interactive e-module based on ethnomathematics to improve numeracy skills of slow learners. This study aims to analyze the needs and design an interactive e-module based on ethnomathematics to improve numeracy skills of slow learners.

Method

Research Method and Design

This research uses the Research and Development (R&D) type with the ADDIE (Analysis, Design, Development, Implementation, Evaluation) development model (Baxter & Jack, 2008; Cresswell & Cresswell, 2023). This research is limited to the analysis and design stages. The development model in this study is presented in **Image 1**.



Image 1. ADDIE Development Model

Participants and Sampling Technique

The subjects were mathematics teachers and slow learners selected using purposive sampling.

Research Setting and Timeline

This research was conducted at a vocational high school in Batang Regency, Central Java.

Research Procedures

The development stages in this research are Analysis (A) and Design (D). The analysis stage aims to identify the needs and problems of slow-learning students. The analysis focuses on the need for technology use, the integration of ethnomathematics into mathematics learning, the need for interactive learning media, and the numeracy skills of slow-learning students. The design stage involves designing an interactive e-module based on ethnomathematics. The design includes determining learning objectives, compiling content (statistics), determining the context (traditional markets), designing the display, determining the interaction flow, and selecting instruments (numeracy tests and response questionnaires).

Data Collection Techniques and Research Instruments

Data collection included observations to identify characteristics of slow learners; teacher interviews to gather information on learning needs; questionnaires to determine technology, ethnomathematics, and media needs; and tests to assess numeracy skills.

Instrument Validity and Reliability Tests

Research instruments were observation sheets, interview procedures, questionnaires, and numeracy tests, all validated through expert judgment.

Data Analysis Techniques and Criteria

Data were analyzed using qualitative and quantitative descriptive methods (Cresswell & Cresswell, 2023; Miles et al., 2014). Qualitative data obtained from observations, interviews, and tests were analyzed through data reduction, data presentation, and formulation of conclusions. Quantitative data from questionnaires were analyzed using percentages and averages to show trends in needs.

Product Specifications

Product design specifications will use the ethnomathematics approach to the traditional market, with activity flow designed to stimulate numeracy skills for slow learners.

Results and Discussion

Analyze

Interviews with teachers to analyse the need to use technology in learning are presented in Image 2.

- P : Does the school have adequate technological facilities to support the learning process?
S : Yes, it does. The school has a computer lab, projectors in some classrooms, internet access, and digital support devices.
- P : Are these facilities utilized to support learning activities, including facilitating slow learners?
S : No, because only a few teachers use projectors to display learning materials and have not yet met the needs of slow learners.

Image 2. Interviews with Teachers

Based on the interview results, the facilities and infrastructure are adequate. The school has relatively complete technological facilities, such as a computer laboratory, projectors in several classrooms, a school internet network, and several digital learning support devices. However, their utilization in mathematics learning is not optimal, especially for students with special needs. Teachers tend to use only technological devices, such as projectors, to display material in static presentations rather than interactive media that can increase student engagement. As a result, technology has not provided significant added value to the learning process. Observations also show that students, especially slow learners, do not receive a varied learning experience. The learning media used are not sufficient to help them understand abstract mathematical concepts. However, when technology is used effectively, students can more easily visualize concepts, practice problems interactively, and learn at a pace that suits their individual abilities.

The questionnaire data revealed that the use of technology in mathematics learning is essential to support the learning process. The questionnaire results regarding the need for interactive e-modules in mathematics learning for slow learners are presented in **Table 1**.

Table 1. The Need for Interactive Electronic Modules in Mathematics Learning

No.	Statement	Percentage (%)
1.	The learning media used by teachers are the same for all students	74.6
2.	Teachers use interactive e-modules to support mathematics learning for slow learners	34.3

No.	Statement	Percentage (%)
3.	Teachers need interactive e-modules to support the mathematics learning process for slow learners	77.8

The results of the questionnaire on the need for interactive e-modules in mathematics learning revealed that 74.6% of teachers use the same learning media for all students. This means that teachers have not used learning media that better accommodate students' characteristics, including those of slow learners. Only 34.3% of teachers use interactive e-modules to support mathematics learning for slow learners. This means that most teachers have not used interactive e-modules to support mathematics learning for slow learners. 77.8% of teachers agreed to the development of interactive e-modules to support the learning of mathematics for slow learners. This shows that interactive e-modules are very much needed in mathematics learning, especially for slow learners, to make learning more engaging and easier to understand, and to help achieve learning objectives.

The results of the questionnaire on the integration of ethnomathematics in mathematics learning are presented in **Table 2**.

Table 2. Integration of Ethnomathematics in Mathematics Learning

No.	Statement	Percentage (%)
1.	Teachers utilize cultural products as a source for learning mathematics	27.7
2.	Teachers integrate ethnomathematics into the mathematics learning process	38.9
3.	Teachers present mathematical problems with a local cultural context	16.7

The results of a needs questionnaire on integrating ethnomathematics into mathematics learning revealed that only 27.7% of teachers have used cultural products as learning resources in mathematics. This means that the mathematics instruction delivered by teachers has not used students' cultural products as learning resources to make learning more meaningful. Only 38.9% of teachers have integrated ethnomathematics into their mathematics instruction. This means that the use of ethnomathematics in mathematics learning is still low. A small proportion of teachers (16.7%) presented mathematics problems with a relevant local cultural context, so students still had minimal experience of mathematics in a contextual, everyday-life context.

Interviews with teachers regarding the need for interactive electronic modules for slow learners are presented in **Image 3**.

- P : What types of learning are implemented to facilitate slow learners?
S : There is no specific learning to facilitate slow learners. The learning and media used by teachers are the same for all students.
- P : Do the available learning resources support mathematics learning for slow learners?
S : Not yet.
- P : What types of mathematics learning do slow learners need?
S : Engaging and interactive learning so that slow learners can more easily understand the material presented.
- P : What electronic media have been used in mathematics learning?
S : Teachers usually use projectors to display PPT learning materials, sometimes also to show videos.
- P : Have teachers used interactive e-modules in mathematics learning?
S : Only a small number of teachers, and not for every subtopic.

Image 3. Interviews with Teachers Regarding the Need for E-modules

Based on interviews with teachers, it was found that there are still limitations in the learning media for slow learners. The media used by teachers is the same for all students, so there is no media specifically used to facilitate slow learners. This makes it difficult for slow learners to understand the mathematics material. Furthermore, teachers said that only a small number use interactive e-modules to support mathematics learning. Therefore, interactive e-modules are needed to support mathematics learning, including for slow learners, so that learning becomes more engaging and easier for them to understand the material.

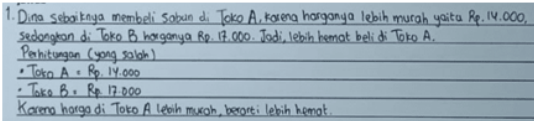
The following is an example of a numeracy question, which is presented in **Image 4**.

Dina ingin membeli sabun cuci piring. Di toko A, harga 1 botol sabun ukuran 800 ml adalah Rp. 14.000,00. Di toko B, harga 1 botol sabun ukuran 1.000 ml adalah Rp. 17.000,00. Dina ingin membeli sabun yang paling hemat per 100 ml. Di toko manakah sebaiknya Dina membeli sabun agar lebih hemat? Jelaskan perhitunganmu!

Dina wants to buy dishwashing soap. At store A, the price of 1 bottle of soap measuring 800 ml is Rp. 14,000.00. At store B, the price of 1 bottle of soap measuring 1,000 ml is Rp. 17,000.00. Dina wants to buy the soap that is most economical per 100 ml. In which store should Dina buy the soap to save more? Explain your calculations!

Image 4. A Numeracy Question

The following are the results of the slow learners' answers in completing a numeracy question presented in **Image 5**.



1. Dina sebaiknya membeli Sabun di Toko A, karena harganya lebih murah yaitu Rp. 14.000,00, sedangkan di Toko B harganya Rp. 17.000,00. Jadi, lebih hemat beli di Toko A.
Perhitungan (yang salah):
• Toko A = Rp. 14.000
• Toko B = Rp. 17.000
Karena harga di Toko A lebih murah, berarti: lebih hemat.

Dina should buy soap at store A because it's cheaper, at Rp. 14,000.00. Meanwhile, store B costs Rp. 17,000.00. So, store A is cheaper.
Store A: Rp. 14,000.00
Store B: Rp. 17,000.00
Because the price at store A is lower than at store B, it's more economical.

Image 5. Slow Learners' Answers

From students' work, it is clear that slow learners have difficulty understanding the information. Students only focus on the price of soap at Store A, which is Rp14,000.00 and Store B, which is Rp17,000.00. Students do not understand the direction of the questions from the problems presented. Students cannot determine appropriate strategies or apply them to solve the problem. Students only compare the two prices, namely Rp. 14,000.00 with Rp17,000.00, then determine that Rp14,000.00 is the lower price without determining the price per 100 ml. As a result, slow learners are not accurate in interpreting problem solutions according to the context presented.

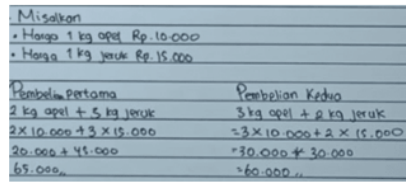
The following is an example of a numeracy question, which is presented in **Image 6**.

Ibu membeli 2 kg apel dan 3 kg jeruk seharga Rp. 60.000,00. Pada hari yang sama, ia membeli 3 kg apel dan 2 kg jeruk seharga Rp. 65.000,00. Berapa harga apel dan jeruk per kg?

Mother bought 2 kg of apples and 3 kg of oranges for Rp. 60,000.00. On the same day, she bought 3 kg of apples and 2 kg of oranges for Rp. 65,000.00. How much do the apples and oranges cost per kg?

Image 6. A Numeracy Question

The following are the results of the slow learners' answers in completing a numeracy question presented in **Image 7**.



For example:
 1 kg of apples costs Rp. 10,000.00
 1 kg of oranges costs Rp. 15,000.00

First purchase:
 2 kg of apples + 3 kg of oranges
 $2 \times 10,000 + 3 \times 15,000$
 $20,000 + 45,000$
 65,000

Second purchase:
 3kg apples + 2kg oranges
 $3 \times 10,000 + 2 \times 15,000$
 $30,000 + 30,000$
 60,000

Image 7. Slow Learners' Answers

From the students' work, it is clear that slow learners struggled to comprehend the information, as they immediately assigned the price of apples as Rp10,000.00 per kg and that of oranges as Rp15,000.00 per kg. This indicates a misunderstanding of the question. Additionally, students struggled to identify an appropriate problem-solving strategy, as seen in their errors when modeling or representing the problem mathematically. Students presumed that 1 kg of apples cost Rp10,000.00 and 1 kg of oranges cost Rp. 15,000.00, although these values were to be determined. Missteps in strategy selection led students to apply incorrect approaches to the problem. Finally, slow learners misinterpreted the solution to the problem.

Design

At the needs analysis stage, information was obtained indicating that the use of technology in learning is not optimal, the use of interactive e-modules remains limited, and the integration of ethnomathematics into mathematics learning has not been implemented. In addition, numeracy skills among slow learners remain relatively low. Therefore, it is necessary to develop an interactive e-module based on ethnomathematics to improve the numeracy skills of slow learners. At this stage, learning objectives are formulated. The learning objectives are 1) understanding the concept of data central measures (mean, median, and mode) in single data and group data; 2) processing and presenting statistical data in the form of frequency distribution tables, bar charts, or pie charts; 3) interpreting the results of calculating the mean, median, and mode for decision making in real contexts; and 4) applying the calculation of the mean, median, and mode in project-based problem solving. The next step is designing an interactive e-module. The design of the interactive e-module is presented in **Image 8**.



Image 8. Interactive E-Module Design

Integrating cultural forms into statistics learning is one form of ethnomathematics implementation that aims to provide contextual, meaningful learning rooted in students' cultures. This e-module design uses cultural products, such as traditional markets. Cultural products, such as traditional markets, can serve as authentic data sources to introduce the concepts of mean, median, and mode. Furthermore, this e-module is designed to make slow learners more interactive in the learning process, and its activity flow aims to stimulate students' numeracy skills. This allows slow learners to apply mathematical concepts in relevant contexts.

The study results show that the school's technological facilities and infrastructure are relatively adequate. The availability of computer labs, projectors in several classrooms, internet access, and other supporting digital devices indicates that the school is infrastructurally ready to implement technology-based learning. However, this has not been matched by optimal use in mathematics learning, particularly for slow learners. Teachers use technological devices to project PowerPoint presentations. This indicates that technology is primarily a carrier of information rather than an interactive tool for increasing student participation. Educational technology is a "thinking tool" that helps students actively construct knowledge, not simply a medium for presenting it to them. The findings indicate that slow learners lack a varied learning experience. Existing learning media are not yet able to help them understand abstract mathematical concepts. Slow learners need visual, concrete, and interactive media to more easily build conceptual understanding. Well-developed technology will enable visualization of abstract concepts, facilitate transitions to adaptive practice questions, and allow students to learn at their own pace.

Interviews with teachers revealed that limited technology utilization stems not only from habit but also from limited time, teacher skills in developing interactive media, and the absence of school policies specifically encouraging technology integration in learning. In other words, even though resources are available, there is no systematic encouragement to ensure consistent and innovative use. Research indicates that a lack of pedagogical support and policy support often hinders the use of technology in learning. It is not merely a lack of finances or resources (Bećirović, 2023; Wilson, 2017). Slow learners struggle when the topic is too abstract, and the teacher explains it orally or on the board. They require visual and interactive materials to support their thinking. According to Sweller's cognitive load theory, information presented with visual and interactive support can reduce students' cognitive load, particularly for students with limited information-processing capacity (Shemy, 2022; Yang et al., 2017).

The results show a gap between the goals and current outcomes in mathematics learning. Furthermore, the results of a needs questionnaire on integrating ethnomathematics into mathematics learning confirm that the use of contextual learning resources grounded in local culture remains very low. This condition indicates that most mathematics learning does not make use of cultural products around students as learning resources. So, students are still missing out on enjoyable and meaningful mathematics learning experiences. Students can better understand mathematics when it is linked to everyday cultural practices (Pradhan, 2024; Haryanto, 2026). Ethnomathematics serves to bridge abstract mathematical concepts with real-life, culture-based situations (Prahmana & D'Ambrosio, 2020). Nonetheless, this study's findings show that although the infrastructure is adequate, the use of technology and ethnomathematics has not been optimally implemented in learning. Factors contributing to this gap include limited teacher skills in developing interactive media, limited time, and fewer school policies that explicitly encourage the integration of technology and ethnomathematics into learning. The limited integration of technology and ethnomathematics means that slow learners do not have the opportunity to learn mathematics in a contextualized way.

Based on student work, it is evident that slow learners struggle across multiple facets of mathematical problem-solving. First, slow learners lack clarity in understanding key problem information, which prevents them from identifying core issues and data relationships (Hasibuan et al., 2022). Second, they struggle to determine effective strategies for solving problems. This corresponds to slow learners' generally limited abstract thinking and logical reasoning, which complicates their selection of solution steps (Rahayu et al., 2024). Third, even when strategies are provided or guided, slow learners often inconsistently apply them. Mistakes typically involve weaknesses in mathematical calculation, precision, and procedural memory (Wanabuliandari et al., 2025). Fourth, slow learners lack proficiency in connecting solutions to the problem's real-world context, indicating a gap in relating mathematical results to daily life (Wafiqoh et al., 2022; Wanabuliandari et al., 2025). Thus, slow learners face complex obstacles: understanding information, choosing strategies, executing procedures, and interpreting contextual solutions. This concurs with research indicating that slow learners have difficulty with abstract mathematical concepts, problem-solving, and interpreting solutions in context (Wafiqoh et al., 2022). This situation highlights the need for simple, contextual, and problem-solving-focused learning resources to help slow learners strengthen their numeracy skills.

The research findings indicate that, despite reasonably sufficient educational facilities and infrastructure, the integration of technology in mathematics education remains inadequate. In practice, teachers mostly use technology to deliver lessons in PowerPoint style, which makes the learning experience less interactive. This aligns with research findings indicating that the use of technology in the learning process remains suboptimal (Safi'i et al., 2024). Furthermore, the use of cultural products through ethnomathematics integration remains low, as indicated by the low percentage of teachers who use local culture as a learning resource or present problems in a culturally relevant context. Several studies indicate that ethnomathematics has not been used as a learning resource and context in mathematics learning (Astuti et al., 2024a; Oktaviani et al., 2022). This condition limits students' opportunities, especially for slow learners, to learn mathematics in a meaningful and contextual way.

Furthermore, the lack of an interactive e-module based on ethnomathematics means slow learners do not receive media support tailored to their needs. Interactive electronic modules can help visualize abstract concepts. These modules also provide adaptive exercises and connect material to cultural content familiar to students (Purwoko et al., 2023; Sintiya et al., 2021). All slow learners have low numeracy skills. Therefore, innovative, contextual, and technology-based learning solutions are needed across the curriculum. Problems such as low technology use, limited integration of ethnomathematics, the absence of interactive ethnomathematics-based e-modules, and low numeracy among slow learners indicate an urgent need. It is necessary to develop technology-based learning media, namely interactive e-modules based on ethnomathematics, to improve students' numeracy skills.

Combining the culture of traditional markets with statistics learning provides a real-world context that closely reflects students' daily lives. It is an important tool for students to develop their numeracy skills (Ramadhani et al., 2024; Sintiya et al., 2021). Numeracy skills are the ability to use mathematical concepts, such as mean, median, and mode, to understand, interpret, and make decisions based on real-life data. Using price data from traditional markets, students learn to compute averages, determine the median, and identify the most frequently occurring price (Purnadewi & Widana, 2023). This trend helps clarify the practical role of statistics in making purchase decisions and in observing market price trends. By examining price frequencies, students can learn to interpret patterns and tables and analyze data distributions, thereby developing numeracy skills that relate to the meaning of the data (Puspitasari et al., 2024). For slow learners, this approach is more inclusive because it provides a familiar, concrete, and visual learning context.

Market price data is easy for them to understand because it is closely tied to everyday experiences. To help slow learners understand mean, median, and mode, simple data should be presented. Step-by-step calculations should be supported by tables or diagrams to enhance conceptual understanding (Asnawi et al., 2023). Integrating traditional markets into mathematics learning contexts fosters a love of culture and provides an authentic context for learning. Additionally, it enhances students' numeracy skills and provides targeted assistance to slower learners, thereby ensuring their engagement in understanding statistical concepts and solving practical problems.

The novelty of this research lies in the development of an interactive electronic module based on the ethnomathematics approach to traditional markets. The flow of activities is specifically designed to stimulate the numeracy skills of slow learners. The limitation is that this research has only covered the analysis and design stages. Recommendations for further research include progressing to the development and implementation stages by testing this electronic module on a limited and broader scale and conducting an evaluation. In addition, other researchers can develop interactive e-modules on other materials for slow learners. Theoretically, the results of this study strengthen the literature on the importance of integrating ethnomathematics and using electronic learning resources to support the numeracy skills of slow learners. In practice, the results of this study can serve as a basis for teachers to increase the use of cultural products and technology as learning resources to support the numeracy skills of slow learners.

Conclusion

Research shows that, despite having enough technological resources, teachers rarely use them to teach mathematics to slow learners. Technology mostly serves as a visual aid. Ethnomathematics is rarely included as a learning context. As a result, slow learners miss interactive, context-based experiences. Their numeracy skills remain low. Slow learners struggle to understand information, decide on strategies, and apply them to solve problems. They also find it difficult to interpret solutions in the context of given problems. An interactive electronic module based on ethnomathematics is needed as an innovative medium. It can visualize abstract concepts, offer adaptive practice, and help slow learners improve numeracy skills. The module design starts with clear learning objectives. It integrates traditional market culture into statistical concepts such as the mean, median, and mode. This provides clear context. Students use market price data to connect statistical concepts to real activities. This context strengthens numeracy skills in understanding, analyzing, and interpreting data. It benefits slow learners by using simple, concrete, and easy-to-understand data. Ethnomathematics-based learning does more than strengthen cognitive competence. It also encourages appreciation for cultural products and supports inclusive, meaningful learning. Thus, the development of an interactive e-module based on ethnomathematics is needed to improve the numeracy skills of slow learners.

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