



The Role of Lectora Inspire Based Learning Media on the Achievement of Higher Order Thinking Skill: Literature Review

Shakila Zulima Marindra¹, Silvi Yulia Sari^{1*}, Hidayati¹, Putri Dwi Sundari¹

¹*Department of Physics, Universitas Negeri Padang, Jl. Prof. Dr. Hamka Air Tawar Padang 25131, Indonesia*
Corresponding author. E-mail: silviyuliasari@fmipa.unp.ac.id

ABSTRACT

The use of technology in learning media is the goal of national education which requires educators to be able to master and adapt according to the times. Education must be held in an interactive, exciting, enjoyable, challenging, and encouraging manner in order for students to actively participate, and sufficient room must be provided for student initiative, creativity, and independence. This research purpose to analyze the use of interactive learning media to increase Higher Order Thinking Skills (HOTS) by students in physics learning. The method in research used was a literature review conducted by reviewing several national and international articles related to the Lectora Inspire-based interactive media for learning used in improving HOTS skills by students. The sample used was 31 journal articles. The research results indicate that the interactive media used for learning based on Lectora Inspire can increase Higher Order Thinking Skills by students in Physics learning.

Keywords:*HOTS; Learning Media; Lectora Inspire; Literature study; Physics Learning.*



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I. INTRODUCTION

Science and technology develop along with the times [1]. The era of technology that is currently developing greatly affects human life. Activities that were previously manual have now become technology-based [2]. Technological development is big dependent on the quality of the resources of human themselves, if human resources can process technology properly and carefully, then technological developments will increase rapidly [3]. The Information Technology (IT) used in learning is considered one of the appropriate solutions [4].

The technology in media for learning used is the goal of national education which requires educators to be able to master and adapt according to the times [3]. Education must be held in an interactive, exciting, enjoyable, challenging, and encouraging manner in order for students to actively participate, and sufficient room must be provided for student initiative, creativity, and independence [5]. Learning by utilizing technology can create an effective learning climate. This is because technology can help to adjust the pace of learning according to student's skills. Besides that, the technology used as a learning medium may supports teachers and students manage information, disseminate information, and create a unique learning experience. The seven functions of media for learning are: First, media for learning acts as a tool that is able to clarify, simplify, and speed up the delivering learning material process from the teacher to students. Second, the media also acts as a component of the learning sub-system, which must be in accordance with the learning components so that their function is optimal in facilitating activities in learning. The third role of media for learning is as a learning guide, which has a major influence as a means of supporting the achievement of the goals of the process of learning. Fourth, media for learning acts as a generator of student motivation and attention. Interesting media for learning can increase student motivation because students' attention to lessons increases. Fifth, media for learning can increase outcomes of learning. The media used for learning is very influential on outcomes of learning from students. Sixth, the role of media for learning is to reduce the occurrence of verbalism; and the seventh role is to overcome the limitations of space, time, energy, and sensory power [6].

However, the reality on the ground shows that the learning methods and media used by most science teachers generally do not prepare students to be involved in efforts to use and develop patterns of scientific reasoning. Learning is generally more teacher-centered. Students are less involved in discussing and asking for information related to learning material, but not more than listening passively, memorizing formulas, and

repeating the expected answers so that the demands of the standard nature of the process of learning are not met [5]. At present, many students are still not interested when learning is in progress and not many students are active in learning. This is because learning tends to be monotonous and the media for learning used are just the same [7].

In addition, the government has now prioritized learning that requires high-level thinking competencies, sometimes known as Higher Order Thinking Skills (HOTS). HOTS-based learning is featured in the SMA/MA curriculum structure's core competencies, especially core competencies 3 and core competencies. When confronted with a dilemma, pupils must master HOTS. HOTS-based learning can be accomplished by focusing on an active learning process for students. According to Bloom's taxonomy hypothesis, pupils' high-order thinking skills can be defined by the cognitive domain of their skills to analyze, evaluate, and create [8].

Thinking skills are classified as Low-Order Thinking Skills (LOTS) and Higher-Order Thinking Skills (HOTS). High-level thinking skills among students are one of the nation's intellectual levels. Students should be able to demonstrate their identities as change agents in intellectual, moral, and elegant ways. As a result, in the twenty-first century, the process of learning at all levels of education must be seriously studied in order to generate competent graduates. Improving skills of higher-order thinking has become one of the priorities in learning, especially the subjects in the National Examination. As expected, the core competencies of knowledge in the 2013 curriculum explain that students are required to understand, apply, and analyze factual, conceptual, procedural, and cognitive knowledge based on their scientific curiosity. Similarly, in the core competence skills, children are expected to be able to process in independent, reason, and show in the concrete and abstract realms relate with the what they learn development at school, act successfully, and employ procedures based on scientific standards. From the data obtained, classification is made, processed, and specific relationships are found. Activities can be designed by the teacher, through engineered situations in certain activities so that students carry out activities including analyzing data, grouping, categorizing, inferring, and predicting, or estimating from discussion or practice. The results of trying and associating activities allow students to think at a higher order thinking skills to think metacognitively [9].

Physics is a subject that is closely related to natural phenomena that occur in everyday life. Physics is a branch of science in which there is knowledge such as facts, concepts, principles, laws and various theories. This physics requires a strong basic understanding, especially in analyzing a phenomenon or symptoms that occur in everyday life. However, now if you look at learning physics it tends to be students who only memorize concepts, theories, and laws. Or in other words, students learn only at the lowest level cognitive domain or Low Order Thinking Skill (LOTS) it can affect outcomes of learning from students [10].

The material in Physics and higher-order thinking skills are two things that cannot be separated because physics material is material that is understood by higher-level thinking, whereas higher-order thinking skills can be trained using physics teaching materials. This is where the role of educators is in training students to think higher in analyzing or being able to solve a problem. Students who are able to think at a higher level are those who are able to relate, manipulate, and transform their knowledge and experience in making decisions to solve a problem in a new situation. Based on the previous curriculum, namely the 2006 KTSP, the role of educators was as instructors or educators giving instructions to students and considered as an all-knowing person, but after the 2013 curriculum, the role of educators was no longer valid, because the implementation of the 2013 curriculum it was hoped that there would be changes in the framework of thinking in implementing learning in schools. The role as the teacher as an instructor is to show the students how to learn experientially. The teachers also need to create the conducive climates and opportunity as a part of teacher's managerial, conducting, and participating in the instructional given. In the other word, the teachers act as guide who encourages the students to become proactive contributors breaking away from the passive and respective role [11]. Educators as the spearhead of change can drag think way and strategies in learning that were originally teacher-centered to become student-centered [10].

The teachers success in the teaching and process of learning is closely related to methods, models, strategies, learning resources, and media for learning. To get an interesting and interactive process of learning, the teacher needs to have methods, models, strategies, learning resources, and media for learning and approaches that are appropriate to the circumstances and needs of students. It is intended that the process of learning goes well. One important factor that give effect for the teachers succeeded in teaching is the interesting and interactive media used for learning. For students are add interested in listening and paying attention to learning when the teaching and process of learning takes place. Selection of the right media in relate with the conditions of students will make learning in class more effective [12].

Media is a middleman or communication conduit used to deliver messages, ideas, or information to the intended recipient [13]. Media for learning is a tool that functions to explain learning material that is difficult to explain verbally [3]. Utilization of media is used to convey information through process of learning activities so that students are stimulated or motivated in the teaching and process of learning. Increased learning motivation, stimulus, and providing convenience in delivering material, and even having a positive psychological impact on students are the benefits of media for learning. Media for learning can generate motivation to learn and explain something that is abstract [3]. Media has now becoming extensively used as a foundation for learning because it has been demonstrated that media may supplement and assist educator contact activities in learning activities, one of which is the Lectora Inspire application. Lectora Inspire is an effective program for making media for learning [4]. By utilizing Lectora Inspire media in the world of education, the process of learning will be more fun and attract students' attention, it will affect the increase in outcomes of learning from students which are expected to optimize outcomes of learning from students in the process of learning [3].

The limited interactive media for learning used to support the process of learning causes learning to seem monotonous. Educators are still not familiar with various media for learning software that can help facilitate the process of learning. The unavailability of HOTS-based interactive media for learning makes educators still find it difficult to apply HOTS-based learning. Therefore, educators need HOTS-based interactive media for learning [14].

The application that supports the creation of interactive learning media to support HOTS is the Lectora Inspire application. Lectora Inspire is an application used as a learning media. Previous research has been carried out regarding interactive learning media using the Lectora Inspire application, in the form of developing the Lectora Inspire interactive learning media which is used as an innovation in the learning process [15]. Another research is the development of physics learning media using Lectora Inspire to help students learn independently. The novelty of the research carried out by researchers from previous research is interactive learning media using the Lectora Inspire application which was developed based on Higher Order Thinking Skill (HOTS) on work and energy material [16].

With the advent of learning with interactive, media will play an big role in the process of learning. Usually, the process of learning is conducted via media sources that have been used for a long time, making learning less engaging. So that the learning process does not become repetitive, interactive media for learning gives the most recent variants. This can pique kids' interest in physics, which is so directly tied to everyday life. Physical phenomena that can be noticed in everyday life are presented through interactive media for learning. To learn more fully and in depth about the benefits of interactive media for learning in improving higher-order thinking skills, the authors conducted an extensive review from literature that included previous research data on the interactive media used for learning in the process of learning.

II. METHODS

This research type is qualitative descriptive research with the method of literature study or library research (Library Research). Literature study or library research (Library Research) is an activity inn research conducted using the library data collection method to collect information, read, record, and process research data obtained from 2 reference books, articles, and 31 journals originating from national and international journals related to the Lectora Inspire-based Interactive media used for learning in increasing students' HOTS skills.

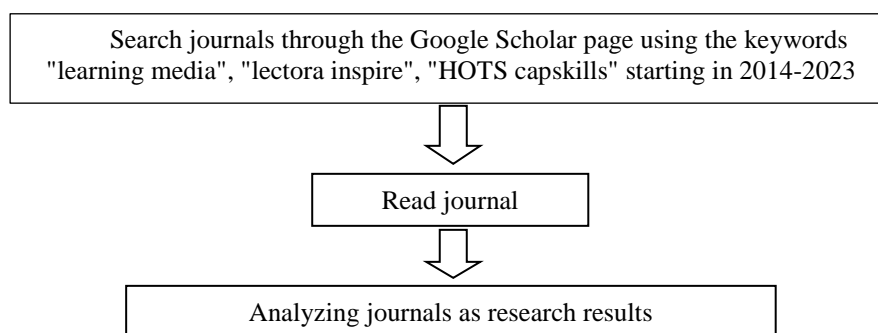


Figure 1. Schematic of the Research Procedure

III. RESULTS AND DISCUSSION

Conventional activities in learning will make students bored and unable to fully understand the material. Therefore there needs to be a touch of technology in the process of learning. The lack of teacher ability in designing process of learning through the computer-based technology used can have an effect on students' low interest in learning. In addition, teachers who have not innovated in the process of learning really need to receive training, especially in making interactive media for learning. Taking into account the condition of schools that are not far from the reach of the city center, every teacher is required to make more modern technology used in the process of learning [17].

Interactive learning using technology involves humans and computers (non-humans), so interactions are always initiated by humans as users who provide action and computers provide reactions[18]. Interactive media for learning allows students to work at their own pace[19]. The interactive media for learning used based on articulated storylines has an effect on students' learning motivation[20].

Information and communication technology (ICT) is a translation of Information and Communication Technology (ICT) that can be interpreted as technology or that can be utilized to support communication or information delivery. Lectora Trivantis Corporation Australia created an electronic learning (e-learning) development tool called as authoring software. Lectora is a software program that is used to produce online training courses, evaluations, and presentations [21].

The concept of learning basically refers to the ability to understand, do, interact, and reflect on learning material. For this reason, information technology plays a big role in this development. The teacher is the "author" of learning and at the same time a facilitator to deliver ICT-based teaching materials to students in class. Besides that, the teacher can also evaluate the teaching and process of learning, for example in the shape of a test to determine the understanding of the teaching material level.

Lectora Inspire features various benefits, including: a. The ability to construct websites, interactive content of Learning, presentations for product, and company profiles. b. The tools offered by Lectora Inspire make it very simple for beginner users to develop learning multimedia that meets their specific needs. b. The existence of Lectora Inspire can make it easier for a teacher or instructor to develop media for learning. d. Lectora Inspire has a large selection of templates (designs). e. Lectora Inspire provides a media library that really helps users f. Supported by other supporting facilities: Snagit, Camtasia, Flypaper. g. The developed content can be published in a variety of formats, including HTML, single executable files, and CD-ROM, as well as e-learning standards like SCORM and AICC [22]

With the advantages and disadvantages it has. The ICT-based Lectora Inspire Application used is expected to increase outcomes of learning from students in a more positive direction. The ICT-Based media used for learning using the Lectora Inspire application in the process of learning is expected to increase student achievement. The influence of the media is great in increasing the success of learning, therefore it is natural for teachers to increase the media used for learning in the process of learning. The framework for thinking in this study is that with the interactive and maximum media used, it can increase student achievement[23].

The four roles of learning media, particularly visual media, are attention, affective function, cognitive function, and compensating function. The function of attention is to attract and direct students' attention to the subject matter related to the visuals shown or to subject matter text. Image of animation media displayed on the LCD can focus their attention on the lessons they will receive. The affective function is that it can be seen from the emotional involvement and attitude of students when listening to the subject matter broadcast accompanied by visualization. Cognitive function can be seen from scientific studies which suggest that visual symbols are intended to help people grasp and recall the information or messages included in images. Meanwhile, the compensatory function of media for learning is to help understand and remember the content of the material for students who are weak in reading[24].

Good media for learning must meet several requirements. Media for learning must increase student motivation. In addition, the media must also stimulate students to remember what they have learned, activate students to provide responses, and feedback occurs, and also encourage students to do the right practices. Because of the many benefits derived from the media used for learning, the teacher as an information shourced for students should be aware of the importance of using media in learning[25]

Based on the search results, the interactive media used for learning, especially the Lectora Inspire application, can help increase students' Higher Order Thinking Skills (HOTS) skills in learning physics. Several

studies have shown that the HOTS-based interactive media used for learning using the application of Lectora Inspire can increase outcomes of learning and students' critical thinking skills on diffraction and mechanical wave interference [26].

In this case, the interactive media used for learning, especially the Lectora Inspire application, can be used as an effective learning strategy to increase students' HOTS skills in physics learning. It is important for teachers to pay attention to student learning styles and provide opportunities for students to develop independent learning and problem-solving skills in learning physics by using interactive media for learning. The 4C-based interactive media for learning using the Lectora Inspire application on straight and parabolic motion material can increase student learning interest and be motivated them to learn because the media is interactive [27].

The expert opinion results of assessment are 98%, media expert assessment results of 94%, educator response of 85%, and student response in small group trials of 84% and large group trials of 86% were obtained for the assessment of HOTS-based interactive media for learning using the application of Lectora Inspire. According to the findings of this study, HOTS-based interactive media for learning utilizing the application of Lectora Inspire can be used as media for learning [28].

The Lectora Inspire media used for learning can increase outcomes of learning from students [2], [23], [29], [30]. In addition, digital media assisted by the Lectora Inspire application can also increase the ability to work on HOTS-based questions such as research [31]. In addition, the interactive media used for learning that uses the application of Lectora Inspire plays an important role, especially in increasing the ability to think critically [32], [33]. Other research conducted at Syarif Hidayatullah State Islamic University Jakarta shows that the HOTS-based interactive media used for learning using the Lectora Inspire application can increase skills of critical thinking by students in physics material [16]. In line with this, Lectora Inspire-based media for learning is effective for increasing students' HOTS, as evidenced by an increase in students' HOTS skills [34].

From the research results, we got conclusion that the Lectora Inspire media used for learning can help increase students' HOTS skills. Therefore, the Lectora Inspire media used for learning can be used as an effective learning strategy to increase students' HOTS skills. However, keep in mind that the Lectora Inspire media used for learning must be combined with appropriate learning strategies and pay attention to student learning styles to achieve optimal results.

HOTS is a broad skill set that includes the skills for analyze, doing evaluation, and be innovative. HOTS has four indicators: problem-solving, decision-making, critical thinking, and creative thinking. Higher-order thinking skills are required when learning Physics since it needs students to reason, evaluate, solve issues, and critically and creatively use the theory learned to fix problems in Physics. Not only are thinking skills (ways of thinking) predicted to improve in the twenty-first century (industrial revolution 4.0), but so are literacy and soft skills (how to learn), as well as personal, social, and civic responsibility. (how to learn with others), abbreviated as 4C [35].

The many advantages of Lectora Inspire media, this media certainly also has disadvantages. The weakness of Lectora Inspire-based multimedia is that early users of Lectora media will experience some difficulty in operating the Lectora application, especially for teachers who are not very adept at using computers in learning. It takes time to learn the features and how to use them. When you first download Lectora, the trial version is only valid for 30 days, so if the usage time is more than 30 days, Lectora cannot be used to edit or create learning media unless you have purchased the full application on the official Lectora website. Then, if the processor on the computer is slow, it will also affect the speed of the application when used. Another disadvantage of this media is that Lectora media must be supported by an LCD and a computer to run it. So, if in a school that does not have LCD and computer facilities, Lectora media cannot be used. To overcome this deficiency, schools should provide adequate facilities to support the use of the Lectora Inspire application [12].

According on the review from literature, it was concluded that the media of Lectora Inspire for learning has more advantages than disadvantages. The advantages of Lectora Inspire media for learning are summarized in Table 1.

Table 1. The excellence of Lectora Inspire Learning Media

No	Benefits of Using Lectora Inspire Interactive Learning Media in Physics Learning
1	Increase student motivation and enthusiasm for learning
2	Improving outcomes of learning from students
3	Improving student achievement
4	Improving students' critical thinking skills
5	Improving students' ability to solve HOTS-based questions

No	Benefits of Using Lectora Inspire Interactive Learning Media in Physics Learning
6	Improving students' higher-order thinking skills (HOTS)

The many advantages of interactive media for learning Lectora Inspires are the basis for consideration for the interactive media used that can increase the learning quality. Interactive Media needs to be used in schools so that HOT by students can increase. Thus, it is expected that the quality of learning can run better.

IV. CONCLUSION

Lectora Inspire media for learning is a new accomplishment that may be used in classrooms. This has several benefits for students and teachers because it makes learning materials more fascinating and interactive. Several prior studies have found that using Lectora Inspire media for learning can improve higher-order thinking skills by requiring students to reason, evaluate, and solve issues as well as think critically and creatively.

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