

Utilization of the Learning Media Based *Lectora* Inspire for Physics Learning: A Pilot Study

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ABSTRACT

The utilization of information and technology was growing rapidly including physics learning. The use of learning media needed to be applied in schools to help students to learn. This study tried to developing and the students responded to use the learning media-based *Lectora* inspire for physics learning. The design of this research used was research and development (R&D) with the ADDIE model. This product had validation by material and media experts. Based on the results of this study, we found 1) Based on the analysis, this product suitable for use in physics learning (3,50 out of 4 for material expert and 2,89 out of 4 for media expert). 2) The response items were measured using the Likert scale from 1 to 4 scales. Overall the result of student response analysis indicated that this product was good (4.00 out of 5) for use in physics learning. Using the learning media based *Lectora* inspire made physics material could be delivered with clarity. The differences with other, the learning media based *lectora* could open in mobile learning so that it could be used by students to study whenever and wherever.

Keywords: *Lectora* inspires, Physics learning, Media learning, E-learning

1. INTRODUCTION

In essence, physics is a science that teaches people to know, understand, and interpret the laws of nature with all the order of the universe's perfect universe plan. Nevertheless, physics is still referred to as a Lesson subject that is difficult for students. Based on the results of interviews with students of SMP Negeri 252 Jakarta, science subjects especially physics is still considered difficult and too many formulas. This condition occurs because students still consider physics as an abstract concept and difficult to connect with everyday events. Another thing that also affects students' difficulties in learning physics is a model of learning by teachers still using conventional methods. Physics learning should be done by presenting learning media that can visualize the concept of physics is still abstract [1]. Teaching and learning of science should implement a wide range of methods and approaches that provide opportunities for the students' exploration through relevant activities that enable them to build meaningful conceptual understanding. Another thing that causes the above case is the lack of appropriate media to be used for delivering messages and avoiding misconceptions. In science education, the interaction between objects and students is

necessary. If it is not possible, the teacher should be able to modify it, it could be a model of real object visualization through other media [2].

Science is the main element of technology. it means technology is the application of concepts natural science will be practical and useful in life if that can be increased to technology [3] [4]. The development of information and communication technologies (ICT) has been changing every process in human life, include in education [5]. Technology becomes an effective learning tool and keeps students away from the decline of the times. The technology becomes cheaper, higher in performance, and smaller in size [6].

One of the developments of science knowledge and technology that can be utilized as an effective learning media and efficient in learning physics by making interactive learning media based *Lectora* inspire. Because of *Lectora* Inspire interfaces familiar to us who have known and mastering Microsoft Office. *Lectora* Inspire is software development of electronic learning is relatively easy to apply or implement because it does not require a sophisticated understanding of programming languages [7]. By using *Lectora* inspire program, learning materials can be packaged in practice and interesting, because it can load material, sample questions and discussion, animation, learning videos, and an interactive evaluation question [8].

Lectora Inspire is equipped with supporting applications, namely: flypaper that serves to add flash animation that makes the students more creative, Camtasia that serves to capture video, video editing, adding audio, cutting flash animation or as a 3D design software; and Snagit that comes with a callout that works to capture the desktop view to create an image [9]. *Lectora Inspire* software also has additional products (Add ons) which is *Lectora Integrator* for Microsoft PowerPoint.

Use of the *Lectora* subject matter operating systems designed and built some of the slides also show videos associated with the operating system, as well as animated images that relate to the subject matter of the operating system so that students pay more attention to what is conveyed by the teacher [7]. This, of course, will affect student learning. Many students assume that learning is boring, something similar happened to students.

This research only explains the development of *Lectora*-based learning media to the expert test stage and is fundamental research that can be developed again into subsequent studies.

2. METHOD

This study was a development using the ADDIE approach (analysis, design, development, implementation, and evaluation). The research instrument used was a validation questionnaire of material experts and media experts. Product feasibility assessments were tested and assessed by validators, media experts, and physicists. Furthermore, this product was implemented on students to know the response the students for physics learning with *Lectora inspire*. A number of the user samples were 20 students in SMP N 123 Jakarta.

The means for identifying user validation was the questionnaire. The questionnaire for material experts included three aspects of the Language (3 items; L1 to L3), the subject matter (9 items; S1 to S9), and the Illustration (3 items; I1 to I3). The questionnaire for media experts included three aspects of the Graph (7 items; G1 to G7), the operating program (2 items; O1 to O 2), and the usefulness (2 items; U1 to U2). The scale of the instrument was the Likert scale from 1 (Absolutely Disagree) to 4 (Absolutely Agree). This research was quantitative and qualitative. The quantitative descriptive method was used when calculating the frequency of choice answered by respondents to the questions in the questionnaire.

Giving this validation was done, then these products were implemented for the students. The means for identifying user response was the questionnaire. The questionnaire included eighteen expressions for the scale of the instruments were the Likert Scala from 1 to 5.

3. RESULT AND DISCUSSION

Findings respond to the purpose of the study and are presented systematically. Findings are supported with sufficient and relevant quotations, examples, tables, and

diagrams. Findings are discussed with a reference to relevant and recent literature.

This product used ADDIE applied, but this research just to the development section. The screenshot of learning media based *Lectora inspire* is shown in Figure 1 below.

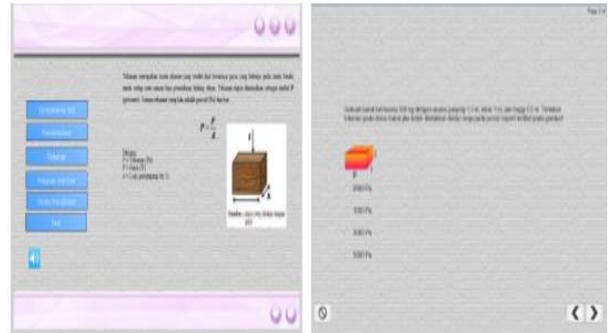


Figure 1. The Screenshot of Learning Media Based *Lectora Inspire*

Data processing validation results of media expert on a learning media based *Lectora inspire*, shown in Table 1 below.

Table 1. The Tabulation of The Validation Result of Media Expert on a Learning Media Based *Lectora Inspire*

Aspects		Frequency				Average Score	No. of samples	
		A	B	C	D			
	1	2	3	4	5	6	7	8
Graph	G1		0.00	0.00	3.00	0.00	3.00	3.00
	G2		0.00	0.00	2.00	1.00	3.33	3.00
	G3		0.00	0.00	3.00	0.00	3.00	3.00
	G4		0.00	0.00	2.00	1.00	3.33	3.00
	G5		0.00	0.00	3.00	0.00	3.00	3.00
	G6		0.00	0.00	2.00	1.00	3.33	3.00
	G7		0.00	0.00	2.00	1.00	3.33	3.00
Operating program	O1		0.00	3.00	0.00	0.00	2.00	3.00
	O2		0.00	1.00	2.00	0.00	2.67	3.00
Usefulness	U1		0.00	0.00	3.00	0.00	3.00	3.00
	U2		0.00	0.00	2.00	1.00	3.33	3.00

Based on table 1 can be explained, the aspects contained in the validation sheet of each component statement consists of A “absolutely disagree”, B “disagree”, C “agree”, and D “absolutely agree”. The results of the data processing of table 2 can be obtained as an average score (column 7 of Table 1) for each item. The average for all is 2,89. Data processing validation results of a material expert on a learning media based *Lectora inspire*, shown in Table 2 below.

Table 2. The Tabulation of The Validation Result of Material Expert on a Learning Media Based *Lectora Inspire*

Aspects		Frequency				Average Score	No. of samples	
		A	B	C	D			
	1	2	3	4	5	6	7	8
Language	L1	0.00	0.00	1.00	2.00		3.67	3.00

	L2	0.00	0.00	2.00	1.00	3.33	3.00
	L3	0.00	0.00	2.00	1.00	3.33	3.00
Subject matter	S1	0.00	0.00	0.00	3.00	4.00	3.00
	S2	0.00	0.00	2.00	1.00	3.33	3.00
	S3	0.00	0.00	0.00	3.00	4.00	3.00
	S4	0.00	0.00	1.00	2.00	3.67	3.00
	S5	0.00	0.00	1.00	2.00	3.67	3.00
	S6	0.00	0.00	2.00	1.00	3.33	3.00
	S7	0.00	0.00	1.00	2.00	3.67	3.00
	S8	0.00	0.00	1.00	2.00	3.67	3.00
	S9	0.00	0.00	1.00	2.00	3.67	3.00
Illustration	I1	0.00	0.00	2.00	1.00	3.33	3.00
	I2	0.00	0.00	1.00	2.00	3.67	3.00
	I3	0.00	0.00	0.00	3.00	4.00	3.00

Based on table 1 can be explained, the aspects contained in the validation sheet of each component statement consists of A “absolutely disagree”, B “disagree”, C “agree”, and D “absolutely agree”. The results of the data processing of table 2 can be obtained as an average score (column 7 of Table 2) for each item. The average for all is 3,50. Data processing response results of student work on a learning media based *Lectora* inspire (20 students), shown in Table 3 below.

Table 3. The Tabulation of The Student Responses to Used Learning Media Based *Lectora* Inspire

Aspect	Frequency					Average Score	No. of samples
	A	B	C	D	E		
I	2	3	4	5	6	7	8
E1	0.00	0.00	1.00	6.00	3.00	4.20	10.00
E2	0.00	1.00	0.00	5.00	4.00	4.20	10.00
E3	0.00	0.00	4.00	3.00	3.00	3.90	10.00
E4	0.00	0.00	1.00	7.00	2.00	4.10	10.00
E5	0.00	0.00	2.00	5.00	3.00	4.10	10.00
E6	0.00	0.00	3.00	6.00	1.00	3.80	10.00
E7	0.00	0.00	1.00	8.00	1.00	4.00	10.00
E8	0.00	0.00	3.00	5.00	2.00	3.90	10.00
E9	0.00	0.00	4.00	5.00	1.00	3.70	10.00
E10	0.00	0.00	1.00	7.00	2.00	4.10	10.00
E11	0.00	0.00	3.00	4.00	3.00	4.00	10.00
E12	0.00	0.00	1.00	5.00	4.00	4.30	10.00
E13	0.00	0.00	1.00	7.00	2.00	4.10	10.00
E14	0.00	0.00	1.00	8.00	1.00	4.00	10.00
E15	0.00	0.00	0.00	8.00	2.00	4.20	10.00
E16	0.00	0.00	2.00	6.00	2.00	4.00	10.00
E17	0.00	0.00	2.00	6.00	2.00	4.00	10.00
E18	0.00	0.00	2.00	6.00	2.00	4.00	10.00

Based on table 1 can be explained, the aspects contained in the validation sheet of each component statement consists of A “absolutely disagree”, B “disagree”, C “enough”, D “agree”, and E “absolutely agree”. The results of the data processing of table 3 can be obtained as an average score (column 7 of Table 3) for each item. The average for all is 4,03. In the graph, the result of the average score can be shown in Figure 2 below.

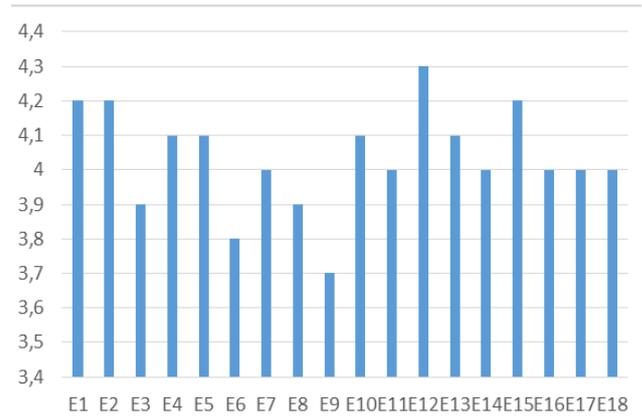


Figure 2. The figure of The Screenshot of The Students Responses of Learning Media Based *Lectora* Inspire

Learning media-based *Lectora* inspire has been validated by media experts with an average validation score is 2.89 from 4 scale, which is in the category of good or proper. Improvement media based on suggestion and comments from media expert are: 1) change about program process speed, 2) change about font color, 3) change background color, 4) added intro opening and closing, 5) added intro sound each session with high volume.

Besides, validation from the media expert, also there is a validation from the content expert with an average validation score is 3.50 from a 4 scale, which is in the category of good or proper. Improvement media based on suggestions and comments from a content expert are 1) added pressure concept in real life, 2) added flash animation in Archimedes laws, 3) Upper size font, 4) question number 7 in evaluation change in multiple choices and added picture.

Learning media-based *Lectora* inspires to get a positive response after the test to a small sample of students in 252 Junior high schools with an average score is 4.0. Learning with *Lectora* inspires to make a student feel interactive in learning because it can study everywhere and any time, not the boundary in place and time. Besides, in *Lectora* inspire there is flash animation, which attracted students studying and *Lectora* inspire can be accessed or operated with the computer, laptop, tablet, or smartphone. Learning media can change the teacher paradigm in learning, usually, a teacher in teaching just give knowledge with talks or discuss, now they can use learning media to make teaching and learning in class be interactive and students can get a good experience in learning.

Lectora in the media-based learning inspires product development. Content of learning materials, student materials, materials, samples questions, experimental videos, and evaluation. This product can change the activity of students in class while learning physics. *Lectora* Learning with help can change the view of learning into student-centered learning, which means that teachers are only facilitators when in class. Students actively ask, discuss with friends, and work on assignments. With the *Lectora*-based learning medium, students can open learning media anytime and anywhere.

The result of research by Tambade & Wagh [10] showed the result that computer-assisted instruction was pretty much more useful than traditional teaching in students' achievement in physics. According to Wibawa et al [7], the interactive learning tool has been reviewed by the expert, and some suggestions from them have been conducted to get a better tool. The interactive learning tool has significant effects to increase the student learning outcome. *Lectora* among the interactive multimedia in learning.

The development of technology has created a breakthrough in learning. Technology is a useful learning tool and makes the students away from the setback times [11] [12]. The findings suggest that online multimedia can be greatly improved, promoting conceptual change in students with all levels of experience, by including a discussion of misconceptions [13]. According to Chang et al [14], we found that students who are better at higher abstract reasoning benefit more from simulation-based learning, and also that the learning results are better for experiment prompting and a hypothesis menu than for step guidance. Students prefer learning media that contains animated physics. In *Lectora*, there are physics animations that can be designed according to the concept of physics and can increase the learning interest of students.

Based on the student's perceptions, multimedia which added to the developed interactive learning media has increased the students learning motivation [15] [16]. The same result was also committed by Khalid et al [17] who showed that interactive multimedia has an impact on students learning. It is because a majority of the students, who are still young, think that learning with multimedia is very enjoyable. The high-thinking ability of students can be seen using *Lectora* learning media because it contains an evaluation that can be seen according to the level of student thinking.

The results of the study also show that the material provided in the media is fully presented and interrelated between subtopics. The examples given are every physical phenomenon that is often found in the daily lives of students, as a result, they can understand the relevance between the subject being studied and the real problem. Next, sample questions are given using animation, images, and sounds. Students like many of these interactive learning media because explanations of answers to questions are presented with the help of object illustrations and animations. One of the advantages of *Lectora* Inspire is its ability to simulate testing with various types of questions and many interesting illustrations. The *lectora* media can also be displayed on a cell phone or tablet, so students can study anytime and anywhere.

4. CONCLUSION

Based on the results, the interactive learning media has been reviewed by the experts and some suggestions from them have been conducted to get a better interactive learning media. This media learning suitable for used in physics learning (3,50 out of 4 for material expert and 2,89 out of 4 for media expert). The response items were

measured using the Likert scale from 1 to 4 scales. Overall, the result of student response analysis indicates that this product is good (4.00 out of 5) for use in physics learning.

It is recommended that interactive learning media should be used widely by teachers and lecturers because it is easily developed using writing tools such as *Lectora* Inspire. Further research can be used to analyze student learning outcomes for the media *Lectora* inspire.

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