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Development of Pastry Learning E-Modules in the Hospitality Study Program of Community Academy Padang Pariaman

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Abstract— *This research is motivated by the limitations of the independent learning facilities that can be used by students wherever they are and the material learned requires visualization, and the limited learning time in the classroom causes learning outcomes to be unsatisfactory. The purpose of this study was to develop a pastry learning e-module at Hospitality Study Program of Community Academy Padang Pariaman that was valid, practical and effective. E-Module is designed to help students in learning by utilizing information and communication technology, so that learning can be done independently without having to be bound by time and place.The development model used in this study was adapted from the Plomp model. This model consists of three stages, namely: (1) preliminary research or preliminary analysis, (2) prototyping phase or design phase, and (3) assessment stage. The type of data used is primary data where data is obtained directly from the source, namely the Academy of Community of Padang Pariaman, teachers, experts and students. The data analysis technique used is descriptive analysis technique that is by describing the validity, practicality and effectiveness of the learning media developed.The results obtained from this development research are pastry e-learning modules. Based on the findings of this study it can be concluded that the developed e-module is valid with an average validity of two validators of 0.83 with valid categories, from the material aspects the average validity of the two validators is 0.78 with a valid category. The e-module was developed practically with the practicality value of direct submission of 87.80, from the lecturer response of 94.16 and student response of 83.97 and effective in increasing student understanding obtained from the calculation of the gain score of 0.66 with medium category. So it can be concluded that the pastry e-learning module is valid, practical, and effective to be used as a pastry learning tool.*

Keywords— *Electronic Modules, E-pastry modules, Research and Development.*

I. INTRODUCTION

Education is very important in improving the quality of human resources, so that various businesses are always carried out to be able to improve the quality of education. In accordance with the objectives of national education to develop capabilities and shape dignified national character and civilization in order to educate the nation's life, so that the potential development of students becomes human beings who believe and fear God Almighty, noble, healthy, knowledgeable, capable, creative, independent, and become a democratic and responsible citizen (Law No. 20 of 2003 Chapter II Article 3). The article emphasizes that the application of the development of science in the field of education must always be in line with the mandate of national education goals.

National education goals cannot be achieved easily, of course education providers must implement the National Education Standards contained in Government Regulation No.19 of 2005 which were refined in Government Regulation No.32 of 2013. There are eight national education standards that must be fulfilled by one of them is a process standard which is a standard criterion regarding the implementation of learning in an educational unit to achieve graduate competency standards. The learning process in educational units is held in an interactive, inspirational, fun, challenging, motivating student to actively participate, and provide sufficient space for initiatives, creativity and independence in accordance with the talents, interests, and physical and psychological development of students [1].

21st century education emphasizes the use of technology to improve the learning process. 21st century educator standards require to use their knowledge of teaching materials, learning processes, and technology to facilitate learning experiences of students. Likewise with students, the educational technology standards of 21st century students are learning processes utilizing technology and enabling learning independently [2]. Based on 21st century education standards the use of technology is not an option anymore, but has become a necessity in order to improve the learning process.

In order to realize the availability of workers who have knowledge and skills with technological skills relevant to national and regional development, and to improve national competitiveness, the government is currently developing one form of education called Community College. Community Academy is a form of tertiary institution that runs a vocational education program at the first diploma level and a second diploma with specialization in certain branches of science, science and technology based on local excellence and meeting special needs. The reference is Law 12 of 2012 concerning higher education, which states that the form of higher education consists of: Universities, Institutes, Colleges, Polytechnics, Academies and Community Academies. Community Academy is professionally managed, producing graduates with high work skills and the curriculum is

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developed in synergy between the academic community and the community and professional organizations.

One of the Community Academies is in the Padang Pariaman area with one of the two diploma study programs (D2) Hospitality. The two hotel diploma study program is a study program that aims to prepare graduates who become competent resources in the field of hospitality. In accordance with the competency-based curriculum, the 2013 KKNI has a subject structure including MKK (Scientific and Skills Courses), basic scientific subjects and hospitality skills, one of which is Pastry.

The Pastry course is a course that studies the knowledge of various patriarchal products and their processing methods. Weighs 3 credits with an allocation of each meeting time of 250 minutes. This course consists of 14 topics in one semester that must be studied by students, namely the basic concepts of patisery and bread processing, the need for materials and tools in patiseri and bread processing, methods and techniques of patiseri and bread processing, pudding processing, cake processing, chouxpaste processing , processing pancakes and fritters, processing sugar dough, processing short pastry, processing puff pastry, processing bread (hard roll), processing bread (soft roll), processing danish, processing frozen dessert. The fourteen topics must be understood by students so that the achievement of learning pastry courses is achieved, but during the learning process there are still obstacles.

The interview that I did with Pastry lecturers at the D2 Academy Community Study Program on July 15, 2018, that this pastry course is a compulsory subject for hospitality study programs, students must be active in conducting lectures so that later at the end of the lecture students are skilled in processing Pastry dishes. But in reality the field of students still seems to be confused when the program and the products produced by students tend to be the same form and less attractive, while the demands of the hotel today must produce food that is not only delicious but also pleasing to the eye and innovation. This happens because of the limitations of tools and materials and learning resources. In the Pastry course learning process, lecturers currently use learning media in the form of handouts and jobsheets, which are delivered by relying on explanations from lecturers so that students are not actively involved in the learning process.

The author also interviewed several students who had attended the pastry course on July 25, 2018, they said it was difficult when attending pastry lectures because of several factors including, teaching materials and media still lacking in pastry learning, lack of mastery of the material described, when they practice never bought material because they did not really understand the specifications of the material or tools to be used and the processing techniques that were still lacking in understanding, the measure in practice was also wrong because the worksheets were unclear, students only relied on their own records which were sometimes incomplete and often confused when repeating lessons at home and the lack of reference resources about pastry when making assignments, this makes the learning process less than optimal.

The learning process is influenced by several factors including student participants, lecturers, facilities, environment and learning resources. A good learning environment can be seen by the interactive relationship between educators and students, thus learning objectives are achieved as expected. The achievement of learning objectives is also influenced by the existence of learning resources, one of which is the learning module The learning module is a teaching material that is made systematically in accordance with the topic of learning contained in the education curriculum which contains learning material, teacher and student instructions and practice questions for students. According to [3]said that "the module is the smallest unit of learning program that can be studied as individual educators". This learning module can be learned by individual students in other words students can develop their own potential independently according to their respective abilities. The hospitality academy study program, especially in Pastry, does not yet have adequate modules for self-study students.

The AKN Padang Pariaman Hospitality Study Program provides teaching materials that are integrated with learning devices in the reading room, teaching materials in the form of black and white photocopies with very short content and no drawings or simulations that make it easier for students to learn pastry processing techniques themselves. Whereas one of the principles of learning in the 2013 curriculum is learning that takes place at home, school, community, and everywhere is a class. Solid material in pastry courses with a credit score of three credits, resulting in several times the learning process in the classroom was forced to not be able to be resolved given the limited time available. The time available for teachers and students in face-to-face sessions in classrooms is very limited, besides that the process of delivering teaching materials is almost entirely done in classrooms which causes the delivery of teaching material to be late or not even delivered if the meeting does not occur, another day to explain the material being studied, it makes it inefficient, and the hangout that has not been accompanied by step-by-step images also makes students less helpful when practicing. In addition, the influence of different student backgrounds and not all of the hospitality vocational high schools and catering is also an obstacle in the learning process.

The technological device that is growing rapidly now is laptop / PC. The device has penetrated various circles of society, not only used by adults but also used by teenagers. Segments aged 16-20 years become a strong base for laptop / pc users [4]this segment is a segment of the age of high school students and students. This phenomenon is also evident in the pariaman community academy, especially in hospitality study programs that follow pastry courses, on average students have information technology devices such as laptops / PCs and smartphones. Of the 15 students who joined the 2018/2019 odd semester pastry lecture, 15 people had information technology devices in the form of smartphones and 13 of them in addition to having a smartphone also had latop / PC.

An electronic module or e-module is a display of information in a format of a book that is presented electronically using a hard disk, diskette, CD or flashdisk and

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can be read using a computer or electronic book reader. E-module is a tool or means that contains material, methods, boundaries and ways of evaluating systematically and interestingly designed to achieve the level of complexity electronically. e-module can load video content to make it easier for students to study subjects such as pastry courses that require techniques and processing methods, and can be innovative with a more attractive appearance.Based on the phenomenon that has been explained, for this reason the hospitality study program at the Padang Pariaman State Community Academy.

II. Review of Literature

A. The Nature of Learning

Learning is the process of interaction between students and educators and learning resources in a learning environment. Learning is assistance provided by educators so that the process of acquiring knowledge and knowledge can occur, mastery of proficiency, and the formation of attitudes and beliefs in students. In other words, learning is a process to help students learn well (Rifai 2011: 82). Hamalik (2011: 54) explains that learning activities are held to shape character, civilization and improve quality of life. Trianto (2009: 17) defines learning as a two-way interaction from a teacher and student, where intense and directed communication occurs towards a predetermined target.

Learning will not occur if there are no components that support the learning process, there are three main component categories in the learning process, namely: educators, content or learning material, and students. Interaction between the three main components involves learning methods, learning media, and structuring the learning environment, so that learning situations are created that enable the creation of goals that were previously planned (Sumiati and Asra 2009: 3).

In addition to the three main components described above there are also supporting components that will make the learning process more effective, namely, formulation of learning objectives, learning methods, learning media and learning environments. The formulation of goals in learning aims to give clearer limits about learning objectives, namely the intent communicated through statements describing the expected changes of students, while the accuracy of the use of learning methods by teachers enables students to achieve learning goals both in terms of cognitive, affective, and psychomotor. (Slameto 2003: 12). In order for the learning method used by the teacher to be appropriate, the teacher must pay attention to several factors, namely learning objectives, learning material, teacher's abilities, student conditions, resources and facilities, conditions and time situations. The use of learning methods by paying attention to several factors above is expected to be a good learning process Trianto (2009: 27).

The media used for learning are not too identical to the classroom situation in conventional teaching patterns but the learning process without the presence of teachers and more relying on the media is included in learning activities (Susilana 2009: 179). Environment is all situations that exist around students at the time of learning. This situation can affect student learning. If the environment is well organized, the environment can be a means that is positive in building and maintaining a positive nature [5].

We can conclude all the descriptions of learning that Learning is a process of interaction between students and educators and learning resources in a learning environment to shape character, civilization and improve quality of life. Learning will not occur if there are no components that support the learning process, there are three main component categories in the learning process, namely: educators, content or learning material, and students. In addition to the three main components there are also supporting components that will make the learning process more effective, namely, formulation of learning objectives, learning methods, learning media and learning environments.

B. The Nature of Pastry Learning

Pastry is a section of the Food & Beverages Product organization that specializes in handling / making cakes, cakes, cookies, pastries, chocolate, pudding and various other desserts. In it there is a sub section, namely Bakery that specifically makes various kinds of bread (bread). Pastry learning is found in the course at the Padang Pariaman Community Academy with the name Pastry. Pastry courses are one of the subjects that must be taken by hotel study program students in semester 3. This course consists of 3 credits, namely 1 theory and 2 practices and is included in the subject of Science and Skills [6]in pastry learning students learn a variety of basic concepts (understanding, classification, terms, and principles) of pastry processing, making skills and serving a variety of pastry products for various opportunities. This course seeks as far as possible to connect the subject matter with reality, using various examples that apply in society.

C. Electronic Module (E-module)

Modules can be formulated as a complete unit that stands alone and consists of a series of learning activities arranged to help students achieve a number of objectives specifically and clearly formulated [7]. The module is a book written with the aim that students can learn independently without teacher guidance. This makes students required to learn independently in order to increase learning motivation and learning outcomes according to [8]. Modules are the smallest learning programs that can be learned by individual students (self instructionl), after students complete a program in the module, then they can step up and study the next module unit [9].

From some of the views above, it can be concluded that the module is a teaching material prepared with the aim to help educators more motivated to learn and help students to study at any time independently, and as a reference for educators for the stages of learning to be discussed, the existence of a good pastry module later it is expected to be able to help students to improve the efficiency and effectiveness of learning, both time, funds, facilities, and energy.

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The purpose of the use of modules, among others, is that educational goals can be achieved effectively and efficiently. " Students can take part in learning programs in accordance with their own speed and ability, more independent learning, can know their own learning outcomes, emphasize the mastery of learning materials optimally [10].

E-book (Electronic book) is a display of information or text in the format of books recorded electronically and can be opened and read using a computer or electronic book reader (book viewer or e-book reader) [11]. Development of books encourages the use of technology in learning activities. Various print learning media, one of which is a module, can be transformed into electronic form, known as e-module (electronic module). There is no definite definition of e-module, referring to the various related terms it can be identified that e-module is a combination of the terms of the module in the form of electronic teaching materials.

Thus, e-module can be defined as a form of presentation of independent teaching materials arranged systematically into the smallest learning units to achieve certain learning goals, which are presented in electronic format. Where each learning activity in it is connected with navigation which makes students become more interactive with the program, complemented by the presentation of video, animation and audio.

III. Development Method

This research is research and development (R & D). The R & D method is a research method used to produce certain products, and test the effectiveness of these products [12]. This R & D study aims to develop pastry learning e-e-modules in the material of fundamental power electronics devices and inverter systems.

The development model used in this study was adapted from the Plomp model. This model consists of three stages, namely: (1) preliminary research or preliminary analysis, (2) prototyping phase or design phase, and (3) assessment stage. This model was chosen because of several advantages, namely (1) more appropriately used for the development of learning devices, (2) complete and systematic descriptions, (3) before being tested, the developed learning module was revised itself and consulted first by experts.

The subjects of the trial were 15 semester students in the hospitality study program at the Padang Pariaman Public Community Academy as many as 15 people who would be given the basic material learning concepts of pastry processing and pastry processing methods and techniques using the pastry e-learning module.

The type of data used in the development of pastry learning e-modules is primary data, namely validate data taken from the results of the validation of learning devices carried out by the validator. The data obtained from the implementation of the trial are: student responses to pastry learning e-modules developed after the product is tested (practicality), and student learning outcomes from cognitive aspects of students (effectiveness) which are analyzed using statistical formulas.

Data from the validity results were analyzed using the Aiken's V validity coefficient, according to Azwar [13]Aikern had formulated the Aiken's V formula to minimize the Content Validity Coefficient based on the assessment of as many as n experts on an item regarding the extent to which the item represented the measured constituents. Next, look for the average score.

The e-module practicality analysis technique was obtained from the results of the study through questionnaires and direct observation sheets on the e-pastry learning modules used by students. Questionnaires and direct observation sheets consist of statements to determine the practicality of pastry learning e-modules and provide alternative answers to these statements.

The effectiveness analysis of android-based interactive learning e-modules is done to determine the level of media effectiveness applied in learning. For the effectiveness test, this study uses the Preetest and Postest method which is part of the Pre-Experimental Design method.

IV. Development and Discussion Results

A. Data Analysis

1. Data analysis test validity of e-learning module pastry

The results of the assessment of each aspect given by the validator were analyzed using the Aiken's V. statistical formula. The results obtained were validation values for the products produced. The results of the validation recapitulation are summarized from the aspects of the assessed e-learning module as shown in the table I.

TABLE I. Validation results of e-learning pastry module.

No	Validasi	Indicator	Validator 1	Validator 2	Average
1	Material expert	Content Aspect	0,69	0,69	0,785
		Learning Aspect	0,78	0,87	
		Summary Aspect	0,92	0,75	
2	E-module expert	Display Aspect	0,90	0,80	0,835
		Programming Aspect	0,94	0,81	
		Utilization Aspect	0,75	0,81	

Based on the results of the analysis of the validity test to the material experts obtained by the average aspects of 0.785> 0.667 the material of the e-learning pastry module is included in the valid category. Furthermore, the results of validation with e-module experts obtained an average of 0.835> 0.667, so that the e-learning module developed was declared valid.

2. Data analysis of practicality test of e-learning module pastry

a. Direct observation

The practicality of this Pastry e-learning module is seen by making direct observations that the researchers did on the students of the hospitality study program at the Padang Pariaman Public Community Academy totaling 15 students. The results of direct observations that researchers do can be seen in the table II.

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TABLE II. Direct observation results practicality test.

No	Indicator	Percentage	Average
1	Ease Aspect	88,40	87,80
	Time Aspect	88,00	
	Utilization Aspect	87,00	

Based on table II, it can be seen that the practical average of the Pastry learning e-module is based on direct observation of 87.80%.

b. Lecturer response to practicality of e-learning module pastry

Practicality is related to aspects of learning, material and design in the e-learning module developed. Practical data was obtained through a questionnaire filled by one lecturer in a hospitality study program. The results of the assessment of the practicality of the pastry learning e-module are summarized in table III.

TABLE III. Practicality recapitulation based on lecturer response.

No	Aspect	(%) category	
1	Learning	95	Very Practical
2	Material	95	Very Practical
3	Desain	92,5	Very Practical
Average Lecturer Response		94,16	
Aspect Category		Very Practical	

The results of the analysis obtained the average results of the practical test of pastry learning e-modules according to lecturers rated the percentage value of 94.16 with a very practical interpretation.

c. Student response to practicality of e-learning module pastry

The practicality of e-learning pastry modules also requires input in the form of responses from students. This data is obtained after students use the pastry e-learning module, then students fill out the questionnaire given. The results of the assessment of the practicality of the pastry learning module e-modules are summarized in the table IV.

TABLE IV. Rekapitulasi praktikalitas berdasarkan respon mahasiswa.

No	Aspek Penilaian	Persentase (%)	Kategori
1	Learning	84,80	Practical
2	Desain	84,44	Practical
3	Program	82,67	Practical
Average Practicality of Student Response		83,97	Practical

Based on table III and table IV, the average results of the practical test of pastry e-modules are obtained based on the acquisition of lecturer data which is 94.16% and based on student data acquisition of 83.97% so it can be concluded that the e-learning module is included in the category " very practical ".

3. Effectiveness judging from classical completeness

Classical completeness is seen from the percentage of the number of students who complete (comparing the KKM value set) after using the Pastry learning e-module. The basis for determining the effectiveness of the Pastry learning e-module is if the percentage of classical completeness of students is greater or equal to 85%, then the e-module learning Pastry is effectively used. If the opposite, the percentage of classical completeness of students is smaller by 85%, then the Pastry e-learning module is not effectively used. The following are the results of the average student grades in the hospitality study program at the Padang Pariaman Public Community Academy presented in the table V.

TABLE V. Results of effectiveness analysis based on KKM.

Total College Student	Rentang Nilai			
	< 80 (Not finished)	%	≥ 80 (finished)	%
15	0	0	15	100

Based on the results of the analysis described in table 4.5, there were 15 students (100%) completing the data, this shows that classical completeness has been achieved, it can be concluded that the Pastry learning e-module is effective when viewed from classical completeness.

4. Effectiveness judging from the gain score test

The data from the pretest and posttest were analyzed using the gain score test which aims to test the effectiveness of the treatment given to a particular group. Based on the gain score testing, the following results are obtained.

TABLE VI. Gain score test results.

Jumlah Sampel	Gain Score	Interpretasi
15 people	0,666	Medium

Based on the gain score test above, it can be concluded that the effectiveness of the Pastry learning e-module developed is in the medium / average category. So that the e-module is feasible for use in improving learning outcomes in the hospitality study program at the Padang Pariaman State Community Academy.

B. Discussion

Based on the results of the research conducted, it can be seen that the developed e-learning module Pastry is valid, practical and effective. After testing the validity of the material validator and e-module validator, and continued with practical testing to lecturers and students. Finally, the effectiveness of e-modules is tested for hotel study program students at the Padang Pariaman State Community Academy.

Based on the testing of the validity of the Pastry e-learning module it was obtained that the material validation value was 0.785 and the validation of the e-module was 0.835. Furthermore, in testing the practicality of lecturers' responses obtained a value of 94.16 with a very practical interpretation. Then practicality is based on student responses of 83.97 with practical interpretations. Overall, the Pastry learning module is practical to use.

In testing the effectiveness through classical completeness, 100% completeness is obtained. Furthermore, the effectiveness of the gain score is 0.666 with the medium category. So, it can be concluded that the Pastry learning e-module developed has been effective to be applied and used in hoapitality study program at the Padang Pariaman State Community Academy.

V. CONCLUSION

Based on the research findings on the development of Pastry e-learning modules that have been conducted, the following conclusions are obtained:

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(1) Pastry learning module at the Padang Pariaman Community Academy was developed using the method of developing Plump with the final results in the form of softcopy. (2) The results of the study indicate that the validity test of the learning e-module by the validator, all aspects are considered "Valid". The practicality test of the e-learning module is obtained from the lecturer response and student responses at the Padang Community Academy, in the "Practical" category. The results of the effectiveness test of e-learning modules are obtained from the pre-test and post-test scores of students after using the e-learning module in a very effective category. In conclusion, the learning e-module developed can be used in the learning process to improve student learning outcomes.

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