



## Developing of E-Module Diversity of Living Things Around in Improving Ereadiness of Distance Learning Students

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### ABSTRACT

This study aims to determine the feasibility of the e-module on the diversity of living things around in increasing distance learning e-readiness for students. This study uses a research and development approach. The development model used in this study is the ADDIE model (Analysis, Design, Development, Implementation, Evaluation). The research instruments used were pretest questions, posttest questions and questionnaires. The questionnaire used is the e-module validation questionnaire and the practicality questionnaire. The e-module validation questionnaire was filled out by experts and the practicality questionnaire was filled out by students who had used the e-module. Based on the results of the validation analysis carried out by experts, an average value of 3.74 was obtained with valid criteria, indicating that the developed e-module is feasible for use in learning. In addition, based on the results of the practicality questionnaire analysis that has been filled in by students who have used the e-module with percentage of 79.2% is obtained which means that the e-module that has been developed is practical for use in distance learning.

**Keywords:** e-module, diversity of living things, distance learning

### INTRODUCTION

The 21st century is marked by the rapid development of technology and information in all aspects of life. This is able to bring about significant changes in various aspects of life. In the 21st century, human resources are required to be of higher quality and able to innovate. In the 21st century learning is done by combining cognitive, affective, and psychomotor skills. This can be done one of them with the implementation of distance learning which is currently underway. Distance learning is learning in which there is an organization that regulates independent learning, learning materials are delivered through the media, and there is no direct contact between the instructor and students (Mackenzi, et al in Aristarahadi, 2008).

Distance learning is currently implemented and is being implemented in

Indonesia. The implementation of distance learning, students are required to be literate in technology and are required to be more independent. One of the teaching materials that can be used in distance learning is an electronic module (e-module).

E-modules are teaching materials based technology, making it easier for users to access them. Mertasari (2010) states that the use of web modules and learning media will ensure student control, flexibility, context-free, and relatively free of social conventions. In addition, students who study using e-modules have higher cognitive learning outcomes than students who use textbooks in learning (Ramadhanty, et al, 2020).

Based on the results of observations that have been made in the science education study program at Tidar University, it shows that teaching materials

in the form of modules in biodiversity courses, especially the subject of the diversity of living things around them, have not yet been developed. Based on these problems, researchers will develop an e-module on the diversity of living things around. The reason for selecting e-modules is because in the current era students are more interested in learning by using teaching materials in electronic than in printed form. This e-module can be accessed by students anywhere and anytime by using the gadget.

Based on some of the things above, the authors conducted research on the development of e-modules for the diversity of living things around in improving readiness of distance learning students. The e-module that will be developed in this research can later be accessed by students through ELITA which is Tidar University's e-learning. The use of the developed e-module can later be studied by students independently, so supports the implementation distance learning.

## **METODE PENELITIAN**

This study uses a research and development approach. Research and development method is used in research that produces certain products and tests their effectiveness (Sugiyono, 2014). The development model used in this research is the ADDIE (Analysis, Design, Development, Implementation, and Evaluation) models. The development steps based on the ADDIE model are adjusted to the needs of the research which includes the following stages:

- 1) Analysis  
At this stage, an analysis of the needs of the modules to be developed for students was carried out and an analysis of the semester learning plan for the biodiversity course.
- 2) Design  
At this stage, (a) preparation of an outline and systematics consisting of

cover, preface, table of contents, material, practice questions, and bibliography; (b) designing evaluation tools, in the form of pretest questions to measure students' initial abilities before using the e-module and posttest questions to measure students ability after using the e-module.

- 3) Development  
At this stage, the writing of the e-module draft that will be developed and editing or validation by experts and revisions of the e-module that have been assessed by the validator are carried out.
- 4) Implementation  
At this stage the e-module that has been developed is piloted on a limited scale to students of the Science Education Study Program in Biodiversity class with a one group pretest-posttest trial design.
- 5) Evaluation  
The evaluation phase is carried out at each ADDIE stage. Evaluation at the analysis stage is carried out based on the results of the needs analysis and analysis of semester learning plans for biodiversity courses. Evaluation at the design stage is carried out in revising the e-module design that will be developed. At the development stage the evaluation is carried out based on the results of the assessment by the validator. At the implementation stage, evaluation is carried out based on the results of the practicality questionnaire analysis that has been filled out by students.  
The research instruments used in this study were questionnaires in the form of expert validation questionnaires and practicality questionnaires and tests in the form of pretest and posttest questions.

## **RESULT AND DISCUSSION**

The research carried out is research and development that produces e-modules on the diversity of living things around. Ikhtiar, 2018 states that the module can 1) clarify and facilitate the presentation of messages so that they are not too verbal, 2) overcome the limitations of time, space, and senses, 3) use them appropriately and varied, such as increasing students' motivation and passion for learning, developing the ability to interact directly with the environment and other learning resources, enable students to learn independently according to their abilities and interests and allow students to measure or evaluate their own learning outcomes. Product development uses the ADDIE (Analysis, Design, Development, Implementation, Evaluation) model.

The first step is analysis. At this stage, an analysis of the needs of the module that will be developed for students is carried out and an analysis of the semester lesson plan. The second stage is design. At this stage, the outline preparation, systematic determination, and evaluation tool design are carried out. The third stage is development. At this stage, a draft of the e-module that will be developed is written and editing or expert validation is carried out. Based on the validator's assessment, the average score of validator I was 4.030 with a very valid category and the average score of validator II was 3.81 with a valid category. The recapitulation of the results of the e-module validation assessment by the validator can be seen in Table 1.

Tabel 1. Recapitulation of Validator Assessment Result

Aspect	Score	
	Validator I	Validator II
Content Egibility	45	45
Linguistic Egibility	32	31
Presentation Egibility	16	16
Graphic Egibility	40	34

<b>Total Score</b>	133	126
<b>Average Score</b>	4,030	3,81
<b>Assessment Criteria</b>	Very valid	Valid

Based on the validator's assessment, an average value of 3.74 was obtained with valid criteria. It can be concluded that the developed e-module is suitable for use in distance learning.

The fourth stage is implementation. At this stage the aim is to test the effectiveness of the developed e-module. The product trials were conducted on a limited basis with a one group pretest-posttest trial design in the Science Education Study Program in the Biodiversity class. Students are given pretest questions, in order to find out students' initial abilities before using the e-module. Then after using the e-module students work on posttest questions, in order to find out students' abilities after using the e-module.

The pretest and posttest questions are used to determine the level of effectiveness of the e-module that has been developed. The results of the pretest and posttest values were analyzed using the N-gain test. Based on the results of the N-gain test, it is known that there is an increase in student pretest and posttest scores of 0.495 in the medium category, so it can be concluded that the e-module that has been developed is effectively used for distance learning.

In addition to students learning to use the e-module, students also fill out a questionnaire which results from filling the questionnaire later to find out the practicality of the product that has been developed. Based on the results of questionnaires and data analysis, a percentage of 79.2% was obtained, which means that the e-module developed is practical for use in learning. This is in line with research conducted by Wahyuni, et al. (2017) which states that effective modules are used and student learning outcomes are

higher after using interactive multimedia modules based on e-learning.

## CONCLUSION

Based on the research and development that has been carried out, e-module of diversity of living things is feasible to use with a validation result of 3.74. In addition, the e-module developed based on the results of the N-gain analysis obtained a score of 0.495, so that it can be said that the e-module that has been developed is effective for distance learning and based on the results of the practicality questionnaire analysis obtained data of 79.2%, which means that e-modules that have been developed practically for use in distance learning.

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