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# Exploring the Use of Lectora Inspire Media in Learning Flat Buildings in Elementary School

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**A B S T R A C T**

This study aims to determine how much impact Lectora Inspire-based learning media has on the development of student learning outcomes on the concept of composition and decomposition of flat shapes in grade IV SD Negeri Karangligar I, Karawang Regency, West Java. Using descriptive qualitative method, the study involved 19 students and homeroom teachers, collecting data through observation, interviews, documentation, and tests. The results showed that Lectora Inspire improved student learning, especially in the composition and decomposition of flat shapes, with higher enthusiasm and classroom interaction compared to conventional methods. Both teachers and students (especially high ability ones) responded positively, although medium and low ability students needed assistance. In conclusion, Lectora Inspire is recommended as an effective mathematics learning tool in primary schools.

## 1. Introduction

Mathematics is one of the basic sciences that plays an important role in the development of science as well as in shaping human personality (Kurino, 2020). Saragih & Rahman, (2021 in Kurino. 2020 The ability to think logically, analytically, and systematically instilled through mathematics is very important in supporting students' problem solving skills. However, in practice, mathematics learning at the elementary school level still tends to be conventional, with the teacher as the center of information and students playing a passive role as recipients of material. This learning model is less effective in helping students understand mathematical concepts in depth, including on flat building materials ( Kurino, 2020)

The flat shape material itself is very important because it includes visual representation skills, understanding of geometric shapes, and spatial thinking skills (Utami, 2024) . One of the important aspects in learning flat shapes is the concept of composition and decomposition of shapes, namely the ability to compose and decompose geometric shapes that are more complex than basic shapes. However, students often have difficulty in connecting visual representations with abstract concepts, causing misconceptions that are quite high (Trisnani, 2025).

In response to these challenges, increasing teacher competence and creativity is crucial, as mandated in Article 20 Paragraph (c) of Law No. 14/2005 on Teachers and Lecturers. One strategy that can be taken is to utilize technology-based learning media. Interactive learning media can bridge the gap between mathematical abstraction and student understanding through visualization and a more interesting learning experience (Ningsih et al., 2022) . This is also in line with the objectives of national education in Article 3 of Law No. 20 of 2003, which is to develop students' potential actively and creatively. One of the promising technology-based media in math learning is *Lectora Inspire*. Lectora is an authoring tool software that allows teachers to create interactive teaching materials equipped with animations, videos, simulations, and quizzes (Mas'ud, 2012) . Its use is in line with the spirit of Article 25 of Law No. 11 of 2008 on Electronic Information and Transactions, which supports the utilization of technology in education.

*Lectora Inspire* has many advantages, including ease of use, flexibility in packaging materials, and compatibility with various digital learning platforms such as SCORM and Moodle. In addition, Lectora supports *blended learning* and *flipped classroom* approaches that are relevant to 21st century challenges (Nartiningrum & Nugroho, 2020) . Lectora is effective in improving student engagement and understanding as it combines visual, kinesthetic and audio aspects in one medium. *Lectora Inspire* can also facilitate constructivist approaches by providing a learning environment that allows students to construct their own knowledge through active interaction with. It also allows for a more authentic evaluation of learning with its integrated assessment features (Fuadi, 2021) . Susanti, 2021 even shows that *Lectora Inspire* is very suitable for use at the elementary school level to increase motivation to learn mathematics.

However, most of the previous studies have not specifically discussed how this media is used to support the understanding of the concept of flat shapes in the aspects of shape composition and decomposition. In addition, not many studies have been conducted in a local context such as at SD Negeri Karangligar 1, Karawang Regency, a B accredited public school with the support of electricity and internet facilities but not yet optimal in the utilization of learning technology. Considering this gap, it is important to conduct this research to explore how *Lectora Inspire-based* media can help improve the understanding of flat building concepts, especially shape composition and decomposition, among elementary school students.

## 2. Methodology

This research was conducted at SD Negeri Karangligar I**,** Karangligar Village, Telukjambe Barat Sub-district, Karawang Regency, West Java, in the 2024/2025 academic year. The research activities lasted for one week and included initial observations, learning with Lectora Inspire media, interviews, documentation, and data collection through student comprehension tests. The selection of this location was based on the consideration that the school already has basic infrastructure that supports the use of technology, but has not been optimal in utilizing digital learning media (Siregar & Wulandari, 2020) .

### *Research Subjects and Data Sources*

The subjects in this study were fourth grade students of SD Negeri Karangligar I in the 2024/2025 school year totaling 19 students, consisting of 9 boys and 10 girls. The sample was selected using purposive sampling technique, namely 4 students representing high, medium, and low abilities based on the initial test results (Miles, 2014) . In addition to students, the fourth grade homeroom teacher was also involved as a subject to provide pedagogical and technical perspectives on the use of media. The data sources in this study consist of primary and secondary data. Primary data is obtained through interviews with teachers and students, while secondary data comes from the results of observations, documentation of the learning process, as well as the results of multiple choice tests used to measure understanding of the concept of composition and decomposition of flat buildings (Moleong, 2016).

### *Research Approach and Methods*

This research uses a descriptive qualitative approach, which aims to describe in depth the phenomenon of using Lectora Inspire media in learning mathematics without manipulating variables. According to Creswell, 2014 in Hera & Elvandari, 2021 This approach is in accordance with the characteristics of educational research which focuses on the meaning, process, and perceptions of participants. According to Patton, 2002 in Assyakurrohim, 2022 This method also allows exploration of student and teacher learning experiences in natural settings and in-depth analysis of the results of interactive media-based learning interventions.

### *Research Procedure*

This research procedure refers to the stages of qualitative research according to Miles, 2014 , which includes four main steps, namely: (1) Preparation Stage**,** which includes obtaining permission to conduct research at school as well as preparing and preparing research instruments such as observation guides, interview grids, and student comprehension tests; (2) Implementation Stage, which is carried out by implementing flat building material learning using Lectora Inspire media, while conducting interviews and documentation of student learning activities and systematically recording the results of interview conversations; (3) Data Analysis Stage, focusing on the data reduction process, presenting data in narrative or

thematic form, and drawing conclusions based on the results of observations, interviews, and comprehension tests; and (4) Report Preparation Stage, which is formulating the results of the research comprehensively in the form of a report that explains the findings descriptively and in depth. These four stages are carried out continuously and support each other to fully describe the process and results of the utilization of Lectora Inspire media in learning flat shapes in elementary schools.

### *Data Collection Technique*

According to Creswell, 2014 in Hera & Elvandari, 2021 Data collection techniques in this study were carried out through several methods, namely observation, interviews, documentation, and tests. Data collection was carried out in a natural setting with a triangulation approach of techniques and sources to increase the validity and reliability of the data obtained. Observations were conducted to monitor student and teacher activities during learning using *Lectora Inspire* media, including student responses and teacher application of the media.

Gall & Borg, 2007 in Fadhli, 2015 In-depth interviews were conducted with homeroom teachers and four students selected by *purposive sampling*, to explore their perceptions of the use of media in mathematics learning. Documentation included the collection of photos, videos, evaluation results, and records of activities that occurred during the learning process. All these techniques were used to collect rich and in-depth data, which were then analyzed to provide a better understanding of the effectiveness of Lectora Inspire media in learning mathematics in grade IV, as seen in the following table:

Table 1. Interview Grid

| Theme | Data Source | Question Grid |
|---|---|---|
| Use of Lectora Inspire in learning math | Teacher | Planning, implementation, and evaluation of media use |
| Use of Lectora Inspire in learning math | Students | Student participation and experience |

### *Data Analysis Technique*

Data analysis in this study was carried out inductively through stages adapted from Miles, 2014 , namely: (1) Data Reduction, where data from interviews, observations, and documentation are filtered and simplified to focus on relevant and important data. (2) Data Presentation, data that has been reduced is organized in narrative form to facilitate understanding and systematic drawing of meaning. (3) Data Verification, carried out to interpret data, confirm findings, and answer research problems appropriately**.** (4) Drawing Conclusions, conclusions are drawn based on the results of data analysis carried out inductively, which provides an indepth description of the phenomenon under study, and strengthens the findings in the context of using Lectora Inspire media in learning mathematics in grade IV SD.

## 3. Results and Conclusion

The results of observations during the learning process using *Lectora Inspire* media show that teacher activities take place smoothly and structured. Teachers are able to follow the flow of digital media that has been prepared, so that the learning process can be carried out effectively. However, some students seemed not fully accustomed to technology-based learning methods. This can be seen from some students who need more time to adapt to the use of interactive media that is still new to them. Interaction between teachers and students has improved significantly. Students with high academic achievement showed greater enthusiasm and were more active in class discussions. They seemed eager to answer questions and follow the activities provided through *Lectora Inspire*. On the other hand, medium and low-achieving students were still adjusting to this method. They tend to be slower in understanding the material and often need additional guidance from the teacher.

This shows that the transition to technology-based learning requires time and adaptation, both for students and teachers. Teachers need to provide more intensive support to students who are experiencing difficulties, especially those who are not familiar with the use of technology in the learning process. Thus, although *lectora inspire* media has great potential to improve the quality of learning, attention to the individual needs of students is needed so that the benefits can be felt equally. Student engagement in learning was active, although medium and low ability students tended to experience distraction. This indicates that although interactive media can attract attention, not all students can adapt well. The level of concept understanding also varied. High-achieving students were able to re-explain the material well, while low-achieving students still needed teacher assistance to fully understand the material. The use of interactive features in *Lectora Inspire*, such as quizzes and animations, proved effective in helping high-ability students to adapt faster and understand the material more deeply.

The material presented through this media is in accordance with the curriculum and learning objectives, especially in the aspects of composition and decomposition of flat buildings. All students responded positively to the visual appearance of the media which is attractive and supports the learning process. During the learning process, there were no significant technical glitches, and the classroom atmosphere became more lively and enjoyable compared to the conventional method. This shows that using *Lectora Inspire* not only improves academic understanding, but also creates a more dynamic and interactive learning environment. *Lectora Inspire* media has some significant advantages. First, interactivity through quizzes, animations and simulations increases student engagement in the learning process. Second, the attractive visual display makes it easier for students to understand abstract concepts. Third, this media provides flexibility for teachers in designing materials that suit the curriculum and students' needs. Teachers can customize content based on students' ability levels, making the learning process more effective and inclusive. The *lectora inspire* media link can be accessed through the link: http://localhost:3750/

However, there were also some shortcomings. Moderate and low ability students tend to have difficulty in adapting, requiring more intensive assistance. In addition, some students are easily distracted by interactive features, which can interfere with learning focus. Limited access to technology in some schools is also a challenge, as not all educational institutions have adequate facilities to support the use of *Lectora Inspire*. Finally, students who are less familiar with technology take longer to adapt, which in turn can affect the overall effectiveness of learning. Based on the results of interviews conducted with teachers regarding the use of *Lectora Inspire* media in learning flat shapes in elementary schools. The teacher stated that the material displayed in this media is very much in line with the curriculum and students' needs. All content in the media complements each other and supports the achievement of learning objectives, especially in understanding the concepts of shape composition and decomposition.

The visual appearance of the media is considered attractive and clear, able to attract students' attention and increase their focus during learning. Teachers also assessed that interactive features, such as quizzes, are very helpful in increasing students' active involvement in the learning process. *Lectora Inspire* media runs smoothly and stably during the learning process, with no significant technical constraints. Teachers observed a significant improvement in students' understanding of flat shapes after using this media. In addition, students seemed more active and enthusiastic, and showed higher interest in mathematics. The teacher concluded that the use of this media made math learning more fun and less boring for students.

Table 2. Teacher Interview Results

| No | Question | Answer |
|---|---|---|
| 1 | In your opinion, is the material displayed in *lectora inspire* media in accordance with the curriculum and student needs? | Very appropriate, supporting the curriculum and student needs. |
| 2 | Does the content of *lectora inspire* media support each other to achieve the learning objectives? | Yes, all contents complement each other to achieve the learning objectives. |
| 3 | What do you think about the visual appearance of the *lectora inspire* media? Is it attractive to students? | Very interesting and clear, able to attract students' attention. |
| 4 | Do you think interactive features such as quizzes help increase student engagement? | Yes, interactive features greatly increase student engagement. |
| 5 | Does the media run smoothly and stably during the learning process? | There are no technical problems, but it does not interfere with the smoothness of the learning process. |
| 6 | In your opinion, is *lectora inspire* media easy to access and effective to use at school? | It is very accessible, and the use of media is very helpful for the learning process. |
| In your opinion, is there an improvement in students' understanding of the material after using *lectora inspire* media? | | Yes, students' understanding has improved significantly. |
| Do students seem more active and enthusiastic during the learning process? | | Quite active, there was increased enthusiasm during the learning process. |
| In your opinion, does the use of Lectora Inspire media make students happier in learning math? | | More fun because learning math is no longer a boring activity. |

| | |
|---|---|
| According to you, is the material displayed in Lectora Inspire media in accordance with the curriculum and students' needs? | Yes, it is very appropriate and supports the needs of the curriculum. |

Source: Author, 2025

Based on the evaluation results of the 16 participants, it can be seen that the learning process had an impact on improving participants' understanding. The pre-test scores showed that most participants had a low level of initial understanding, and there were even participants who scored zero, such as Nuraeni. Only a few participants showed good initial understanding, such as Kamil and Fahma. After participating in the learning process, most participants experienced an increase in scores on the post-test. This shows that the methods and materials used in the learning are able to improve participants' understanding, as seen in the significant improvements experienced by participants such as Adzkia, Syifa Nur, and Kamil.

However, not all participants showed progress. There were participants whose posttest scores were the same as the pre-test or even decreased, as happened to Anggara. This suggests that the effectiveness of the learning may not have been evenly distributed to all participants and it is necessary to review the influencing factors, both from the internal side of the participants and the learning approach used. When viewed from the total combined pre-test and post-test scores, participants can be categorized into three groups. The first group is participants with high results (≥100), such as Kamil, Syifa Nur, and Wilda, who showed excellent mastery of the material. The second group is participants with medium results (70-99), which is the largest group and shows a fairly good understanding. The third group were participants with low results (<70), such as Nuraeni, Umidah, and Reza, who still needed additional guidance. Overall, this data shows that the learning activities had a positive impact on most participants, although further evaluation and mentoring is still needed for participants with low results.

Table 3. Student *Test* Results

| ***No*** | ***Name*** | ***Pre-test Score*** | ***Post-test Score*** | ***Result*** | ***Category*** |
|---|---|---|---|---|---|
| 1 | A | 30 | 40 | 70 | medium |
| 2 | Ad | 30 | 60 | 90 | high |
| 3 | Al | 20 | 50 | 70 | Medium |
| 4 | Ag | 50 | 20 | 70 | medium |
| 5 | Fa | 50 | 40 | 90 | medium |
| 6 | Ka | 60 | 70 | 130 | high |
| 7 | Ma | 10 | 40 | 50 | Low |
| 8 | Mo | 40 | 40 | 80 | medium |
| 9 | Re | 20 | 30 | 50 | low |
| 10 | Na | 40 | 40 | 80 | medium |
| 11 | Nu | 0 | 20 | 20 | low |
| 12 | Sy | 40 | 80 | 120 | high |
| 13 | Syi | 20 | 40 | 60 | low |
| 14 | Um | 10 | 20 | 30 | low |
| 15 | Wi | 50 | 60 | 110 | high |
| 16 | Wil | 30 | 40 | 70 | Medium |
| *Average* | | | | 74,375 | |

Source: Author, 2025

The results of interviews conducted with four students with different ability levels provide a real picture of their response to the use of *Lectora Inspire* media in learning flat shapes. Students with the highest scores stated that learning becomes more fun, interesting and very helpful in understanding the concept of flat shapes. They feel that they understand the material faster because of the visual aids and interactive features displayed in the media. Students with moderate scores found the media interesting, but admitted that they were sometimes distracted and still felt confused by some of the material. This shows that although the interactive media provides a new learning experience, sufficient adaptation time is needed for optimal understanding. Meanwhile, students with low scores were happy with the media display, but did not fully understand the material taught. They stated that they still needed guidance from the teacher in order to understand the concept thoroughly. This indicates that the use of *Lectora Inspire* media needs to be supported with assistance, especially for students who have learning difficulties or are less familiar with technology.

Table 4. Summary of Student Interviews

| No | Student Category | Technology Experience | Response to *Lectora Inspire* | Challenges Faced |
|---|---|---|---|---|
| 1 | Student(s) Highest Score 1 | Never used it before | Exciting, fun, very helpful in understanding flat shapes | None |
| 2 | Student (Sy) Highest Score 2 | Never | Interesting, visuals help understanding, faster understanding | None |
| 3 | Student/I (Fa) Medium Score | Rarely | Interesting but sometimes distracted, still a bit confused | Not used to it, need to adapt |

Source: Author, 2025

4 Student (Nu) Low Almost never Happy, interesting display, but Still confused, need score don't fully understand yet guidance from the teacher

## 4. Conclusion

Based on the results of the research, the use of *Lectora Inspire* media in learning flat shapes in elementary schools is proven to be effective in improving students' understanding, especially in the aspects of shape composition and decomposition. This media is considered in accordance with the curriculum, presents material in a structured manner, and is equipped with interactive features that can increase student involvement during learning. Teachers reported that the media runs smoothly, is easy to use, and supports the achievement of learning objectives. Highability students showed a positive response, feeling that learning became more interesting and easy to understand, while medium and low-ability students still needed adaptation and additional guidance from the teacher. Thus, *Lectora Inspire* media has great potential to be applied in learning mathematics in elementary schools, although it still needs pedagogical support so that all students can benefit optimally. The learning media developed in this research can be accessed through the following link: http://localhost:3750/

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