The Development of Interactive Multimedia E-Module on Indonesia Language Course

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Abstract— **The purpose of this study was to describe the process of developing interactive multimedia e-module in Indonesian language courses at IAIN Bukittinggi. It produces quality interactive e-modules as learning resources for Indonesian. Knowing the feasibility of interactive multimedia e-modules as a source of learning Indonesian. This research is a development research (research and development) by producing new products through a certain stage so that at the end of the research produced a product that is purely the level of validity, practicality, and effectiveness of the needs. The product is in the form of learning materials such as books, modules, or computer programs. This products have been tested for validity, practicality and effectiveness then it can be used as a learning medium as a result the learning process is more interesting and students become more active and creative.**

Keywords—Interactive Multimedia E-Module, Indonesian Language Course

I. INTRODUCTION

Education as a benchmark for national progress requires comprehensive attention on how to develop technology-based education. Educational institutions should provide sufficient space for technological development, which is expected to help the learning process carried out in the classroom effectively. The use of multimedia technology can function as a means of activation along with the visual and verbal systems to receive and process incoming information [1]. The development of information and communication technology in the end of the 20th century gradually shifted the era of Gutteberg with its printing press and replaced it with the digital era. Information and publications which were originally only documented and disseminated through printed sheets of paper now began to use electronic media as an alternative. [2] explained that in the world of education, the use of information and communication technology in learning is known as e-learning. E-learning refers to learning using electronic device services.

One form of presentation of learning materials in digital or electronic format is an e-book. [2] adds that electronic book or commonly known as e-book is a display of information or text in the format of books recorded electronically using a hard disk, diskette, CD, or flash disk and can be opened and read using a computer or electronic book reader (e-book viewer or e-book ready)

According to [3] digital books or e-books are publications consisting of text, images, videos, and sounds and published in digital form that can be read on computers and other electronic devices. From the explanation above, it can be understood that electronic books are portable hardware and software systems that can display information in the form of large amounts of text to users in order to browse contained in it.

The development of e-book technology encourages a combination of printing technology and computer technology in learning activities. Various print learning media, one of which is a module, can be transformed into electronic forms. Hence, the term electronic module or e-module is born. There is no a definite definition of electronic modules so far. With reference to various related terms, it can be identified that the electronic module is a combination of the module in the form of electronic learning materials (e-books). Thus the electronic module can be defined as a form of self-learning material presentation that is systematically arranged into the smallest learning unit to achieve certain learning goals, which are presented in an electronic format, where each learning activity in and it is linked as navigation that makes students become more interactive with the program, equipped with the presentation of tutorial videos, animations, and audio to enrich the learning experience. Based on the understanding of the module and electronic module, it can be seen that there is no difference in the principle of development between conventional modules (print) and electronic modules. The differences only exist in the physical presentation format, while the components of the module have no difference. The physical presentation of electronic modules that require a computer device to use them.

[4] explained that the use of information technology is an integral part of modern education. Information technology as a means to develop learning models and shorten learning time. [5] also said that information and communication technology has enormous potential as a means or tool to develop skills in the learning process. In this way students can arrange an attractive learning environment for modulation and embedding schemata motors that are needed for learning. Therefore, multimedia is very necessary for students to improve their learning activities on the subject of understanding[6]. The use and empowerment of technology-based multimedia modules in order to support learning is a necessity, not only to improve

the effectiveness and quality of learning, but more importantly is to improve the mastery of the material both teachers and students.

Technology-based learning media can foster positive attitudes of students towards the material and learning process. The ontological basis for the emergence of the concept of educational technology includes: (1) the need for the community towards learning activities that occur throughout life and it is the right of everyone; (2) a constantly changing environment; (3) increasing population; (4) limited traditional sources; (5) the need to manage learning resources so that they can be used optimally for learning needs [7]. By using the media, the learning process becomes more attractive then it encourages students to love science and like to find sources of knowledge by themselves. The ability of students to learn from these various sources, will be able to instill an attitude towards students to always take the initiative to find the various learning resources needed since the use of various media such as sound, animation and images will involve students in learning and can improve their knowledge and motivate to learn better [8].

Multimedia provides opportunities for educators to develop learning techniques and also produce maximum results. In order to achieve learning objectives, educators need to understand learning techniques that are useful in the teaching and learning process. Learning techniques are used to implement a method specifically, for example the use of learning resources based multimedia. [9] emphasized that utilizing multimedia in learning becomes an obligation and it is in line with the changes that occur in various fields of human life. Likewise for students, with multimedia, they are expected to be easier to determine with what and how students can absorb information quickly and efficiently. Sources of information are no longer focused on text from books but are wider than that. The obstacles also faced in the implementation of learning, one of which relates to teaching materials [10]. Based on the results of the analysis showed that from 35 students, 77% of students had difficulty thinking, 85.7% of students had difficulty in learning, 91.4% of students had an interest if the teacher displayed software, simulations, animations, videos in learning. It turns out that 85.7% of students feel more understanding of learning by displaying software, simulation, animation, video, pictures, power point. As a result, students are increasingly involved with content so as to improve their learning process. Then, the use of interactive multimedia learning has a significant effect on learning achievement [11]. On the other hands, the use of technology in the learning process has been proven to increase students learning interest because of its more attractive appearance so that students will avoid boredom while attending the lesson. In addition, the use of technology in the education process can motivate students to be more involved in learning activities where they become more active and more interested in learning [12]. With the e-module, technology-based learning is expected to explore the ability of individual students as well as generate interested in learning as a result it can generate motivation

in improving learning achievement. In addition, this e-learning module is also expected to bridge the problem of the limited absorptive ability of students and the limitations of teachers in the learning process in the classroom, then poorly understood materials can be explored through this e-module. Other opinion support that the learning process using e-modules has shown success, and it is suitable for use as a learning resource [13] and the use and development of interactive multimedia based e-module learning is one of the learning strategies that can be done by the teacher in increasing the participation and active participation of students in the learning process [14].

Furthermore, a teacher or lecturer is also required to be careful in choosing and applying teaching methods that are in accordance with the objectives to be achieved, also able to choose media that is appropriate with the material to facilitate the conveying of the material. One of the media that can be developed is an intermultimedia e-module. Technology will help develop all types of thinking skills from the most basic level to the level of critical thinking skills [15]. Therefore, in modern education, lecturers are required to be able to integrate ICT in the learning process. ICTs should not only be used as objects that must be studied or position students as people who learn ICT, but what should happen is in the learning process must use ICT so that students can also learn ICT there (learning with or trhough ICT).

Current learning activities emphasize process skills and active learning, so learning media becomes increasingly important. The module can facilitate students in independent and conventional learning. In detailed, The education and culture department states that the module as a unit of the smallest learning program contains the following details. 1) instructional objectives to be achieved; 2) topics that will be the basis of the learning process; 3) points to be studied; 4) the position and function of the module in a broader program unit; 5) the role of the teacher in the learning process; 6) tools and sources to be used; 7) learning activities that must be carried out and lived by students in sequence; 8) worksheets that must be filled by students; 9) evaluation program that will be implemented [16]. In short, the advantages of e-module compared to the print module are their interactive nature which makes it easy to navigate, allows displaying / loading images, audio, video and animation as well as equipped formative tests / quizzes that allow immediate automatic feedback [17]. The use of modules in learning is structured as one of the instructional materials to help students to be able to learn independently, can master the material optimally and the goals of education can be achieved effectively and efficiently.

The purpose of writing the module are: 1) clarifying and facilitating the presentation of messages so that they are not too verbal, 2) overcoming the limitations of time, space, and sense faculties, both students and teachers, 3) can be used appropriately and varies. For example, increasing the motivation and passion of learning for students, developing the ability of learners to interact directly with other learning resource science environments, allowing learners to learn independently according to their abilities and interests [18].

Based on the theory's opinion, it can be concluded that the module is a printed learning unit designed for independent learning by students. Modules are equipped with instructions for self-study, moreover with the module, students can learn by themselves without a teacher. Modules are prepared for learning purposes.

Similar to other learning media, a module with the characteristics and components of its builders that are complete as independent learning materials has a variety of limitations than other media do not have. The module also has several disadvantages and limitations. However, if it is used with learning conditions that are in accordance with the module it is proven to help learning because the module has been tested and valid before being disseminated. The benefits of learning by using modules are: 1) Independent learning, learners can learn materials based on their respective speeds. Test independently. 2) Complete package. The main advantage is that the module is an integrated learning package, there is no need to use several separate learning materials to meet the learning objectives. 3) validity of the module has been tested and has been validated before being distributed [19]. Other benefits of using the module are 1) the module provides a lot of feedback and immediately so students can find out the learning outcomes. 2) mastery is complete, every student gets the opportunity to reach the highest number by mastering the material of the study thoroughly 3) the module is arranged in such a way that the goal is clear, the student's effort is directed to achieve it immediately[20].

In accordance with the characteristics of Indonesian language learning materials, in conveying material or explanation to students requires a variety of media, because for students to understand this material requires a fairly high abstraction. It is not enough just a description of how to write a paragraph, but it takes a simulation to be interested and students can remember well. The observation of the weaknesses of the print module is that one of them is unable to display some material using simulation, then students become bored and learning process feel monotonously because they are still presented with analogues even though everywhere is spoiled with digital products. The print module makes the learning process less attractive, less interactive and not yet able to convey historical messages through pictures and videos.

Multimedia-based modules can make the learning process more interesting, more interactive, able to convey historical message through pictures and videos, encourage student learning through instrumentalism, be able to develop the auditive or auditory senses of students therefore the material delivered is easier to understand. Good multimedia is able to present various kinds of events that can be used as learning media just like the objects to be presented through various manipulations that can be simulated. The use of multimedia in learning can significantly improve academic achievement at a significance level of 0.5. [21]. A good media should be a medium that is easy to use, the instructions delivered are easy to understand and easily responded by students.

II. METHOD

This research is research development (research and development) model by producing new products through a certain stage in which at the end of the research produced a product that is purely the level of validity, practicality, and effectiveness on the needs of the research that develops a product. The development of the e-module used in this study is an adaptation of the existing modules, namely ADDIE model. ADDIE concept (analysis, design, development, implementasion). ADDIE is used to describe a systematic approach. All elements of the model are related to one another, starting from analysis, design, development, application and assessment.

The stage of implementing e-module development in ADDIE development model.

a. Analysis
The analysis phase is a process that defines what students will learn, namely conducting needs analysis, identifying problems and performing task analysis. Therefore, the output we will produce is in the form of characteristics or profiles of prospective students, identification of gaps, identification of needs and detailed task analysis based on needs.

b. Design
Design is a series of planning activities to achieve goals. What we do in this stage is to formulate learning objectives that are specific, measurable, applicable, and realistic. Test is also done in this stage. The test must be based on the learning objectives that have been formulated, then determine the learning strategy, learning media, learning resources. It all depends on a clear and detailed blue print.

c. Development
Development is the process of realizing the blue print has come true. An important step in the development phase is a trial before it is implemented. This trial phase is part of one of the ADDIE steps, namely evaluation. More precisely formative evaluation, because the results are used to improve the learning that is being developed. Before the product is tested the product must be validated by the validator.

d. Implementation
Implementation is a real step to implement the learning system that we are making, It means that at this stage everything has been developed or set in such a way according to its role or function that it can be implemented. The main purpose of this step is; 1) guiding students to achieve goals or competencies, 2) guaranteeing the occurrence of problem solving, 3) ensuring that there is a learning program, students need to have knowledge competencies and skills attitudes.

c. Evaluation
Evaluation is a process to see whether the learning system developed is successful. In accordance with initial expectations or not. Actually the evaluation stage can occur in each of the five stages above.

The reasons for choosing a) are more appropriately used as a basis for developing e-modules, b) the description looks clearer and more systematic and c) in the development involves expert judgment, so that before the trial is carried out in the field the product has been revised based on the results of the assessment, suggestions and input from experts [22]

III. RESULTS AND DISCUSSION

The development of interactive multimedia e-modules in Indonesian language courses by adopting the ADDIE model has been successfully carried out well. The E-module has been tested on students at IAIN Bukittinggi through two methods, namely; 1) trial of one-to-one evaluation namely a trial involving one student, 2) trial of a small group evaluation that is tested in the form of small groups, while in the implementation phase it was conducted on students who took Indonesian language courses with 40 students.

Multimedia e-module after producting for IAIN Bukittinggi, they were validated (lecturers handbook, e-modules, model book) by 5 experts: 3 material experts, 1 linguist and 1 design expert. Validation results can be seen in the following description.

. E-module Multimedia

Based on the results of data analysis and e-module multimedia validation by experts at the percentage of 85.16% to 88.27% with the average value of the validation results being 86.47% and four validation results in the very valid category. From the results of the E-multimedia validation, it can be concluded that the e-multimedia validation assessment sheet is categorized as very valid.

The material description on the multimedia e-module is in accordance with the learning material. Various concepts of learning activities, videos and lines of tasks contained in the e-module multimedia is easier for students to develop ideas contained in their thoughts into written forms, assignments and results tests. The use of videos in e-multimedia modules greatly helps students to understand the material contained in e-modules. Language in e-modules use sentences that are easy for students to understand. Sentence also uses the right spelling. Then the e- module developed was designed with a color according to the color background of the IAIN Bukittinggi, which is dominantly yellow and green so that it can motivate students to follow the learning process well. It can be concluded that the e-module developed has been declared valid and can be used in the learning process.

b. Lecturer Handbook

The process of validating the lecturer Handbook includes the validation of learning units and syllabus based on several aspects in accordance with a) substance aspects including identity, time allocation, goals, indicators, material, learning activities, learning strategies / approaches and learning resources, b) aspects technical and c) aspects of language.

Based on the specified categories, the lecturer handbook that has been developed is at the percentage of 85.00% up to 92.00% with the average value of the validation results being 90.00% and the three validation results in the very valid category. This means that the lecturer handbook that has been developed illustrates the compatibility of all components and activities as well as the concepts contained there.

The practicality of using interactive multimedia modules along with lecturers' guidebooks and Indonesian language learning models is practical according to observers, lecturers and students. This shows that Indonesian language learning using interactive multimedia e-modules can be done well and in the learning process there are no significant problems or running in normal situations. A lecturer guide book with a law model can help the learning process. In general, students enjoy participating in the learning process by using interactive multimedia e-modules in the Indonesian language subject. All of them can be stated that e-modules, lecturer guidebooks and book model are easy to use, understand, useful, and interesting.

Then the results of the effectiveness test are observed based on learning achievement. Based on the results of data analysis and discussion obtained that there are differences in student learning achievement using interactive multimedia e-modules with conventional learning. The difference shows that students' learning motivation is taught by using interactive multimedia e-modules more than students taught with conventional learning. The use and development of an active multimedia-based learning module is one of the learning strategies that can be done by teachers in increasing the participation and active participation of students in the teaching and learning process [23] Using the learning module, it is expected to explore the individual abilities of students and create learning interest.

Multimedia learning tools can be designed to transform learning into active process in which students can visualize relationships over time, interact with learning content, and test learners' knowledge. Multimedia learning bridges knowledge gaps, encourages conceptual understanding, and builds problem solving thinking skills [19]. The findings above explain that learning media have a very important role in improving students achievement in terms of the understanding of learning media in general as a tool for teaching and learning process. Besides, learning media is everything that can be used to stimulate students' thoughts, feelings, attention and abilities or skills as a result it can encourage the learning process.

IV. CONCLUSION

The development of this interactive multimedia e-module has been through the rules and stages of the development of trials and the implementation of this product is carried out at IAIN Bukittinggi. Indonesian language learning using interactive multimedia e-modules toward students IAIN Bukittinggi is very effective to be used in learning processes where interactive multimedia e-modules can or are able to improve learning achievement and increase learning interest. With this interactive e-module students can be more analytical and open horizons of

students' thinking by using reasoning based on the examples in the e-module.

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