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# Use of Products-based Module in the Process of Learning to the Practical Course

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***Abstract*—The research aims to produce products based modules on subjects interesting gastronomic practice and fit for use in learning, and determine the effectiveness of the modules in improving student learning outcomes. Excess module based products is to give an opportunity to the students do the work practices oriented to the market. The study design using a design development of Thiagarajan in Trianto in using 4D development models consists of four main stages, namely, Define, Design, Develop and Disseminate. The study concluded that product-based learning module developed after several stages have been declared valid, practical and effective and can increase the activity and student learning outcomes at the course gastronomic practice.**

***Keywords—products-based module; practical course***

## I. INTRODUCTION

National Education Standards are the minimum criteria regarding the educational system in the entire territory of the Unitary Republic of Indonesia, that the Government Regulation No. 19 in 2005 on National Education Standards need to be harmonized with the dynamics of the society development, locally, nationally, and globally in order to realize the functions and objectives of the national education then the government has issued government Regulation (PP) version as an amendment to the PP 19, 2005. It is PP No.32 of 2013.The standard process which is used in the learning process is contained in National Education Standards refer to Government Regulation No.32 in 2013 in Article 19, paragraph 1 explains that "The process of learning in the educational unit organized in an interactive, inspiring, fun, challenging, motivating Students to actively participate and provide enough space for innovation, creativity and independence in accordance with their talents, interests, and physical and psychological development of Students " [1].

For the achievement of the learning process as stipulated in Government Regulation No. 32 of 2013 the need for the components of learning that can support the learning process. One component of the learning that is standards compliant instructional materials to support education in order to run effectively and efficiently. Teaching materials is one of the primary and essential component in supporting the learning process, for it is necessary to improve the utilization and management, so that the desired objectives can be achieved [1]. One of the teaching materials to support the learning process is the module. The module is an integral program that can measure a learning goal. Nasution states, "module is a complete unit and stand-alone and consists of a series of learning activities designed to help students achieve a number of objectives were formulated specifically and clearly" Because with supported learning material, one of them is modules, can be expected to make the learning process is going well according to Standard Content, Processing Standards, Assessment Standards, and Graduate Competency Standards to be achieved [2].

Then the Government Regulation No. 32 in 2013 also describes the process standards contained in article 19, paragraph 1 stated that the minimum criteria of student interaction with faculty and learning resources in a learning environment, resulting in the development of knowledge, skills enhancement, and the formation of attitudes to meet the learning outcomes. This article emphasizes that the interaction between students and lecturers and learning resources should be conducive, so that later can achieve the above three principles of learning. For complement three principles above, the Government Regulation No. 32 in 2013 also describes the assessment standards contained in article 24, paragraph 1 stated that the minimum criteria of systematic activities carried out to determine the qualification of planning and execution, and control of the learning process, as well as learning outcomes after undergoing student learning process [1].

In fact, the learning process is still far from the principles that have been described in PP 32 of 2013, Likewise, the practice has not seriously study was developed based on the principles that have been described to give students opportunities to learn intelligent, critical, creative, innovative, and solve problems. As we have seen the development of science and technology is developing very fast. Therefore, it should be anticipated by faculty and students in preparing graduates who are competent. One area of study that is experiencing rapidly development is the Gastronomi subject associated with processing skills, arranging and serving food and snacks every day and specialty for Indonesia cuisine both traditionally and still have innovated and improvised in demand by today's society. For it is concerned with competence in the subject mastery of gastronomic practice is required an innovative learning system to provide additional

supplies for students. Currently gastronomic practice learning process performed on D3 study program Catering FPP UNP has not managed to make students employable and independent, but still limited to practice only. The learning practice on the practical course of Gastronomi in D3 of Catering courses have not shown as a process of development of student creativity.

Availability of adequate learning resources to help students actively in learning. However, the learning activities of students in the subject of gastronomic practice is often inadequate in the context of achieving the academic success of students. Based on observations of one contributing factor is the practice of teaching materials used are now less supportive of the learning process gastronomic practice. Because the materials that are used only in the form of a handout sheet only and no product can be produced from the learning modules are used in practice. And their lessons are still focused on control theory and the provision of skills that are fragmentary not thorough in the form of exercises that do not produce a marketable product in the community. so that the implementation of science in practice has not been done perfectly.

The learning process when students practice tends to only process food according their design, resulting in practical learning activities less interesting, boring and not challenging students to creativity products. And it also adversely affects the student results. Visible at least students who get A's and most of the students tend to get grades B and C in the course of gastronomic practice

Based on the study program objectives D3 Catering, Study Program of Diploma educate become an Associate Expert (AMd), have quality at the Department of Catering. In the program of Family Welfare in new D3 catering was held in 2007 at the State University of Padang. Catering graduates prepared to produce professional personnel with competencies catering field of utility services and industrial automation and able to adapt to future technological developments.

So also the gastronomy practical learning. Noting the particular characteristics of the learning process, especially for a unique learning practice and comprehensive, the development of product-based learning module has potential to meet the demands of the learning. The practical learning by using a products-based module "is a directs learning to students in a systematic work procedures and standards to make or complete a product (or service), through the production process /the real work" [3]. Module-based learning products are an "open-ended form of contextual activity-based learning and a troubleshooting section through a collaborative effort" [4]. According Ganefri refers to "production-based learning models is defined as the procedures or steps that need to be performed by the educator to Facilitate learners to Actively in learning, Participate and engagement, with a competency-orientation to produce a product either goods or services required"[5]. The definition was explained that, product-based learning module contains procedures or the measures should be made by educators to facilitate learners to actively learn, participate and interact, with the orientation of the competence to produce the form of goods or service required. In addition, it is done collaboratively, products-based module should also be innovative, unique and focused on problems solving related to the lives of the learners or the needs of the community or the local industry.

Excess module based products is to support existing teaching materials, provide an opportunity for students doing work practices oriented to the market, and to improve the competence of students as well as to foster their entrepreneurial spirit In addition to the unavailability of products based modules in the course of gastronomic practice on the course of D3 Catering, Based on the background of the research problems aims to Produce products based modules in the course gastronomic practice in D3 Catering of Family Welfare Studies Program of Padang State University to be valid, practical and effective, by using the product based on learning modules of gastronomy, students are expected to practice more creative and independent in apply their knowledge so as to increase their activity and learning outcomes.

## II. METHOD

The type of research is the development research. The development model used is the 4D consists of four main stages, namely, define, Design, Develop and Disseminate [6]. The trial was conducted to determine the practicalities and effectiveness of modules. Subject to the trial is one class of students TA.2015/2016 of D3 Catering. The used data directly obtained from the study subjects from experts / media experts, expert learning content, from students and faculty who carry out the learning module based products. Research instruments were developed to collect data in this study are as follows: validation sheets to determine the validity of products-based module by the expert. A developed modules analysis validity was done by using a Likert scale. Questionnaire for students practicality modules described by using Guttmann scale Instrument for effectiveness seen from the; results of student learning tests by using modules. Effectiveness was seen from the results of learning tests by using products-based module. Before using all these instruments validity judgment has been made by experts so that all of these instruments may be feasible to use. Data analysis techniques used in this research is descriptive data analysis techniques, namely by describing validity, practicality and effectiveness of using the product based learning modules of gastronomic practice. In analyzing the practicality of using the products-based module for student, this research use Guttmann scale determining the level of practicality by calculation. If the results obtained Kr Ks = 0.90 and 0.60 and above, then product based learning modules can be said to practical products.

## III. RESULTS AND DISCUSSION

### *A. Stage Results of Define*

Analysis curriculum, components that are directly related to the learning module has been developed in the course gastronomic practice. The learning outcomes are expected in the course gastronomic practice is student can process, organize and serving food and daily management and special Indonesia food are still traditional and has been innovated and

improvised. Learning outcomes must be mastered student in the course of gastronomi practice are as follows: Where a student is able to describe theoretically to the basic concept of gastronomy, explained theoretically and perform processing garnish regional and specialties Indonesia food is processed into a gastronomic cuisine, explained theoretically and perform processing everyday dishes typical of the Indonesia region is processed into a gastronomic cuisine, explained theoretically and do processing on special regions dishes of Indonesia and processed into a gastronomic cuisine, Elaborate and carry out the processing of comestible typical local area of Indonesia made from tubers and fruits are used in the gastronomic cuisine.

Analysis of Students, in this study, the subjects were students was program of D3 Culinary fifth semester of the school period 2015/2016. Students took courses in gastronomy practice had an age range of 18-20 years. At the age of learners basically been able to analyze and create his own hypothesis on an issue. Where according to Lorin, each category in the revised Bloom's Taxonomy, "students at that age lies in the category create that which learners are already able to" design, build, plan, produce, discover, renew, enhance strengthening, embellish, and change" [7]. Learners at that age have the possibility and have the opportunity to develop their knowledge and understanding of their own. Therefore, the achievement of this stage make it possible for learners to learn independently as well as in the use of learning technologies will be better learners see and experience for themselves how the technology works independent.

### *B. Stage Results of Design*

At the design stage was carried the manufacturing of practical gastronomic module based products. At this stage produced a gastronomic a gastronomic learning module based products according to product specifications have been designed, manufactured, validated and has also been in tested. At this stage the researchers designed a gastronomic practice learning modules based products, the following details of the modules that have been produced: Develop a Module Framework, in this module framework contained learning notch map of gastronomic modules, descriptions, prerequisites, the instructions for the use of modules, learning outcomes and subject matter. Develop Programs Detailed that Includes All Module Components may include (1) Cover the main cover consist of titles, developer identity, the identity of developer institutions and the images associated with each topic. (2) Table of Contents contains pages that can lead students or faculty to the next material, (3) Notch Map of gastronomic learning modules that there are five things learned by students who follow the practitioner. (4) Introduction, this sheet contains a general description, (5) Prerequisites for the use of the modules contains the way of using module both for lecturers and students. (6) Educational Topics consists of five topics: Basic Concepts of gastronomy garnish Cuisine of Indonesia region, Daily Cuisine of Indonesian region. The Special Indonesian local cuisine, where each topic has learning outcomes, soft skills, learning objectives, basic theory, analysis, practice questions, and answer key of exercise. (7) Evaluation statement made to determine mastery of the material and overall lab studied and practiced by students in the form of essays and multiple choices. (8) Exercise Answer Key This sheet contains the answer to the problems that exist on the exercise sheet / evaluation. (10) Bibliography lists consist of information materials resources.

### *C. Stage Results of Develop*

*1) The validity test of products-based module:* The validity of Product-Based Modules, the data of validity test was obtained from the validator feedback about the validity of products-based module. Validator consists of three media experts Based on the suggestions given validator, the revised module in order to obtain a valid products-based module and deserves to be tested as a medium of learning in the course gastronomic practice. For validation of the results of three aspects can be seen in table 1.

TABLE I. THE TEST RESULTS OF PRODUCT BASED MODULE

| No. | Validation Aspects | Score | Value | Criteria |
|---|---|---|---|---|
| 1 | Contents | 53 | 83 | valid |
| 2 | *Construction* | 46 | 95 | very Valid |
| 3 | *Technical/Form* | 55 | 88 | valid |
| Total Score of Validity/ category | | 154 | 89 | valid |

*2) The practicalities test of products-based module:* It has been refined by the expert test. Take to the field to be tested. The test begins with a product-based modules allow students to use it. Tests performed on the first class of students TA. 2015/2016 from D3 Catering of Family Welfare Department in the Faculty of Tourism and Hospitality as much as 20 students. This trial aims to determine the practicalities and the effectiveness of the Questionnaire practicalities module was measured by indicators; 1) The module has an attractive appearance, 2) The module is easy to carry out anywhere, 3) sentence on the module is easy to read, 4) By using the module can help me learn independently, 5) Explanation / images / tables contained in the module can be make it easier to understand the concept of practical activities, 6) Each activity can help to facilitate understanding of the material and 7) Modules developed to improve my reasoning to understand the implementation of practical activities. After the practicality questionnaire was filled by students then distributed into the table Guttmann, then to be accounted the Practicality coefficient that indicates the practicality level of the used module. Ks or scalability coefficient is 0.60. This confirms the practicality and declared coefficient for qualified practical module is above the standard 0.60. Thus it can be said product based module of gastronomy practical learning has already practically practice by the student.

*3) Effectiveness of module:* Activities of students when using the module is observed by lecturer who teaches the

practical courses of gastronomy by using observation sheets, student activities were observed consisting of five aspects such as group discussions to answer the formulation of the problem, doing lab activities in accordance with the instructions on the module and is able to prove hypotheses that have been formulated, were active in the practicum and in cooperation with members of the group, observing the results of lab activities and analyze the observations correctly, make conclusions according to the results of lab activities.

Value attainment of student activities at the first meeting is at a value 17 to the value of student achievement activity by 68% in the active category. At the second meeting of student activity is at a value 22 to the value of the activities of student achievement by 88% in the category are very active. As the value of achievement gained from the observation seen that the increasing activity of the students from the first meeting until the second meeting by using products based module. From the analysis of the overall observation sheet showed that the value of the achievement of the students' activity were in grades 39 with the average value of the student activities achievement by 78% and it is in the active category. Thus we can say learning products based modules gastronomic practice can increase the activity of students.

*4) Student learning outcomes:*

TABLE II. PERCENTAGE OF LEARNING OUTCOMES FROM COGNITIVE ASPECTS BEFORE USING THE MODULE

| No. | range of Values | Frequency | % | Category |
|---|---|---|---|---|
| 1 | 0-54 | 0 | 0 | - |
| 2 | 55-64 | 6 | 30 | Less effective |
| 3 | 65-79 | 11 | 55 | Effective enough |
| 4 | 80-89 | 3 | 15 | Effective |
| Amount | | 20 | 100 | |
| The average result of learning = 68.4 | | | | Effective enough |

Based on learning outcomes data before using products-based module, we can conclude that learning-based module product before use is quite effective.

TABLE III. PERCENTAGE OF LEARNING OUTCOMES FROM PSYCHOMOTOR ASPECTS BEFORE USING THE MODULE

| No. | range of Values | Frequency | in% | Category |
|---|---|---|---|---|
| 1 | 65-79 | 13 | 61.29 | Effective enough |
| 2 | 80-89 | 7 | 38.7 | Effective |
| Amount | | 20 | 100 | |
| The average result of learning = 78.5 | | | | Effective enough |

Based on data from student results on the psychomotor and affective on practical learning of gastronomic shows the results are quite effective. The average student is quite skilled in psychomotor activity required in a practical learning. But the skill that is not controlled perfectly by students is less nimble students in the process and present gastronomic food products. As well as on the affective, lack of discipline, rigor, perseverance, and enthusiasm of students in the learning process of practice.

TABLE IV. PERCENTAGE OF LEARNING OUTCOMES FROM COGNITIVE ASPECTS AFTER USING THE MODULE

| No. | range of Values | Frequency | in% | Category |
|---|---|---|---|---|
| 1 | 65-79 | 2 | 10 | Effective enough |
| 2 | 80-89 | 18 | 90 | Effective |
| 3 | 90-100 | 0 | 0 | Very effective |
| amount | | 20 | 100 | |
| The average result of learning = 80.7 | | | | Effective |

It can be seen students who got score sufficiently effective category or ≥ 65 just 2 students and got an effective category ≥ 80 were 18 students then who score highly effective category ≥ 90 is nothing. Based on data outcomes after using the products-based module, we can conclude that after using product based module the study can be more effective.

TABLE V. PERCENTAGE OF LEARNING OUTCOMES FROM PSYCHOMOTOR AND AFFECTIVE ASPECTS AFTER USING THE MODULE

| No. | range of Values | Frequency | in% | Category |
|---|---|---|---|---|
| 1 | 65-79 | 2 | 3.2 | Effective enough |
| 2 | 80-100 | 18 | 96.8 | effective |
| amount | | 20 | 100 | |
| The average result of learning = 80.7 | | | | Effective |

Based on data from student results on the psychomotor and affective towards practical learning of gastronomic shows the very effective results. The average student is skilled in psychomotor activity required in a practical learning. The highest assessment lies in the dexterity of the students in the process of gastronomic food products in accordance with the Indonesian National Standard (SNI). And also in the affective domain of students showed discipline, rigor, perseverance, and very enthusiastic following the learning process by using the products-based module. Based on the analysis and description have been done on the effectiveness of the two item indicators show that the activity of the students while performing the learning by using the "products-based module in the course of gastronomic practices" that are in the active category. And a good student results on the cognitive, affective and psychomotor are in the effective category.

## IV. CONCLUSION

The learning module development stage is started from the needs analysis, design, evaluation and revision. In the stage of definition is carried out several activities, namely: Analysis of curriculum and student analysis. This stage is conducted as a basis for developing a products-based module in the course gastronomic practices that can be used to facilitate self-learning students. After doing the defining stage then it can get the product based module that presents 12 learning topics. Each topic interconnections that will direct students produce a product/equipment in accordance with SNI and competency standards of Catering graduate.

Based on the research that has been done the practical learning modules to be validated had qualified from a module which is good, which is preparing the module refer to the required component according to the indicators, the suitability of the learning content in the modules, clarity of instructions, preparation of the material contained in the learning modules,

the suitability of the format, layout and the language learning module making it easier for students to understand and apply the practical learning of gastronomic. The test results practicalities of teaching materials by the Student indicates the level of practicality is in the good category where the reproducibility coefficient obtained or Kr = 0.982 while the Scalability coefficient or Ks = 0.692. The entire statement on the indicator to the products-based module is developed give positively responses by the students. This shows that the product based model is developed can be used by the student to easily implement the practical activities.

Based on data from the cognitive learning of the 31 students who took the tests after they use the products-based module have an average of learning outcomes at 85, including effective category. Likewise, student learning outcomes assessment in psychomotor and affective aspects have an average of learning outcomes, namely 95, is included in the category of very effective. This shows that an increase in student results before using the module and after using the modules. So it can be concluded that learning by using products-based module can be said to be effective in improving student learning outcomes either on cognitive, psychomotor and affective.

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