

# Effectiveness of Helped Mathematical Learning Media of Lectora Inspire on The Number Sense Ability of Fifth Grade Students of Elementary School in Substrate Materials

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**Abstract:** The purpose of this study was to determine the effectiveness of Lectora Inspire assisted mathematics learning media on the number sense ability of elementary school fifth grade students. This research is a development research using 4-D design that is Define, Design, Develop and Disseminate or adapted to 4-D model that is defining, designing, developing and distributing. The test sample was the fifth grade students of Medan Kartika I-2 Private Elementary School. Products developed after being declared valid by experts / experts, then tested. Product validation results are stated to be very valid. Based on the results of the validation of learning materials by 93.82%, instructional design by 91.03%, media experts on Lectora Inspire by 87.5%, student responses to Lectora Inspire amounted to 95.57% and the teacher's response to the Lectora Inspire amounted to 89.56 % in very good category. Based on the average value of the data gain the ability of the student's number sense is 0.70 in the high category. Increased ability of student number sense is 0.27. From the results of the analysis, it can be stated that by using Lectora Inspire assisted mathematics learning media in learning related to fractional materials can increase the number sense ability of students.

**Keywords:** *learning media; lectora inspire; number sense ability*

## I. Introduction

Education that is carried out from time to time is always changing in accordance with the times. Therefore, teachers as learning managers are required to be more creative and innovative in order to make learning outcomes more optimal. This is in accordance with the Law of the Republic of Indonesia Number 20 of 2003, Article 1 paragraph 19, concerning the National Education System (*Sisdiknas*) that education is a conscious and planned effort to realize a learning atmosphere and learning process so that students actively develop their potential to have spiritual, religious, self-control, personality, intelligence, noble character, and skills needed by themselves, society, nation and state.

The demand for teacher professionalism has a major impact on changes in education. Teachers are required to follow the development of technology so that the learning given to students is in accordance with the development in their environment. The technology used in

learning can be a medium that is very helpful for both students and teachers in the learning process in the classroom. The use of appropriate learning media can foster interest in learning, even improve student learning outcomes (Daryanto, 2013). In general, in formal education, mathematics learning that has taken place so far has not used the right media. As a result students feel less interested, bored and less motivated in learning so that student learning outcomes are low. The results of TIMSS (2011) on questions about numbers and operations reveal that the percentage of Indonesian students who can answer questions is always below the international average. The low number sense ability is also seen in the fifth grade students of Medan Kartika I-2 Elementary School. Judging from the pattern of students' answers on formative tests related to fraction material in comparing and sorting numbers.

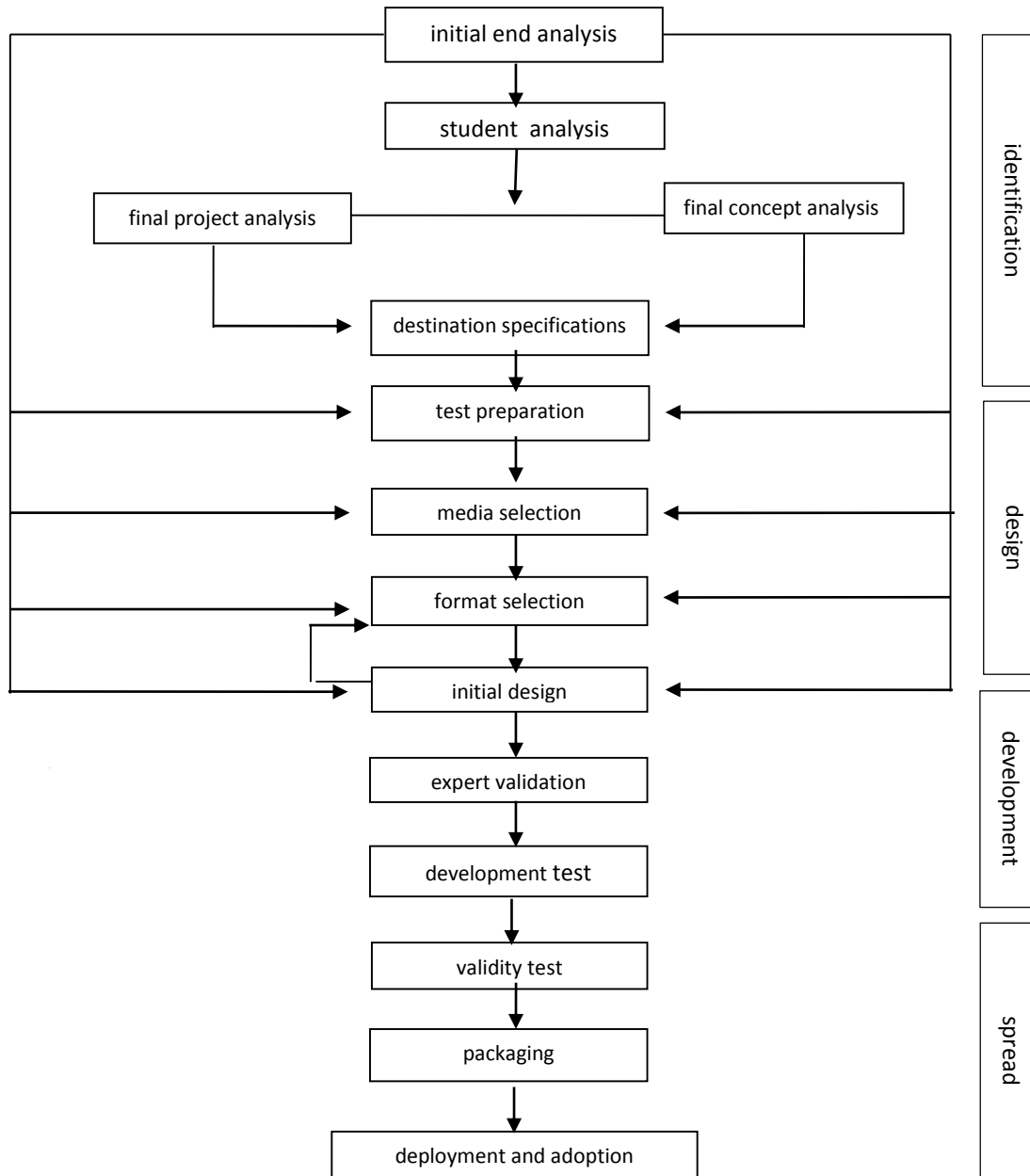
Basically the ability of number sense is an ability that can be trained in every student. A student is not born with the ability to number sense, but educators who have to explore and are expected to improve the ability of the number sense of students during the learning process, especially in solving problems related to fractions. One of the efforts to improve the ability of student number sense is that teachers should be able to create an interesting and enjoyable learning atmosphere by using technology as a learning medium. Media is a learning aid that can act as a channel for information directly or indirectly in the learning process.

One example of a good learning media to use is Lectora Inspire. The reason for choosing Lectora Inspire is because it is the latest learning media that has never been published in schools and there are still many who have not been able to develop it. Lectora Inspire can be used for learning needs both online and offline that can be made quickly and easily. One of the advantages of Lectora Inspire is that there is another software as a support so that it can be used to develop interactive learning media and make interesting simulations. In Lectora Inspire can be created interesting drawings and animations related to fractional material so that students are motivated in learning. Thus it is expected that through the development of mathematics learning media assisted by Lectora Inspire there will be a change in the learning process and the ability of students 'number sense to increase so that students' learning outcomes will also improve.

## **II. Methods of The Research**

This research is a development research using 4-D design that is Define, Design, Develop and Disseminate or adapted to 4-D model that is defining, designing, developing and distributing. This research and development will produce an Interactive CD with Lectora Inspire which contains fractions in the first semester of the 5th grade. The scheme of the 4-D procedure is as follows:

**Figure 1. Modification of 4-D Learning Media Development Model**

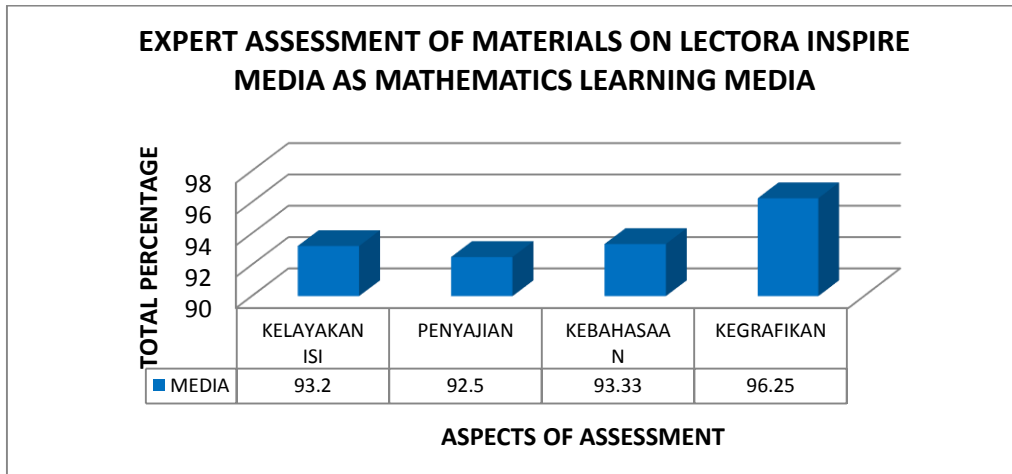


### III. Results And Discussion

#### 3.1 Validation Results of Expert Learning Materials

The results of the expert validation of the learning material obtained that the aspects of Feasibility Content were 93.2%, Presentation was 92.5%, Linguistic was 93.33% and Comprehension was 96.25%. These four aspects are in the Very Valid category. The average value of the four aspects is 93.82% in the Very Valid category. The results of the expert validation of the learning material can be seen in Figure 2 below:

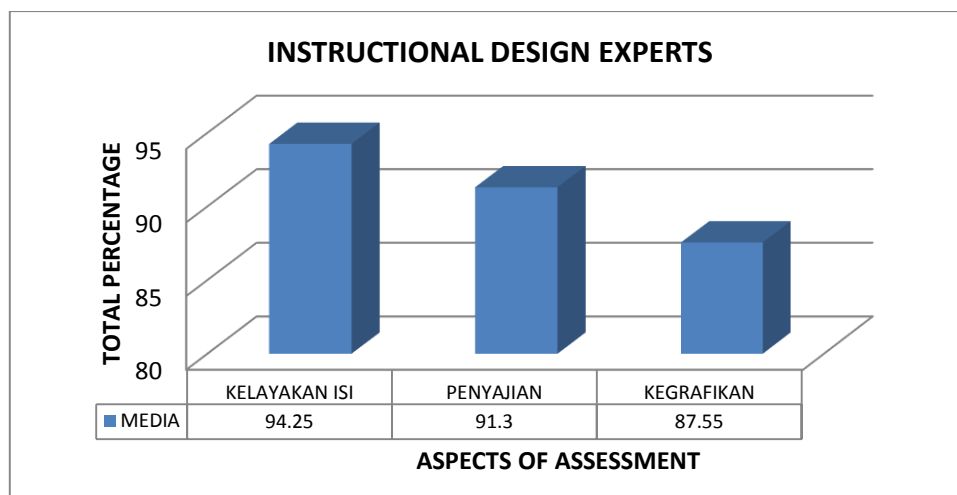
**Figure 2 Results of the Validation of Expert Learning Materials**



### 3.2 Validation Results for Instructional Design Experts

The results of the instructional design expert validation obtained that the Feasibility aspect of the Content was 94.25%, Presentation was 91.3% and the Integrity was 87.55%. These three aspects are in the Very Valid category. The average value of the three aspects is 91.03% in the Very Valid category. The results of the instructional design expert validation can be seen in the following figure 3:

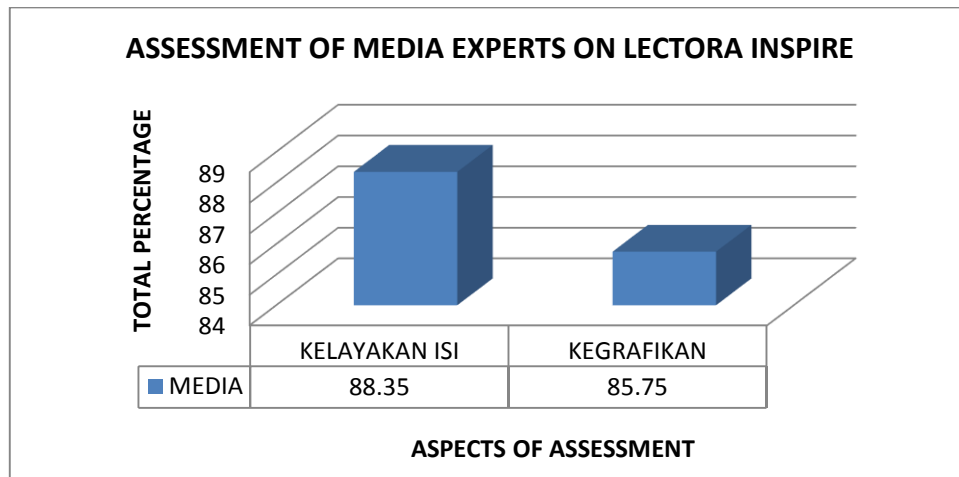
**Figure 3 Validation Results of Instructional Design Experts**



### 3.3 Data Analysis of Media Expert Assessment of Lectora Inspire

The results of the media expert validation on Lectora Inspire obtained that the Feasibility aspect of the content was 88.35% and the integrity was 85.75%. Both aspects are in the Very Valid category. The average value of these two aspects is 87.05% in the Very Valid category. The results of the media expert validation of the Lectora Inspire can be seen in Figure 4 below:

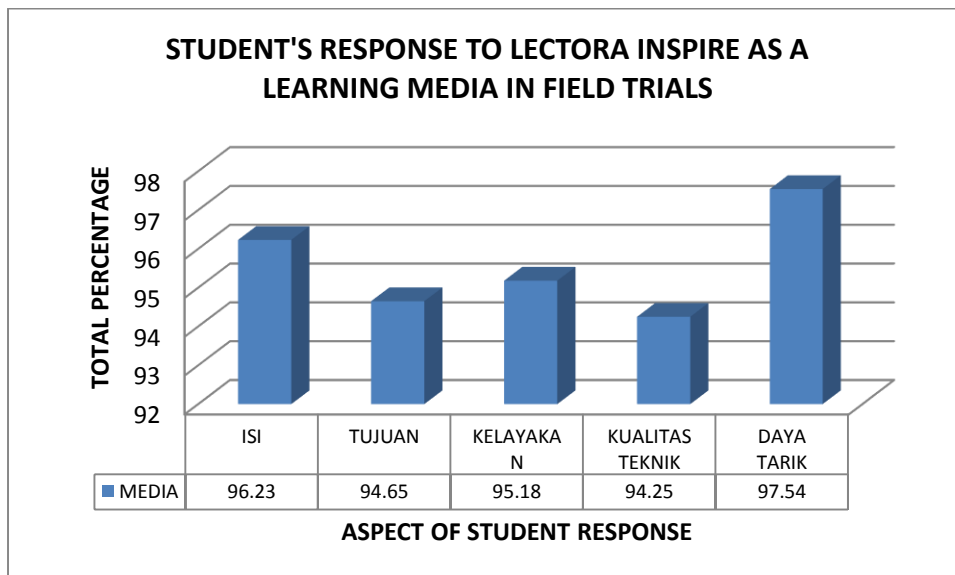
**Figure 4 Results of Media Expert Validation on Lectora Inspire**



### 3.4 Analysis of Student Response Data against Lectora Inspire

The results of student responses to the Lectora Inspire in terms of the contents of the content of 96.23%, objectives of 94.65%, feasibility of 95.18%, technical quality of 94.25% and attractiveness of 97.54%. The five aspects are in the Very Good category. The average value of the five aspects is 95.57% in the Very Good category. The results of student responses to the Lectora Inspire can be seen in the following figure 5:

**Figure 5. Teacher's Responses to Lectora Inspire**



### 3.5 Data Analysis for Student Number Sense Ability Improvement

**Table 1. Descriptive Statistics**

Descriptive Statistics							
	N	Minimum	Maximum	Sum	Mean	Std. Deviation	Variance
Pretes	36	35	75	1943	53.97	8.768	76.885
Postes	36	75	95	3113	86.47	5.674	32.199
Valid N (listwise)	36						

The average value of pretest is 53.97 while the average posttest value is 86.47. An average increase of 32.5. The minimum gain value is 0.20 while the maximum gain value is 0.92. The average value of the gain data of the student's number sense ability in the distribution is 0.70 (high category). Thus it can be stated that by using Lectora Inspire assisted mathematics learning media in learning related to fraction material can increase the number sense ability of students.

#### IV. Conclusion

The conclusions in this study are as follows:

- Lectora Inspire assisted mathematics learning media is suitable to be developed and good to be applied in learning.
- Lectora Inspire learning media is effectively used to improve students' number sense abilities.

#### V. Acknowledgments

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