

# Innovative E-Module Design Using the FIVES Model: Strengthening Literacy and Numeracy in Elementary Schools

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## ARTICLE INFO

### Keywords:

E-Learning Module;  
Elementary School Students;  
FIVES Model, Strengthening;  
Literacy and Numeracy

### Article history:

Received 2024-12-29

Revised 2025-01-15

Accepted 2025-03-26

## ABSTRACT

Literacy and numeracy are critical foundations for developing elementary students' problem-solving and critical thinking skills. Structured e-learning modules are essential to support these competencies. This study explores the design of e-learning modules based on the FIVES learning model—a pedagogical framework consisting of Focus, Inquiry, Vocabulary, Evidence, and Summary—to enhance literacy and numeracy at the elementary level. Using a qualitative, exploratory approach, data were collected through in-depth interviews with eight teachers and classroom observations of eight fourth-grade classes across elementary schools in West Java, DKI Jakarta, Banten, and Lampung. Data were analyzed using the Miles and Huberman model, involving data reduction, display, and conclusion drawing. The findings indicate that effective FIVES-based e-learning modules should include interactive text activities, inquiry-driven tasks, vocabulary development components, and evidence-based comprehension exercises. Customized formative assessments were also identified as essential tools to evaluate students' literacy and numeracy progress. The modules showed strong potential to support active learning and knowledge construction aligned with students' developmental needs. The integration of the FIVES model into e-learning design can significantly enhance foundational literacy and numeracy skills through a structured and student-centered approach. Future research should investigate the scalability of these modules, assess their performance in varied educational settings, and explore integration with other digital tools to improve learning outcomes.

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## 1. INTRODUCTION

Literacy and numeracy skills are critical for early academic performance and later academic success, mental health, and employment prospects in adulthood (Conica et al., 2023). Literacy and numeracy skills are essential for early learning ability and continued academic achievement (Hulme et al., 2012; Lynch et al., 2023). In today's knowledge-based and technologically advanced society, literacy and numeracy are critical skills for well-being (Lechner et al., 2021). As the main axis of 21st Century

Skills, literacy needs to be internalized, internalized, socialized, and cultivated to all individuals, members of society, and citizens of Indonesia so that they master and have good basic literacy skills (Saryono et al., 2017). Students who have difficulty learning to read often take a long time to complete assignments in other subjects (Walgermo et al., 2018). The challenges of the learning crisis previously identified among elementary school-aged students require intervention to address the disparity in abilities among secondary school students (Azubuike et al., 2024).

According to the 2023 Indonesian Education Report Card, based on the 2022 Minimum Competency Assessment (AKM) results published by Kemdikbudristek, elementary and Islamic elementary school students achieved a *moderate* level of competency in both literacy and numeracy. In literacy, 61.53% of students demonstrated abilities above the minimum standard, indicating their capacity to integrate information across texts, critically evaluate content, and reflect on meaning (Education Assessment Center, 2022). In numeracy, 46.67% of students scored above the minimum threshold, reflecting skills in reasoning and solving complex, non-routine problems using mathematical concepts. These figures show an improvement from the 2021 AKM, which reported that over half of elementary students had low literacy and numeracy skills. However, the current gains remain modest, as scores have yet to reach the “good” performance category.

Challenges in foundational literacy and numeracy are not unique to Indonesia. Countries such as Bangladesh, Uganda, Ireland, the United States (e.g., Nevada, New Jersey, Pennsylvania, and Wisconsin), Australia, and Madagascar report similar issues (Richards & Islam, 2018; Urwick, 2022; Conica et al., 2023; Lynch et al., 2023; Bell et al., 2023; Maruyama & Igei, 2024). Responses vary by region but typically involve school- and government-led interventions. In Indonesia, persistent problems include difficulty using mathematical symbols, interpreting data in various formats (graphs, tables), solving contextual problems, and applying strategies for real-life scenarios. Contributing factors include weak literacy and numeracy culture (Patriana et al., 2021), ineffective instructional strategies (Ulfa et al., 2022; Nastiti & Dwiyantri, 2022; Ain et al., 2023), and inaccurate assessments (Rohim, 2021; Rahmasari et al., 2022).

The facts on the ground that show low literacy and numeracy skills require a new paradigm shift in learning. These changes include those related to the use of learning models and learning resources used in learning. The weak literacy and numeracy skills are caused by the lack of quality reading materials, contextual learning resources, learning materials that are not yet interesting, available digital materials tend to be passive, such as PDFs or text documents without interactivity features. This shows that there is a lack of development of teaching modules, namely materials, LKPD, and digital assessments that are interesting, interactive and relevant to students. Learning that demands literacy skills is influenced by teacher variables and student variables. Among these variables, the implementation of strategies carried out by teachers has a major influence on students' literacy skills (Yan & Cai, 2022). Problems that occur in the learning process to improve literacy and numeracy skills are very important to be resolved immediately. Researchers provide solutions by designing e-learning modules with the FIVES model, which contains interactive features in the learning module, FIVES model learning stages are equipped with text assignments and assessments needed by teachers and students in literacy and numeracy learning in elementary schools.

The implementation of the Independent Curriculum in Indonesia highlights the increasing demand for teachers to design learning modules that align with student-centered approaches and support the development of key competencies, particularly in literacy and numeracy. Among the various instructional strategies, the FIVES model—comprising Facts, Inference, Vocabulary, Experiences, and Summary—offers an integrated framework that promotes active learning through multimodal engagement (Nirmala et al., 2018; Shea & Roberts, 2016). This model enhances students' abilities in reading, writing, speaking, listening, and visual representation, and is adaptable across subjects. Complementing this, theoretical perspectives from Vygotsky (1978) and Chomsky (2021) reinforce the importance of scaffolded instruction and socially interactive learning environments in developing children's cognitive and language skills.

While numerous studies have explored the effectiveness of e-modules—such as those based on flipbooks, inquiry models, PBL, and ethno-STEM approaches (e.g., Violadini & Mustika, 2021; Fujiarti et al., 2024)—there remains a notable gap in research specifically examining the integration of the FIVES model into e-modules for literacy and numeracy enhancement in Indonesian elementary schools. Existing e-module studies have focused on improving general academic performance, but have not directly targeted foundational competencies through structured models like FIVES.

This research addresses that gap by investigating the design and potential impact of FIVES-based e-learning modules on strengthening elementary students' literacy and numeracy skills. The study is guided by the following research questions:

- (1) What are the key features of effective FIVES-based e-modules for literacy and numeracy learning in elementary schools?
- (2) How do these modules support the development of students' literacy and numeracy competencies?

Accordingly, the aim of this study is to explore the design elements, implementation, and potential benefits of FIVES-integrated e-learning modules as tools for improving literacy and numeracy outcomes among elementary school students in Indonesia. This research contributes a novel pedagogical approach that combines established learning theories with digital innovation to address a critical need in foundational education.

## 2. METHODS

This study employed a qualitative approach with an exploratory method, following Creswell & Creswell (2017), to investigate the design and potential of FIVES-based e-learning modules in strengthening literacy and numeracy skills among elementary students. The focus was on gathering in-depth insights into teacher strategies, instructional planning, and the integration of technology-based learning tools.

The sample consisted of eight Grade 4 teachers and their respective classes from eight public elementary schools across four provinces in Indonesia—West Java, DKI Jakarta, Banten, and Lampung (two schools per province). The selection was based on purposive sampling to ensure a diverse representation of school contexts (urban and semi-urban), as well as feasibility in terms of time, access, and resources. The sample size aligns with qualitative research principles, which prioritize depth over breadth, enabling rich data collection through prolonged engagement and context-specific analysis.

The main instruments used were semi-structured interviews and classroom observations. Interview questions were aligned with three core components:

1. Teachers' understanding of literacy and numeracy,
2. Their strategies for implementing instructional design to support these skills, and
3. Assessment methods.

To ensure alignment with the research objectives, the semi-structured interview instrument was carefully developed to explore teachers' perspectives and instructional practices related to literacy and numeracy. The questions were organized into three main components: teachers' conceptual understanding of literacy and numeracy, the application of instructional strategies to improve these competencies, and the forms and tools used for assessment. Each component was designed to elicit detailed responses that could be analyzed in relation to the FIVES model framework. Table 1 outlines the components, indicators, and corresponding question items used in the interview instrument.

**Table 1.** Components of Interview Questions for Grade 4 Teachers

No	Component	Indicator	Question Items
1	Understanding Literacy and Numeracy Abilities	Understanding the Concept of Literacy and Numeracy	1,2,3,4
2	Application of Learning to Improve Literacy and Numeracy	Teacher strategies in preparing learning devices	5,6,7,8,9,10,11,13
		Teacher strategies in implementing learning	13,14,15,16,17,18,19,20,21
3	Learning Assessment to improve students' literacy and numeracy skills	Forms of learning assessment	22, 23
		Learning assessment instruments	24, 25

Observations were conducted in two phases:

1. Review of teaching modules and lesson plans, focusing on the formulation of learning objectives, development of learning materials, selection of instructional strategies, media, and assessment tools.
2. Direct observation of classroom instruction—specifically, Indonesian language lessons—using a structured observation guide. This guide was designed to assess whether the instructional practices reflected the FIVES model and effectively fostered literacy and numeracy development.

Data were recorded using observation checklists and field notes. To enhance validity, an inter-observer reliability check was conducted on two sample observations, resulting in a consistency rate of 90%.

The data analysis followed Miles and Huberman's (1994) model, consisting of four stages: data reduction, data display, conclusion drawing, and verification.

#### 1. Data Reduction

Data were filtered and categorized according to key themes. The FIVES model—Facts, Inference, Vocabulary, Explanation, and Summary—served as a guiding framework during this process. For example, teacher responses and observed practices were coded to determine alignment with each FIVES component. Specific attention was paid to how teachers encouraged students to identify facts from texts, draw inferences, build vocabulary, explain concepts, and summarize information.

#### 2. Data Display

The reduced data were organized into matrices and tables to facilitate pattern recognition and thematic analysis.

#### 3. Conclusion Drawing

Findings were synthesized based on emergent themes, revealing the role of FIVES-based e-modules in shaping literacy and numeracy-focused instruction.

#### 4. Verification

Data triangulation was used to confirm findings by cross-checking teacher interview data with observation results and teaching module documents.

### 3. FINDINGS AND DISCUSSION

#### 3.1. Finding

The result data in this research is in the form of interview data and data from observations of the learning process, each of which is detailed in table 2. "Not a few students feel lazy and do not care about the development of their learning process. This desire to learn also affects their school

achievement. The reason is, that by not going to school, many students do not have a strong reason and motivation to study. When teachers usually teach, pay attention, and supervise students directly in class, the level of students' desire to learn is relatively more maintained."

**Table 2.** Results of Interview Analysis regarding Understanding Literacy and Numeracy Abilities, Application of Learning and Assessment of Literacy and Numeracy Learning for Class 4 Teachers

Component	Indicator	Keywords	Draft
<b>Understanding Literacy and Numeracy Abilities</b>	Understanding the Concept of Literacy and Numeracy	1. Knowledge of literacy skills	1,2,3,4 Students' reading and writing abilities 5.8 students' ability to understand and solve problems 6.7 students' ability to apply knowledge in the context of problem solving
		2. Knowledge of numeracy skills	1,2,3,4,5,6,7,8 Students' ability to use numbers related to mathematics
		3. How to know and measure students' literacy skills	1,2,3,4,5,6,7,8 Through initial assessment/diagnostic tests and formative tests
		4. How to find out and measure students' numeracy abilities	1,2,3,4,5,6,7,8 Through initial assessment/diagnostic tests and formative tests
<b>Application of Learning to Improve Literacy and Numeracy</b>	Teacher strategies in preparing learning devices	5. Experience in compiling learning tools (RPP/Teaching Modules) specifically to improve students' literacy skills	1,2,3,4,5,6,7,8 Yes, I have with the complete equipment and learning model used.
		6. Experience in compiling learning tools (RPP/Teaching Modules) specifically to improve students' numeracy skills	1,2,3,4,5,6,7,8 Yes, I have, with complete equipment and complete learning models.
		7. How to create special learning tools to improve literacy skills	1,3,4 Compiling learning tools based on observations and analyzing student characteristics and learning styles. 2.5 emphasizes the learning media needed according to student needs. 6,7,8 facilitated interesting and literacy-rich learning steps
		8. How to develop special learning tools to improve numeracy skills	1,3,4 Compiling learning tools based on observations and analyzing student characteristics and learning styles. 2.5 emphasizes the learning media needed according to student needs. 6,7,8 facilitated interesting and literacy-rich learning steps

	9.	Equipment used in preparing lessons to improve literacy and numeracy skills	1,2,3,4,5,6,7,8 - Teacher's book - Student book - Syllabus/Learning Objective Flow - Annual Program - Semester Program - Journal
	10.	Approaches, strategies, models, special learning methods used in learning devices to improve students' literacy skills	There is 1,3,4,5 reading habits before learning 2,6,7,8 <i>Project Based Learning Model</i> (PBL), students read and collect information from various sources, write reports, and present their findings. This helps them develop literacy in a contextual and meaningful way.
	11.	Approaches, strategies, models, special learning methods used in learning tools to improve students' numeracy skills	1,2,3,4,5,6,7,8 CTL, cooperative learning, using games
	12.	Experience implementing special literacy programs either from the government or creating your own programs	1,2,3,4,5,6,7,8 School literacy movement (has not yet developed its own program)
Teacher strategies in implementing learning	13.	Specific strategies used by you to improve students' literacy skills	1,2,3,6,7 Through reading habituation activities 4.5 Drills 8 Games
	14.	Specific strategies used by Mr/Mrs to improve students' numeracy skills	1,2,3,4,5,6 Practice and Repetition 7.8 Integration with Everyday Life
	15.	Special learning models used to improve students' literacy skills	1,2,3,4,5,6,7,8 Not using a special model, just getting used to it
	16.	Special learning model used to improve students' numeracy skills	1,2,3,4,5,6,7,8 Not using a special model, just getting used to it
	17.	Learning steps (introduction, core, closing) carried out to improve students' literacy skills	1,2,3,4,5,6,7,8 In the preliminary activities, students are conditioned, students are given trigger questions. In core activities, learning steps are used that involve students directly in reading and writing as well as presentations. At the closing activity Strengthening and evaluation are carried out

		18. Learning steps (introduction, core, conclusion) taken to improve students' numeracy skills	1,2,3,4,5,6,7,8 In the preliminary activities, students are conditioned, students are given trigger questions. In core activities, learning steps are used that involve students directly in analysis, especially to hone mathematical skills. At the closing activity Strengthening and evaluation are carried out
		19. Media and learning resources to improve students' literacy skills	1,2,3,4,5,6,7,8 Video or image
		20. Media and learning resources in improving students' numeracy skills	1,2,3,4,5,6,7,8 Video or image
		21. Online learning media/resources in literacy/numeracy learning? If so, provide examples of the learning media/resources used	1,2,3,4,5,6,7,8 It doesn't always depend on the situation and conditions
<b>Learning Assessment to improve students' literacy and numeracy skills</b>	Forms of learning assessment	22. Learning assessment to improve students' literacy skills	1,2,3,4,5,6,7,8 It doesn't always depend on the situation and conditions
		23. Learning assessment to improve students' numeracy skills	1,2,3,4,5,6,7,8 Yes, I do. Forms of assignments, tests and observations
	Learning assessment instruments	24. Instruments used in conducting learning assessments to improve students' literacy skills	1 There is no standard instrument yet 2,3,4,5,6,7,8 Refers to reading, writing and journal literacy skills
		25. Instruments used in conducting learning assessments to improve students' numeracy skills	1,2,5 Interactive quiz 3,4 Peer assessment 6,7,8 Test/questions

Description: Respondent Code

Respondent 1: Mrs. A (JB), Respondent 2: Mrs. I (B), Respondent 3: Mrs. D (B), Respondent 4: Mrs. F (JB), Respondent 5: Mrs. L (DKI), Respondent 6: Mrs. M (DKI), Respondent 7: Mrs. N (M), Respondent 8: Mr. R (M).

The results of observations on the literacy and numeracy skills of grade 4 students, the learning tools used and the learning process are detailed in Table 3.

**Table 3.** Observation Results of Students' Literacy and Numeracy Skills, Learning Tools Used and Learning Process

<b>Literacy Skills</b>
<p>The results of the observation show that the literacy climate of grade 4 students in eight elementary schools is quite good, most indicators have even been achieved in the good category. The majority of students are very good at finding information from fictional and non-fictional texts (information) using the 5W + 1H question word guide. Students have also begun to be proficient in integrating and interpreting texts, both fictional and non-fictional texts. However, the results of the observation found that students' ability to evaluate and reflect on a text is not good enough, meaning that there needs to be encouragement and guidance from teachers to improve this ability. The ability that must be considered is reflecting new knowledge obtained from fictional and non-fictional texts with the knowledge that students have. The results of the observation carried out are in line with the results of the 2024 education report which shows that most students have achieved minimum competency in literacy. Where minimum competency means that students are proficient in understanding, using, reflecting, and evaluating various types of texts (informational texts and fictional texts). What is noted from the results of this observation is that efforts are still needed so that more students are proficient in literacy and to help students who are already proficient to be more proficient in literacy.</p>
<b>Numeracy Ability</b>
<p>The results of the observation show that the numeracy skills of grade 4 students in six elementary schools (1,2,3,4,7,8) are quite good. Basic mathematical skills such as remembering and identifying numbers, quantities, shapes and mathematical expressions have been very well done by students. Then for the indicators of classifying numbers that have similar properties, carrying out calculation procedures and taking information from texts, tables and other sources, presenting data and providing conclusions, students have been able to do it in the good category. Indeed, not all show a good category, what still needs to be considered is the ability of students to use the right measurement instruments, determine the right strategies and arithmetic operations in solving problems, provide interpretations or interpretations in solving problems and use mathematical arguments that support problem solving. The numeracy skills of students in two elementary schools (5,6) are not good, this is evidenced by the education report card where numeracy skills are still red in 2023. This weakness is in terms of solving problems, presenting data, difficulty remembering definitions, properties of numbers, units of measurement, properties of geometric shapes, and number notation, classifying numbers, expressions, and shapes based on their properties.</p>
<b>Learning Tools</b>
<p>The results of observations of the learning tools used by teachers show:</p> <ol style="list-style-type: none"> <li><b>1. Formulation of learning objectives:</b> Teachers have demonstrated their ability to formulate learning objectives according to the curriculum and indicators, but have not been able to accommodate HOTS aspects, and have not been able to make all formulations of learning objectives accommodate students' literacy and numeracy skills. Literacy skills only appear in the formulation of certain learning objectives such as themes that integrate Indonesian language lessons, while numeracy skills only appear in the formulation of mathematics learning objectives.</li> <li><b>2. Preparation of learning materials and equipment:</b> Teachers have been able to design learning materials that are relevant to the curriculum, containing facts, concepts, principles, and procedures, but have not fully accommodated students' literacy and numeracy skills. As in creating learning objectives, teaching materials are also provided by teachers without accommodating HOTS. Literacy skills are only presented in thematic learning that integrates Indonesian language lessons, and numeracy skills are only presented in mathematics learning.</li> <li><b>3. Learning strategy design:</b> Teachers are quite varied in determining learning approaches, models and methods that suit student characteristics, but none of them has led to the use of learning models whose syntax specifically guides literacy and numeracy learning. Some teachers still use conventional methods so that students are less actively involved.</li> </ol>

4. **Selection of learning sources and media:** Learning media used by teachers are usually concrete and interesting media and easy to make or find in the surrounding environment. In designing media, teachers rarely utilize ICT due to limited capabilities and limited school facilities and infrastructure. For learning sources, teachers have been able to utilize various learning sources such as the internet, articles and online teaching modules, but not optimally.
5. **Preparation of assessment tools:** Teachers are able to determine procedures, forms, and types of assessments that are appropriate to student characteristics, objectives, and subject matter, as well as prepare appropriate assessment instruments.

### Implementation of Learning

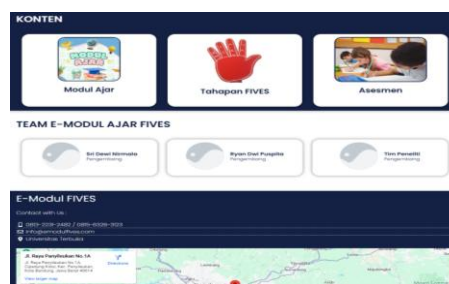
In the preliminary activities, teachers are considered to be very capable of preparing students physically and psychologically, delivering apperception, and conveying the objectives and learning activities that will be carried out completely and systematically. Meanwhile oncore activities, teachers are considered capable of delivering materials well and occasionally provide opportunities for students to ask questions and seek their own knowledge through source books. For materials that develop students' literacy skills, many are delivered by teachers in learning that requires students to be literate such as thematic learning and materials that develop students' numeracy skills are delivered by teachers in mathematics learning. Learning materials are certainly delivered by teachers systematically and logically. During the learning process, teachers were also seen instilling good character and moral messages to students such as politeness and cooperation. The learning approach and model used by teachers were also considered to be in accordance with the characteristics of learning. However, what was noted from the learning carried out was that teachers had not been able to facilitate students to develop HOTS abilities. In addition, teachers were also considered to have not been optimal in monitoring student learning progress actively and comprehensively, and still had difficulty in managing learning time effectively and efficiently due to the diversity of student abilities in participating in learning. Onclosing activities, teachers are considered capable of concluding lesson materials by involving students, carrying out evaluations but not yet based on HOTS and carrying out reflections and follow-up on learning by involving students. Finally, the general impression of teachers in learning, teachers are considered capable of displaying a cheerful face, paying attention to all students, dressing in a suitable style, providing appropriate inspiration and motivation to students, speaking politely and confidently, demonstrating fair, empathetic, and objective behavior, and displaying enthusiastic and passionate behavior in the learning process.

Based on the results of interviews and observations, it can be mapped the needs of teachers in literacy and numeracy learning, especially in compiling learning tools, namely in determining the right learning model/strategy and the right learning media. Teachers also need learning resources that can be accessed anywhere, are easy to access, can guide learning and provide various learning resources for students, especially in improving literacy and numeracy skills. The need for an introduction to a complete learning model with syntax, media, reading materials, student worksheets and assessments that are packaged online or can be in the form of e-modules. The design of the e-module which is compiled based on the needs of teachers and students above is described below.

**Table 4.** Design of E-Learning Modules with the FIVES Model for Strengthening Literacy and Numeracy in Elementary Schools

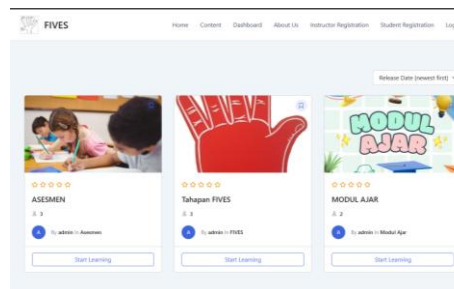
Front page view





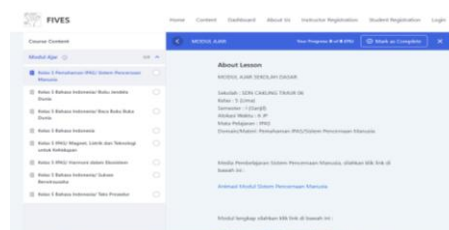
E-Module Features

1. Teaching Module
2. FIVES Stages
3. Assessment

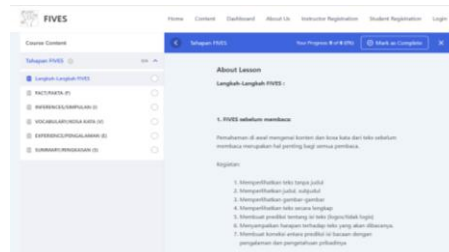


The Teaching Module Features are 8 Modules:

1. Human Digestive System
2. Window to the World Book
3. Read Books Open the World
4. Indonesian Language
5. Magnets, Electricity and Technology for Life
6. Harmony in the Ecosystem
7. Successful Entrepreneurship
8. Procedural Text

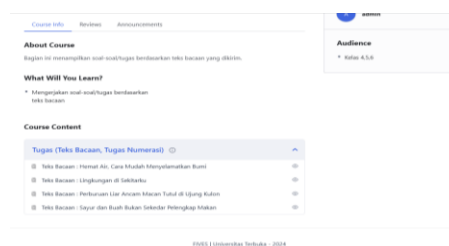


FIVES Model Steps



The Assessment Feature contains 4 texts with the titles:

1. Save Water, Easy Ways to Save the Earth
2. My Surrounding Environment
3. Poaching Threatens Leopards in Ujung Kulon
4. Vegetables and Fruits are not just Food Supplements



The design of the e-learning module with the FIVES Model was compiled by researchers in collaboration with eight elementary school teachers who were respondents. The features available in the e-learning module are compiled based on the needs of literacy and numeracy learning, namely learning that requires learning resources in the form of digital platforms that can be used by teachers and are interactive. This e-learning module is also designed to be able to assess literacy and numeracy learning outcomes and the results can be checked directly, so that teachers can reflect and follow up quickly and accurately. This e-learning module, which uses the FIVES Model to strengthen literacy and

numeracy in elementary school students, is ready to be validated by experts and practitioners and is ready to be developed.

### 3.2. Discussion

The findings of this study indicate that while teachers generally understand the concepts of literacy and numeracy, instructional strategies and media used in classrooms often lack structured guidance and interactive features necessary to strengthen these foundational skills. Teachers commonly assess students' competencies and provide practice activities, yet many still rely on conventional methods and static resources, such as textbooks. Interviews with teachers revealed that although they attempt to adapt learning methods to student needs, none had adopted a model with a clear syntax that systematically supports literacy and numeracy learning. Moreover, most teachers do not yet utilize ICT-based tools, highlighting a gap in the use of innovative, digital learning materials in daily practice.

To address these observed needs, the FIVES model—comprising Facts, Ideas, Vocabulary, Explanation, and Summary—offers a structured and interactive approach to learning that directly responds to gaps identified in current instructional practices. Each step of the model aligns with specific learning challenges:

- Facts: Encourages students to identify key information from texts, addressing the lack of clear, factual comprehension in existing lessons.
- Ideas (Inference): Promotes higher-order thinking by guiding students to draw logical conclusions, filling the gap in HOTS (Higher-Order Thinking Skills) integration in lesson objectives.
- Vocabulary: Builds essential academic language, supporting the need for language-rich learning environments.
- Explanation: Facilitates critical reflection and understanding, replacing surface-level comprehension with deeper engagement.
- Summary: Strengthens metacognitive skills, teaching students how to synthesize and communicate learned content effectively.

Embedding these components into e-modules creates a dynamic learning experience that enhances student interaction with texts while promoting active, inquiry-based learning. Compared to other models, the FIVES framework is uniquely suited for e-learning integration because of its sequential, text-focused nature and its flexibility in being adapted across subjects.

The development of FIVES-based e-modules represents a practical and scalable innovation. Unlike traditional materials, these e-modules offer multimedia elements, interactive assignments, and built-in formative assessments aligned with each FIVES stage. Teachers benefit from ready-to-use content that not only addresses core competencies but also provides a roadmap for effective instruction.

From a feasibility perspective, implementing FIVES-based e-modules in Indonesian elementary schools is realistic, provided there is adequate teacher training and basic ICT infrastructure. These modules can be integrated into the current *Independent Curriculum* framework, supporting teachers in fulfilling curriculum demands while enhancing student engagement. Additionally, pilot implementation can be scaled gradually, allowing teachers to familiarize themselves with the model and digital tools.

Studies show that digital learning tools can improve student motivation and learning outcomes when aligned with pedagogical goals (Deshpande et al., 2017; Campbell et al., 2020). The structured activities in the FIVES e-modules not only guide students through meaningful engagement with text but also support differentiated learning based on students' abilities. Furthermore, the inclusion of embedded assessment tools allows for rigorous evaluation of literacy and numeracy progress (Krupar & D'Sa, 2024).

In summary, the FIVES-based e-modules offer a promising solution to address the instructional gaps identified in this study. By integrating interactive features, structured learning sequences, and content aligned with students' cognitive development, these e-modules can significantly contribute to

strengthening literacy and numeracy competencies in elementary education. Their development not only represents an instructional innovation but also a practical response to the current challenges faced by teachers in delivering effective, engaging, and competency-based instruction.

#### 4. CONCLUSION

This study demonstrates that e-learning modules based on the FIVES Model (Facts, Ideas, Vocabulary, Explanation, Summary) have a strong potential to enhance elementary students' literacy and numeracy skills. Findings revealed that students engaged more actively with texts, demonstrated improved comprehension, and applied reasoning more effectively when guided by the structured stages of the FIVES model. For example, students showed greater ability to identify key facts, make inferences, build subject-specific vocabulary, and summarize information clearly—skills that directly support both literacy and numeracy development. Additionally, the contextual learning tasks embedded within the modules encouraged more accurate problem-solving and improved students' ability to interpret mathematical information in real-life situations.

Despite these promising outcomes, this study was limited by its small sample size—eight teachers and classes across four provinces—which may affect the generalizability of the results. Future research should involve a broader sample and pilot the modules across various regions and school types to assess their scalability and effectiveness in diverse learning environments. From a practical perspective, the study highlights the need for professional development programs to train teachers in implementing the FIVES model through e-learning tools. Educational policymakers and curriculum developers are encouraged to integrate structured, model-based e-modules into elementary education to promote active learning and address persistent gaps in foundational skills.

Future studies could explore the adaptation of FIVES-based e-modules for other subjects, such as science or social studies, and assess their impact across different grade levels. Longitudinal research is also recommended to examine the sustained effects of the model on student learning outcomes.

**Acknowledgements:** This first year of research activities has been carried out well with the help and support of various parties. Therefore, we express our highest gratitude and appreciation to the Institute for Research and Community Service (LPPM) of the Universitas Terbuka which has funded the research activities, as well as several teachers as respondents who have agreed to become participants in this research.

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