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Development of Interactive Learning Media Using Lectora Inspire on Nervous System Topic for Senior High School Students

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Abstract

This study aims to describe the validity and response of students to interactive learning media on neural chapter. This media was developed by Lectora Inspire. This type of research was Research and Development (R&D) with a 4D model. Based on the results of media validation carried out by theory experts were 86% with a very valid category, then the results of validation by media experts obtained results of 89%, very valid category. And the results of validation by biology teachers were 96% with a very valid category. The results of the student response questionnaire showed a result of 87% with a very good category. Based on the results of the validation and student response questionnaires, it can be concluded that the learning media with the help of Lectora inspire on neural material is declared very valid and very good so that it can be used as a medium for learning biology for class XI SMA/MA students. Therefore, it can be assumed that lectora inspire-assisted learning media can be used in the biology learning process so that students can be more motivated in learning nervous system concepts.

Keywords: Interactive learning, Lectora inspire, Learning media.

INTRODUCTION

Education is a primary need for every human being in order to increase human dignity. Moreover, in the 21st century, education faces serious challenges, namely the challenge of globalization, which requires every human being to master knowledge and technology (Novita and Harahap , 2020).

In conveying concepts in today's world of education, learning media with the help of technology is needed to increase the effectiveness of the achievement of a learning process (Nanda Dewi et al., 2018: 26).

Learning media are tools, methods and techniques used in order to make communication and interaction more effective between teachers and students in the learning process(Sanaky, 2013: 3). Meanwhile according to Munadhi (2013: 7-8), Learning media is anything that can be conveyed and can transfer messages from sources in a planned manner so that a conducive learning environment is created where the recipient can carry out the learning process efficiently and effectively.

Biology is the study of natural sciences that discusses living things and their processes, and as one of the subjects taught in Senior High School contains many concepts that must be mastered by students. Concept is an idea, notion

or a general understanding. Concepts in a person are more formed and built by experience. So, everyone's interpretation of many concepts must be different (Saputri et al., 2016: 53).

Thus, we need a media that is able to explain the concept of biology so that there are no misconceptions in biology subject. The media must also be interactive which means two-way communication(Tarigan & Siagian, 2015).The communication component in interactive multimedia is the relationship between human (as users) and computers (software or applications). Therefore, the product is expected to have a two-way relationship between the software or application and its users.

So that, the interactive learning media can be used as an intermediary to convey information with two-way interaction or communication between humans (as users / product users) and computers (software / applications / products in certain file formats). One of the interactive media is lectora inspire which iselectronic learning development software (e-learning) which is relatively easy to apply or apply because it does not require understanding of sophisticated programming languages. The importance of Lectora Inspire media in order to assist this learning process is because basically the learning process is a communication process (Zuhri and Rizaleni, 2016).

Based on the results of interviews with Biology teachers at MAN 1 Mojokerto, some problems found in the biology learning process are the limited use of media used during learning process, especially in nervous system topic, in which this topic contains concepts that is difficult for students to understand. In addition, the concepts in this topic are complicated and complex, besides that, this topic is included in the coordination system topic so that the learning process takes longer time, and misunderstandings often occur.

From the results of the analysis of student needs in 35 students of MAN 1 Mojokerto, it was found that 80% of students were interested in learning biology lessons. During learning process, students need varied and interesting media with a percentage of 75%, besides that 60% of students choose to use media that is easy to implement, interactive and understandable. Then, 85% of students like learning using electronic media. In the use of biology learning media, especially in material on the nervous system, 65% of students felt that the media used was boring and difficult to understand. Because 80% of student learning types are auditory and visual.

From the various problems described above, it is important to develop lectora inspire-based learning media. Lectora Inspire is an electronic learning development software (e-learning) that is relatively easy to apply because it does not require understanding of sophisticated programming languages so that it can be used for learning both in the learning environment of online and offline which can be made quickly and easily. Therefore, this learning media can be developed by combining flash, video, and images.

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The purposes of this study are: 1.) To describe the validity of lectora inspire-based interactive learning media in the nervous system topic for eleventh grade students, 2.) Describe students' responses toward lectora inspire-based interactive learning media.

METHODE

The research method used in this study is the research and development model, which is a method that examines, designs, produces, and tests the products that have been produced (Sugiyono, 2015: 30). This research used 4D development models namely Define, Design, Develop, and Dissiminate (4D). The selection of this model is based on systematic considerations and is based on a theoretical foundation of learning. In addition, the advantages of 4D model are that it is more appropriate to use as a basis for developing learning tools, not for developing learning systems (Arywiantari et al., 2015). In this development research, the researcher only carried out the 4D development stages up to the Development stage due to the limitations of the research.

This research was conducted from January to July 2021 at MAN 1 Mojokerto. Research subjects are 10 students from class XI MIPA at MAN 1 Mojokerto. Meanwhile, the data used in this study are qualitative and quantitative data.

The following are the stages carrying out during the research:

a. Define

At this stage, five activities were carried out consisting of front end analysis, student analysis, task analysis, concept analysis, and formulation of learning objectives. In the front-end analysis activity, the interviews were conducted with the biology teacher regarding any problems the teacher faced during biology lessons, especially in terms of the media used during teaching. Then, a solution is stated by developing learning media.

In student analysis activities, to find out the characteristics of students, interviews were conducted with biology educators, in addition to that, questionnaires were also distributed and the analysis of the students involved are students who study biology subjects.

In task analysis activities, this analysis ensures a review of the tasks in the learning material. Task analysis consists of determining Core Competencies and Basic Competencies along with indicators, and determining the main and sub-topics related to the material to be developed in interactive learning media on nervous system topic based on the 2013 curriculum.

In the concept analysis activity, it was conducted by identifying and systematically compiling the main parts of learning material. Furthermore, the learning material is adapted to basic competency 3.10 in class 11 biology lessons about the nervous system. Meanwhile, in the formulation of learning objectives, the analysis of Core Competency and Basic Competency in biology subjects on nervous system material was implemented.

b.Design

This stage consists of four steps that were carried out, i.e., criterion test construction,

media selection, format selection, and initial design. The preparation of this test is carried out with the aim of measuring the level of students' understanding of the material that has been taught using the learning media that has been developed. In the media selection activity, the analysis of the application media was conducted that was in accordance with what was needed in learning activities at this time. In the format selection activity, the media contains subject matter for biology of the nervous system which contains material explained in detail, videos, evaluations, and audio. In the initial design stage that was developed, there were designs of the main or cover page, competency page, material page, evaluation page, and profile page.

c. Development

At this stage it is carried out in two steps, namely expert appraisal (1) followed by revision and (2) limited trial. The objective at this stage is to produce the learning media after going through revisions and suggestions from experts and data from the trial results.

Quantitative data obtained from validation questionnaires from validators were analyzed using the calculation of the average formula score(Akbar, 2016)as follows :

$$Va = \frac{TSe}{TSh} x100\%$$

Information :
Va = percentage of validity by the validator
TSe = maximum total score
TSh = total empirical score (test result value obtained by the validator)

The calculation of the average percentage of validation questionnaire answers by all respondents in each aspect used the formula as follows,

$$\bar{X}_{NA} = \frac{\sum_i^n NAi}{n}$$

Information :
$\bar{X}_{NA}$ = mean of the assessment results of all validators
NAi = final value of the i-th validator assessment
n = number of validators

Furthermore, all data obtained is converted into descriptive quantitative data using validity criteria. Criteria for the quality of interactive learning media can be seen in the following table 1.

Table 1. Material and media validity criteria

Score Achievement (Score)	Validity Category	Note
25.00 – 40.00	Not valid at all	Should not be used
41.00 – 55.00	Invalid	Should not be used
56.00 – 70.00	Valid Enough	May be used after major revision
71.00 – 85.00	Valid	May be used with minor revisions
86.00 – 100.00	Very Valid	Very good to use

(Akbar, 2016: 158)

The student response data was obtained from the total score of the student response questionnaire which was then analyzed using the formula by Kartini & Putra, (2020: 14) as follows,

$$P = \frac{score}{TCS} x100\%$$

Information :
P = percentage per statement item
TCS = number of respondents × highest chord × number of instrument items

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After obtaining the percentage of student response questionnaire scores, it is then converted into descriptive quantitative using student response criteria which can be seen in the following table 2.

Table 2. Student Response Percentage Criteria

Percentage	Category
0-20%	Very bad
21-40%	Bad
41-60%	Enough
61-80%	Good
81-100%	Very good

(Kartini & Putra, 2020:14)

RESULTS AND DISCUSSION

Media Design

Learning media has been designed with a lecturer inspire format. The topic presented in interactive learning media is the nervous system which refers to the 2013 curriculum (K13). Interactive media by lectora inspire is used in biology learning to increase students' interest in learning and understanding students' concepts. The end result of this product will be published with a single executable file (.exe) output so that it can be operated on a laptop or computer offline on Windows or Linux operating systems. The design of all activities to be carried out before the development process. The visual appearance of the Lectora Inspire learning media developed by researchers is as follows (Table 3).

Product validity

Based on the results of the validation of research material experts on the development of learning media, the following results are obtained shown in table 4.

Table 4. Results of Material Validation

Assessment aspect	Percentage	Criteria
Content eligibility	86.36%	Very Valid
Presentation eligibility	86.65%	Very Valid
Language eligibility	85%	Valid
Average aspect rating	86%	Very Valid

The results above show that in general learning media has obtained an average percentage of 86% in the "very valid" category. This means that the learning media that has been developed can be tested on students for learning.

The validation results from media experts show the following results in table 5 below.

Table 5. Media Validation Results

Assessment aspect	Percentage	Criteria
Graphical eligibility	89%	Very valid

The results above show that In general, learning media which includes an assessment of graphical feasibility aspects has obtained an average percentage of 89% in the "very valid" category. This means that learning media that has been developed can be tested on students for learning.

On. validation results from expert practitioners by biology subject teachers obtained the results below in table 6.

The results above show that in general learning media reached an average percentage of 96% in the "very valid" category.

Tabel 3. Design of Interactive Learning Media Developed by Lectora Inspire

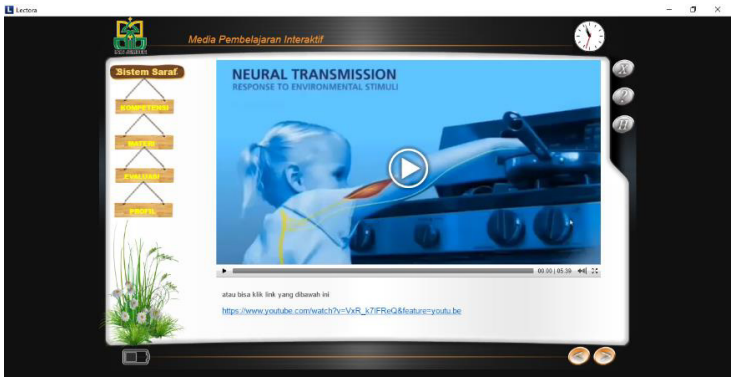
Part of Interactive Learning Media	Description
	Cover of Interactive Learning Media
	Topic page preview screen
	Topic video screen
	Topic evaluation screen

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Table 6. Results of Material Validation

Assessment aspect	Percentage	Criteria
Content eligibility	96%	Very Valid
Presentation eligibility	93.33%	Very Valid
Language eligibility	96%	Very valid
Graphical eligibility	97.14%	Very Valid
Average aspect rating	96%	Very valid

Student Response

Student responses were obtained from the results of limited tests on 10 students in class XI MIPA in the biology subject of MAN 1 Mojokerto, the results are as follows table 7.

Table 7. Student Responses

Assessment aspect	Percentage	Criteria
Ease of use of media	92.8%	Very good
Time efficiency	88%	Very good
Compatibility with the material	82.5%	Very good
Attractiveness	85.33%	Very good
Legibility	86.5%	Very good
Percentage average	87%	Very good

Based on the results of students' responses toward the learning media, it reached an average percentage of 87% which included getting a response into the "very good" criterion.

From the above results, it was found that the learning media reached the "very valid" criterion besides that the student's response to the lectora inspire media also received a "very good" response. ". This data is also in accordance with the results of research from (Gusliani, Hamidah, and Hakim, 2020: 32)who stated that in his research the final result was very good. In addition, in student responses to the development of Lectora Inspire 17-based biology learning media on mammal material, the average percentage for small group trials was 88.9% and the average percentage for large group trials was 80.2%. So it gets the category "very good".

This shows that the lectora inspire-based learning can be used as a media for learning biology, especially in the nervous system topic in which this topic is conceptual and difficult to understand by students. According to findings of this study, it can be assumed that the learning media is interactive, interesting and easy to run. It is caused by Lectora Inspire application or software which has the advantages of: (1) providing templates that can be applied to compile learning material, (2) there are pictures, animated characters that can be used directly, (3) lectora is faster than web-based applications because it doesn't depend on a connection or network, (4) there is supporting software that is installed automatically when installing Lectora, such as Flypaper, Camtasia, or Snagit(Ummi, 2018: 42).

The research that has been carried out shows that the Lectora Inspire learning media is an interactive learning medium and can create fun learning. Therefore, it can be assumed that lectora inspire-based learning media can be used in the biology learning process so that students can be more motivated in learning nervous system material.

CONCLUSION

From the results of the research and discussion above, it can be concluded that: (1) the media is in a very valid category based on the results of validation with an average percentage of 86% in material aspect, an average of 89% in media aspect (2) the percentage score of students' responses was 87% with very criteria good. Based on this finding, Lectora inspire-based learning media is stated to be valid and very good as a learning media.

This research has obstacles in the form of limited learning time because students have to prepare the device in advance to be able to follow the learning process using interactive learning media so that there is a need for more thorough preparation so that this situation will not happen again.

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BRIEF PROFILES

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