

Developing an Entrepreneurship Module by Using Product-Based Learning Approach in Vocational Education

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ABSTRACT

Boring lecturers and irrelevant learning materials needed by students caused the students are less motivated to learn entrepreneurship course in vocational education. It is caused by the learning materials that will be delivered by the lectures can be predicted by the students. Thus, a relevant and supplementary support is much needed which can be in form of a module to learn entrepreneurship in order to make entrepreneurial learning in vocational education more interesting for the students. This article aims to describe the development of entrepreneurship module by using Product-Based Learning Approach which is valid, practice and effective. This research utilized Research and Development study. This research used ADDIE (Analyzing, Designing, Developing, Implementation and Evaluation) model. The validity, the practicality and the effectiveness of the module were analyzed descriptively. The results of this research are: 1) an entrepreneurship module by using Product-Based Learning Approach is produced; 2) the result of the content validity of this module is 0.89, the format validity is 0.86 and the presentation validity is 0.88; 3) the practicality of the module gathered from lecturers' respond is very practice (87.50%) and from students' response is (81.63%); 4) the effectiveness of the module is categorized as effective to improve the students' achievement by gain score-test (0.53) at average category. Based on the findings, it can be concluded that the module used Product-Based Learning Approach is valid, practice and effective to improve the quality of entrepreneurial learning process in vocational education.

KEYWORDS

Entrepreneurship Module, Product-Based Learning, Vocational Education

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Introduction

ASEAN Economic Community (AEC) is a major milestone in the regional economic integration agenda in ASEAN in order to face free trade accross the region. All ASEAN Member States have agreed on this agreement. AEC is established to ASEAN Vision Community 2020. In facing tight competition

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during this AEC, the ASEAN countries must prepare their creative, smart and competitive human resource. One of ways to prepare them is through education. Education is important to develop a country because education is a process to get better next generation of a country. If the output of learning process is failed, it will be difficult to imagine how a country will be developed. If a country wants to go forward and be developed, the education should be considered as a need.

One of levels of education in Indonesia is higher education. Based on the Act No. 12 in 2012, higher education serves to develop skills and character development, as well as the civilization of the nation's dignity in the context of the intellectual life of the nation. Another function of higher education is developing innovative, responsive, creative, skilled, competitive, and cooperative academicians through the implementation of Tri Dharma Perguruan Tinggi. Higher education also aims to develop a science and technology by observing and applying the values of humanities. One part of higher education is vocational education, whether at the polytechnic, institutions, and universities. Vocational education also prepares learners to be able to face changes in the community (Ganefri & Hidayat, 2013).

One of the subjects in vocational education at the level of higher education is entrepreneurship course. The purpose of entrepreneurship course is to provide knowledge and foster entrepreneurial spirit, needs analysis, market opportunities, business planning, feasibility studies, production management, HR marketing and business development planning. The purpose is expected to provide graduates who have the entrepreneurial spirit in order to reduce educated unemployment. Better innovation, development and research on entrepreneurship education and efforts to improve the entrepreneurial spirit of students is essential to the numbers of educated unemployment can be reduced (Mason, 2011; Nyello, Kalufya, Rengua, Nsolezi, & Ngirwa, 2015; El-Gohary, Selim, and Eid, 2016; Rodríguez, & Wise, 2016; Hynes, Kennedy, & Pettigrew, 2016; Bell, and Bell, 2016; Zeng, & Honig, 2016; Loi, Castriotta, & Di Guardo, 2016; Suna Lowe Nielsen William B. Gartner, 2017; January P. Warhuus, Lene Tanggaard, Sarah Robinson, Steffen Moltrup Erno, 2017).

According to Fiet (2000), educators must find difficulties in teaching entrepreneurship courses to learners, both in higher education and at school. The students tend to complain that the theory of entrepreneurship was boring, it is boring entrepreneurship courses, all the theory as well as entrepreneurship courses could be irrelevant to the conditions that occur in the field. Educators are boring and irrelevant in the eyes of students led the students are less motivated to learn. Students may not realize that entrepreneurship can be a very interesting study. Unfortunately, the present reality today shows that entrepreneurial learning process was very tedious (Ganefri, Kusumaningrum I, Hidayat H, and Mardin A, 2016). It happened because of what will be taught by the educators easily predicted by the students.

Good or bad a learning process is mostly determined by the selection of instructional media. The learning media was chosen should be relevant to make the learning process going well (Heinich, 2005; Smaldino, 2012). One of relevant medium in the teaching and learning process of entrepreneurship courses is a module. The module is a resource that contains materials, methods, limitations, and evaluation systematically arranged and attractive (Dimopoulos,

Paraskevopoulos, & Pantis 2009; Vinokurova, Krivdina, Badin, and Efimova, 2016; Hasanah, Malik, and Dirawan Darma, 2016). The module can be used independently because there are several examples within that support the clarity of the material, exercises and assignments as well as a summary and evaluation (self-instructional). Learning materials contained in the module are provided in a so complete unit activity that easy to learn completely (self-contained). The module also has the characteristics of a stand-alone which is not dependent on any other media; in accordance with the development of science and technology, as well as flexible (adaptive) and friendly to user (user friendly), as well as help ease the user to respond or to access (Depdiknas, 2008).

Based on the results of preliminary research, there were several constraints found by the lecturers in teaching entrepreneurship. The constraints can be limited time in face to face entrepreneurship lecturing. Module as one of learning media owned by the lecturers is still general because it is only theoretical. The module is less supportive for teaching and learning process in entrepreneurship course. The teaching and learning process is still focused on mastering the theory. Giving skills also are in pieces and incomplete in the form of exercises that do not produce a business plan that can be used as a reference in starting a new business later. As a result, the implementation of science in the teaching and learning process is not implemented perfectly. Here is the percentage of the students' entrepreneurial learning outcomes of Electrical Engineering Education in Academic Year 2015/2016.

Table 1. The Percentage of the Students' Learning Outcomes in Entrepreneurship course Majoring Electrical Engineering Education in Universitas Negeri Padang Academic Year 2015/2016.

Score	Number of students	Percentage %
A	13	14,44
A-	8	8,89
B+	4	4,44
B	11	12,22
B-	3	3,33
C+	13	14,44
C	20	22,22
C-	8	8,89
D	2	2,22
E	8	8,89
Total	90	100

Source: the lectures of entrepreneurship course

The table above showed that the results of student learning outcome were not maximized. In interview section, several students mentioned that the entrepreneurial lessons were boring because it contained only simple theories that can be predicted and made students had less interest and motivation to learn. Another problem caused by the students who were less creative to learn entrepreneurship. Therefore, something is needed to attract the student's interest, motivation, and creativity to teach entrepreneurship.

Considering the characteristics of teaching and learning process especially for entrepreneurship course, developing module by using product-based is crucial to fulfill the requirements of the learning. The module can lead the students to systematically and standard procedure to create or finish a product (goods or services) through a real process.

Ganefri (2013) states that "Production-based learning model is defined as the procedures or steps that need to be performed by the educator to facilitate learners to actively learn, participate and interact, with a competency-orientation to produce a product either goods or services required." The definition explains that a product-based learning contains procedures or steps that need to be done by the educators to facilitate learners to actively learn, participate, and interact with competence-oriented in order to produce goods or services required. In addition, it is implemented collaboratively, production-based learning should also be innovative, unique, and focused on solving problems related to the lives of the learners or the needs of the community or the local industry.

The benefit of this module is to support the existing teaching materials, to provide an opportunity for students to learn independently with the concepts described in the module, and can improve the students' competencies, and to foster the students' entrepreneurial spirit. In addition, product-based modules on entrepreneurship courses in Electrical Engineering Education courses are also not available yet.

The module is expected to lead the students to produce a business plan gained from the learning process. During the learning process, students are required to be able to make a good business plan and in accordance with the standards. In the teaching and learning process by using this, the students are guided to be able to create a business plan. The result of business plan is expected also to be implemented. It is possible for the students to make several business plans for the sake of this entrepreneurial learning process in accordance with the students' interests and expertise.

Based on these facts, the author wanted to improve entrepreneurial learning by designing and developing a module that can help the lecturers develop the learning strategies in order to help students to be more creative. The author developed a product-based module designed and developed specifically for entrepreneurial learning. The use of the can make students more creative and independent in learning in order to improve the activity and learning outcomes.

The purpose of this research was to produce a learning module namely Entrepreneurship Module by using Product-Based Learning Approach, for entrepreneurship courses in electrical engineering Faculty of Engineering, Universitas negeri Padang which is attractive and relevant to be implemented in teaching and learning process, and to determine the effectiveness of entrepreneurship module in improving the students' learning outcomes. Developing the module is expected to provide guidance to students with the goal after conducting lectures and make them have entrepreneurial spirit

Materials and Method

This study was a research & development design. It can be seen based on the formulation of the problems. According to Borg (1989), in the implementation of the Research and Development (R&D) is an attempt to develop or produce and validate a production that is used in learning. According to Putra (2012), methods of Research and Development (R&D) is a research that deliberately, systematically aiming to seek findings, formulate, refine, develop, produce, test the effectiveness of product, models, methods / strategies / ways, services, specific procedure which is superior, new, effective, efficient, productive and meaningful.

This research used ADDIE model. This model was adapted because the following reasons:

1. It is simpler than another model.
2. It is easy to learn.
3. The structure is systematic; the first step to the the fifth step.
4. The procedure can't be done randomly because of its characteristics.

The procedures in this study followed the steps of ADDIE model proposed by Branch (2009). The procedure can be seen in the following figure.

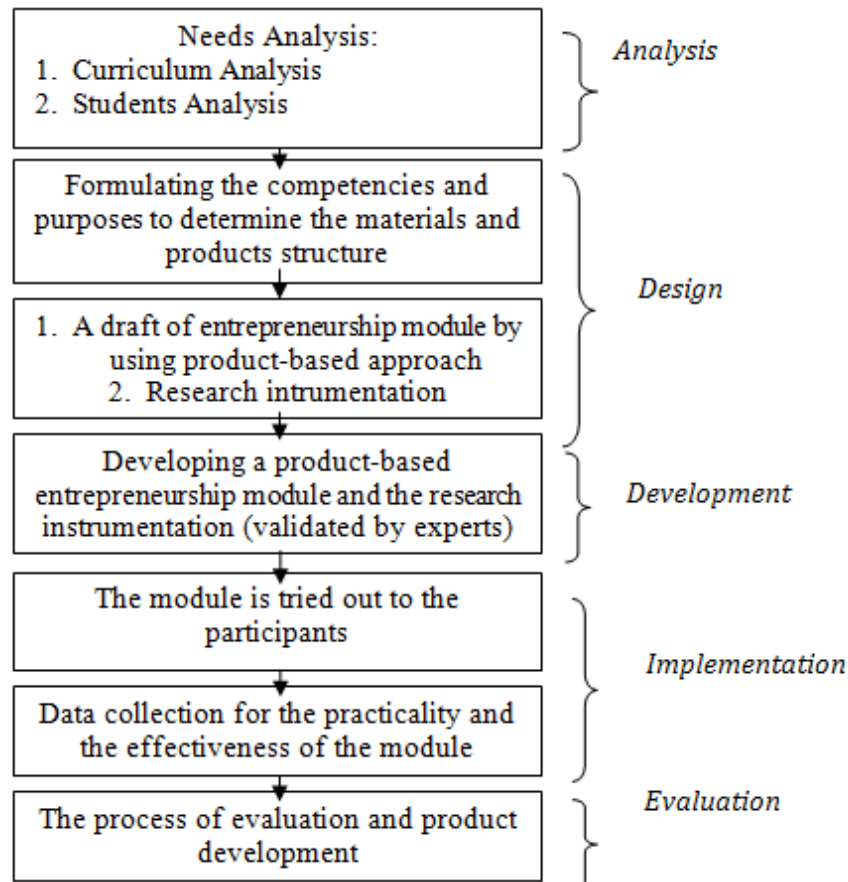


Figure 1. The Procedures of Developing Entrepreneurship Module by using Product-Based Learning Approach

The explanation of the procedures can be explained as follows:

1. Analyzing

The analysis is done to identify possible problems in entrepreneurial learning through field surveys and literature studies. The analysis phase includes the needs analysis such as curriculum and student analysis. The results of this phase can be used to compile the Entrepreneurship module with Product-Based Learning Approach.

2. Designing

This phase verifies the form of troubleshooting to be performed and determine the appropriate test methods. This step includes the interpretation of needs and learning goals into the specific objectives of the module. This is the phase to design Entrepreneurship Modules by using Product-Based Learning Approach in accordance with the needs analysis. Moreover, to design the instruments to measure the validity, the practicality and the effectiveness of the product.

3. Developing

This phase is to create and validate the Entrepreneurship Module by using Product-Based Learning Approach. The validation process is done by discussions or interviews with the experts. The design of the module is consulted with experts and advisors. Then, the draft is assessed by people who are competent (validator) who have understood the principle of the developing modules, namely Graduate professor and lecturer in entrepreneurship course at Engineering Faculty, Universitas Negeri Padang. There were three kinds of validity :

- a. Content validity: whether the modules that have been designed based on the course syllabus.
- b. Format validity: the suitability of the components of the module with the elements that have been defined.
- c. Presentation validity: the validity is related to the use of language, writing, pictures, and the appearance in the developing learning media.

4. Implementation

The implementation is done by preparing the learning environment and student involvement in the preparation of lectures and students. the module was given to the students to determine its practicality and effectiveness .

The design of the implementation used one group pretest-posttest. Pre-test was administered at the beginning of the lecture and post-test was administered at the end of lectures.

Tabel 2. One Group Pretest – Posttest Design

Pretest	Treatment	Posttest
Q1	X	Q2

Source: Sugiyono (2012)

Where:

Q1 : the pretest before the treatment

X: the treatment to the group of students which learn by using the module

Q2 : the posttest after the treatment

5. Evaluation

This phase is assessing the quality of the product being developed and development processes (before and after the implementation) by determining the evaluation criteria, the instruments, and evaluations.

Discussions

Entrepreneurship Module by using Product-Based Learning Approach

Entrepreneurship courses held in the form of theoretical and practical in order to make it can be used as a future capital of students after the graduation. Entrepreneurial learning is a process of enhancing the entrepreneurial spirit of students by using a variety of methods which appropriate to the capabilities provided. Moreover, entrepreneurial learning is an educational process that serves to guide students in a systematic and targeted in order to foster their entrepreneurship spirit. Entrepreneurship module by using Product-Based Learning Approach aims to make the students are able to develop the potential, the creativity and the ability to produce products that are needed by the community and has a sale value (Ganefri and Hidayat, 2015; Kusumaningrum, Ganefri & Hidayat, 2015; Kusumaningrum, Hidayat, Ganefri, Anori, & Dewy, 2016; Hidayat, Hendra, 2017; Ganefri, Hendra Hidayat, Indrati Kusumaningrum, Mega Silfia Dewy and Sartika Anori, 2017).

Considering the particular characteristics of the learning process of entrepreneurial learning as unique and comprehensive characteristics, the development the module is potential to meet the demands of the learning. This module can be directed learners in a systematic and standards work procedures to make or complete a product (goods or service), through the production process / work indeed. The benefit of this module is based to support the 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 this kind of module is not available yet for entrepreneurship courses. The process of developing the module used ADDIE model and was done in 5 steps namely, Analysis, Design, Development, and Evaluation.

The analysis carried out several activities, namely the curriculum analysis and student analysis. This stage is conducted as a basis for developing the module on entrepreneurship courses that can be used to facilitate self-learning students. After the analysis step was done, 9 learning topics were chosen for the module. The topics are integrated that will direct students to produce a product that can foster their entrepreneurial spirit. After that, the validity, the practicality and the effectiveness of the module were tested. According to Akker (1999), "a developing teaching material can only be used in teaching after the validity, the practicality and the effectiveness testing".

The Validity of the Entrepreneurship Module by using Product-Based Learning Approach

Based on the validity testing, the module developed by using Product-Based Learning Approach is categorized as a good module, which is the components of the module were arranged based on the the indicators, the suitability of the content of the learning modules, clarity of instructions, preparation of the material contained in the learning modules, suitability format, appearance and language learning modules. It is easier for the students to understand and apply the entrepreneurial learning. According Akker (1999), Valid means an accurate information about the teaching materials developed is already provided. The validity of the module was measured by three the experts. The validators are professionals and experts in the field of study, therefore, the results of this validation were justified. Based on the validity testing, the result of the content validity showed that developed module was

valid with Aiken's V value 0.897; result of the format validity showed that the module was valid with Aiken's V value 0.864; and the result of presentation validity was valid with Aiken's V value 0.883. the score gained from three aspects of validity were summed from each validator then obtained Aiken's V with an average score was 0.88 and categorized as valid (Anwar, 2014).

Based on the content of the module, the validators judged that the developed module as a medium of learning are relevant to the curriculum and the objectives that must be achieved student, including the suitability of the content, clear instruction, structure of the materials, the materials that are practiced were relevant to the instructional media, the design supported by pictures and texts to make it easy for the students to understand the learning materials. The result of the content validity was 0.897 with a valid category. The content validity is a requirement with regard to the process of finding the correct concepts and in accordance with the applicable curriculum. The result of the content validity indicated the developed module was developed based on the present curriculum. In the aspect of the format, the result of the validity also obtained a valid value (0.864) which was categorized as valid. The format validity is the suitability of the components of the module with the elements that have been defined. Based on the result of validity testing obtained from the validator, it can be concluded that the module was developed in accordance with the construction standards of learning modules. The presentation validity is an indicator of the validity related to the use of language, writing, pictures and appearances in the developed module. The result of the validity testing was 0.883 with a valid category. This indicated that the developed module has fulfilled the technical requirements of a learning module.

The Practicality of the developed Module

The practicality testing was administered to the lectures and and students by using the practicality checklist. In order to see the practicality of the developed module , the Lecturers' practicality checklist were distributed to two lecturers and the students' practicality checklist were distributed to 20 students. The result of the practicality testing gained from the lecturers was 87.50% categorized as very practical. The result indicated that the developed module enabled the lecturers to help students learn independently and to help the lectures understand the concept of learning materials. The practicality testing of the developed module was 81.63 with a very practical category. The result indicated that the developed module was useful to facilitate students in understanding the material. By using a practical module, it is easy for the students to understand the entrepreneurial learning. Susilana and Riyana, (2008) state that "the merits of a study are supported by the medium of learning". The module is able to make learning fun, because students are more motivated to complete a study to see what products they could eventually produce.

The Effectiveness of the developed module

The effectiveness of the developed module can be seen from the ability of the module to enable students to learn and understand the learning material easily. According to Arsyad (2011), the use of teaching materials will greatly assist the effectiveness of the learning process and the delivery of the message at the time. It is not only to improve the effectiveness of the module but also help

students improve their comprehension. In this assessment, the effectiveness of teaching materials in the form of module was seen from the students' learning outcomes. The achievement test used to determine the effectiveness of the learning process. The learning outcome is the ability of the students as they learn through the process of learning experiences. The learning experience was an effective learning activity and can achieve the goal of good learning outcomes. The purpose of the test is to measure what level of success of the learning process that has been implemented.

Based on the explanation above, it indicates that the use of developed module facilitate students to understand the material, so that the students' learning outcomes better. Evaluation is the process of determining how far the learning process has been achieved. Based on the pretest results, the mean score of 20 students was 61.54 and categorized as quite effective. Based on the learning outcomes data from 20 students who took the test after the use of developed module (pretest), the mean score of the students was 81.92 and categorized as effective. This showed the students' mean score in pretest and posttest increased. It was also proven through the gain score-test where the value was 0.53 and categorized as average (Chan et al, 2016; Yenkimaleki et al, 2016; van den Heuvel et al, 2016). Thus, it can be concluded that learning by using module can be effective in improving student learning outcomes (Kusumaningrum, Hidayat, Ganefri, Anori, and Dewy, 2016; Marina I. Solnyshkina., Elena N. Solovova., Elena V. Harkova & Alexander S . Kiselnikov, 2016; Ahmad Fauzi., Patta Bundu & Suradi Tahmir, 2016) and is able to be forming an entrepreneurial vocation that is able to answer the challenges of job market competition (Arranz, Ubierna, Arroyabe, Perez, & Fdez. de Arroyabe, 2016).

Conclusions and Suggestion

Based on the discussion, there are several conclusions can be drawn:

1. An entrepreneurship module by using Product-Based Learning Approach was developed by using ADDIE model which consist of analyzing, designing, developing, implementation and evaluation.
2. The validity of the developed module had fulfilled the content validity with Aiken's V value was 0.897 on a valid category; the format validity was valid with Aiken's V value was 0.864; the presentation validity was valid with Aiken's V value was 0.883. The total score of these three aspects of validity which was obtained from each validator was 0.881 on a valid category. So, it can be concluded that the module was "valid" for use in teaching and learning process.
3. The practicality of the module can be seen from the well implementation. It can be proven from the response of lecturers which obtained 87.50% and the response of students was 81.63%. it showed that the module was very practice to use in teaching and learning process of entrepreneurship course.
4. The effectiveness of the developed module can be seen from the students' learning outcomes. There were 20 students who took the pretest and the result was 61.54 and categorized as effective enough. The posttest was administered after the tretment by using the module. The mean score was 81.92 and categorized as effective category. It showed that the students learning outcomes increased. It was also proven through the gain score- test was 0.53 with medium category. Thus, it can be concluded that teaching and learning

process by using the developed module was effective in improving student learning outcomes.

5. The development of an entrepreneurship module by using Product-Based Learning Approach was in line with the purpose of vocational education, the implementation of this module will affect the students' ability to be independent and survive in society, because it has a direction and a guide to what to be done (Zholdasbekova, Nurzhanbayeva, Mavedov, Saipov, Zhiyentayeva, & Tlemissova, 2016; Fedorov, & Tretyakova, 2016; Falco, Fedorov, Dorozhkin, Merkusheva, & Bakanach, 2016).

Based on the results of research and development, it is suggested:

1. The next researchers can develop the learning materials, whether for entrepreneurship course or another courses.
2. The lectures may be encouraged to use the entrepreneurship module by using Product-Based Learning Approach as a media to support the teaching and learning process.
3. The students are expected to be more active after using the developed module to develop their self potential to improve their achievement.
4. Electrical Engineering study program is suggested to have and develop more entrepreneurship module by using Product-Based Learning Approach as additional references for the students.

Disclosure statement

No potential conflict of interest was reported by the authors.

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