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Learning Outcomes in Vocational Education: a Business Plan Development by Production-Based Learning Model Approach

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ABSTRACT

This article describes the development of a business plan by using production-based learning approach. In addition, this development also aims to maximize learning outcomes in vocational education. Preliminary analysis of curriculum and learning and the needs of the market and society become the basic for business plan development. To produce a business plan by production-based learning approach, valid trials were conducted by experts, to evaluate the business plan design in stages. Validation process was done by three experts on the business plan content, content quality, and suitability to the material. The results of the draft business plan has been said to be valid for use on learning in vocational education after it is being revised and improved in accordance with experts' advice. Through the business plan by using production-based learning approach, it becomes one of the bridges that can help students to learn entrepreneurship and growing interest in it. In addition, the learning outcomes in vocational education is not merely capable of producing the products but could think of innovation products. The resulting product is analyzed and clearly described in the business plan. Thus, by the end of the business plan produced by students can be more serious in learning, because students know the resulting product must be qualified and able to compete in the marketplace. Business plan of production-based learning approach has the power to encourage students to become more serious in the classroom.

KEYWORDS
Learning Outcomes, Business Plan, Production-Based Learning

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Introduction

Various efforts have to be done so that the function of vocational education as a means for the preparation of labor can be realized. Among the efforts to improve the quality of education and learning is changing students' mindset regarding of employment or subsistence. Most of the educational institutions in Indonesia are currently only producing graduates with the mindset of job seeker instead of job creator. So the most important thing to do is to change students' mindset regarding of employment or subsistence immediately to reduce unemployment in Indonesia. In addition to providing applied expertise, vocational education should also be able to provide students with the ability to create jobs as workers.Besides, vocational students should have an interest in entrepreneurship. For this, the renewal of instructionalmodel that make the students interested in entrepreneurship, creative and innovative should be done.

Production-based learning, which is currently developed, is one example that can help students to foster their interest in entrepreneurship. According to Ganefri (2013) "production-based learning model is defined as the procedures or steps that need to be performed by the educators to facilitate learners to actively learn, participate and interact, with a competency-orientation to produce a product either goods or services required".This model also makes students to be innovative and creative in producing attractive products neededin industrialized world.So, the products produced by students should be able to meet industrial standards and marketable. In applying product-based learning, student should be taught to make business plan. It is a draft that should be prepared before conducting business. It contains the products to be made and shows how the management of these products to be marketed. Business Plan provides guidance to prospective businesses to be run, the purpose and the benefit that can be achieved. It is expected thatthe resulting products after learning can attract studentsto be entrepreneurs.

Production-Based Learning Model

Production-based learning model is one model of learning that has been developed to prioritize the significance of learning in the learning process. It is the learning that promotes the meaningfulness production. In the learning process the students should understand the concept being taughtthrough direct experienceinplanning and producing the product expected. According to Ganefri (2013) "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".

Business Plan

"The business plan is a written document prepared by the entrepreneur that describes all the relevant external and internal elements Involved in starting a new venture" (Hisrich, 2013). It is a plan by entrepreneur who crystallizing dream and expectation to motivate the students to establish business. Often it is an integration of functional plans such as marketing, finance, manufacturing and human resources. It is an activity undertaken in the form of development plans and the results of the planning business plan (Gibson, 2005), (Boyd et al, 1998), (Matthews, 1995). In addition, the emphasis on the process of a content business plan is very important as a communication for learning in the classroom (Sexton, 1991). It contains an integrated planning related to marketing, capital, manufacturing and human resources (Krueger & Carsrud, 2000).

Business planning is a very specific plan. Preparation must consider the needs and desires of each individual business. According to Gaspersz, (2005) business planning will always contain: (1) the description and the definition of who is involved, what goods or

services sold, and what kind of environment for goods or services, (2) analysis and a plan of how the goods or services will be produced, (3) quantification of the resources required to implement the plan that has been set.

Business Plan on Production-Based Learning Model

Business plan on the business world in general is one of the strategies to attract investors and business partners of what was promised on the implementation of the plan. In the production-based learning,it is expected to maximize products and also attract students' entrepreneurship. Business planning purposes according to Rangkuti (2003) is that the business activity will be carried out as well as the running to remain on the right track as planned. Business planning purposes on a product-based learning is for practical activities undertaken to produce products that meet industry standards and competitive if sold in the market so as to increase the interest of students to entrepreneurship

According to (R. Lang, & David, 2006) in production learning model it is important touse a variety of instructional strategies and methods.

Why this business plan needs to be made?

This is done so that the product can be tailored to students' standard curriculum materials and also in accordance with market industry standards. In the the subject of the circuit-based electronic business plan contains (Rangkuti, 2003).

a. Title sheet
b. Summary
c. Table of contents, list of tables, list of diagrams, list of figures, list of terms
d. Background issues and the implementation of a business background
e. Details of the products (products that conform with the material and industry standard)
f. Market conditions and marketing strategies
g. Financial condition and strategies
h. Operational conditions and operational strategies
i. Future development strategy
j. Summary of financial information
k. Appendices

One form of experiential learning through a production-based learning model that existing on the formation of entrepreneurship is the development of a business plan (Gartner, & Vesper, 1994), (Gorman, & King, 1997), (Hills, 1988), (Kuratko, 2005) . In addition to the previously mentioned business plan usually consists of 20-40 pages with parts and explanations relating to the explanation of new products or services proposed ; organization and finance ; a strategy that will be used ; marketing , production , and management activities ; and competitive analysis of competitors and the environment and resources (Honig, 2004).

Materials and Method

In this materials and method , it will be discussed about development model, development stages, research instruments, and data analysis technique.

Development Model

This research is a Research and Development (R & D). According to Sukmadinata, (2005), Research and Development is a process or steps to develop a new product or improve existing products, which can be accounted for. In (Bock, 2001) states that "Development research is a process that Applies knowledge to create new devices on effects". According to Borg & Gall (2003) the development of research-oriented product is to develop and validate the products used in education.

Development Stages

Borg & Gall (2003) explained that there are ten stages of research development as follows: (1) Research and information, (2) Planning, (3) Develop Preliminary from product, (4) Preliminary field testing, (5) Main product revision, (6) Main field testing, (7) Operational product revision, (8) Operational field testing, (9) Final product revision, (10) Dissemination and implementation. Based summarized explanation of Tim Puslitjaknov (2008), the stages of the research are:

a. Pre-survey to gather information.
b. Conduct planning (identifying problems, formulating a business plan).
c. Develop the type / form of the initial products.
d. To test the initial stage.
e. Performing revision of the main product.
f. Perform the main field trials.
g. Perform revision of the products.
h. Conduct operational field.
i. Revise the final product.
j. Disseminate and implement the product.

Research Instruments

Data collection instruments usedare as follows:

(1). Validation sheets. They are intended to determine the validity of the steps in the development of a business plan.

(2). Practicality sheets. They consists of a sheet to measure the level of practicality steps in the development of a business plan.

(3). Effectiveness sheets. They are use to see the effectiveness of applying the business plan.

Data Analysis Technique

Data analysis technique used is descriptive data analysis techniques, namely by describing validity, practicality and effectiveness of the development of the business plan. To describe the technique of frequency analysis of data by the formula:

$$ideal\ score = \frac{\text{average score}}{\text{maximum score}} \text{x}100\%$$

With the achievement of the respondents used the value category classification according to Tim Puslitjaknov (2008) as in the table below:

Table 1.Category of Production-based Learning

Achievement level (%)	Validity	Practicality	Effectiveness
90-100	Highly valid	Highly practical	Highly effective
80-89	Valid	Practical	Effective
65-79	Quite valid	Quite practical	Quite effective
55-64	Less valid	Less practical	Less effective

0-54	Not valid	Not practical	Not effective

Source : Tim Puslitjaknov (2008)

Questionnaires are given to experts to assess how valid the products developed, for practicalities given to users both teachers and students and the effectiveness of views with action research trials to see student interest in entrepreneurship.

Results

The results of the development of business plan on learning electronic circuit,are valid, practical and effective. Results of expert judgment on the draft business plan shows that the draft business plan is valid for use on electronic circuit by using production-based learning, meaning that already provide accurate information about the teaching materials developed. Validation is done by three experts who are experts in the field of study, and therefore the results of this validation can be accounted for. The first expert, the expert content or material business plan, then the expert quality business plan content (presentation of the business plan), and the last expert conformity with the material content of business plans (business plan format).

Validation was done by three experts and the aspects validated were content; quality and presentation; and format. The results are as follows :

Table 2. Validation of content aspects of the business plan by experts

Business Plan Content Aspect	Validator I	Validator II	Validator III
conformity with the curriculum	55	63	85
compliance with industry	46	68	80
conformity with the learning outcomes	57	70	82
soft skill to be achieved	48	60	81
Total	206	261	328
Average	51.5	65.25	82

Based on test results obtained expert three times the test results for the quality and presentation aspects of the design of a business plan as follows:

Table 3. The quality and presentation aspects Validation of business plan by experts

Business Plan Quality aspect of Business Plan Presentation	Validator I	Validator II	Validator III
clarity of instructions for use	45	58	80
clear language	46	65	84
word choice	51	71	85
appropriateness and clarity of image	43	60	78
business plan interface	40	56	75
Total	225	310	402
Average	45	62	80.4

Based on test results obtained expert three times the test results for the aspects of designing a business plan format as follows:

Table 4. Format and designing aspects Validation of business plan by experts

Format and designing Aspect Business Plan	Validator I	Validator II	Validator III
Title	55	70	86
executive summary	57	73	83
Table of content	45	65	75
Background	43	60	84
Product detail	56	66	80
Marketing	51	58	78
Finance	50	56	83
Operational strategy	46	68	85
Development strategy	52	71	75
Financial summary	45	66	72
Appendices	54	65	80

Total	554	718	881
Average	50.36	65.27	80.09

Based on the results, there were some more suggestion from experts for the improvement of the business plan that will be used in learning, as in table 5:

Table 5. Expert advice to the Business Plan on Electronic Circuit by Production-based Learning

Experts	Focus	Advice
Expert - I (lecture of Postgraduate Engineering Faculty Padang State of University)	Quality and presentation of business plan	1. The instructions are already good but need improvement on clarity of the instructions used for business plan on learning.
Expert – II (lecture of Postgraduate Engineering Faculty Padang State of University)	Business Plan Quality	2. Equipment used in the implementation of the business plan in the learning must be completed in order to create the product. 3. There should be additions to the description of products made.
Expert - III (lecture of Postgraduate Engineering Faculty Padang State of University)	Electronics Circuit Teaching Material	4. In the instructions for use to add a description of the competence of learning

After further improvements to the business plan, major field test was done. The main results of the field test is concerned about the practicality aspects: 1) ease of use; 2) typing; 3) completeness of words and sentences; 4) The use of illustrations; 5) captions / charts / tables / charts; 6) use of spelling; 7) punctuation and letters, showing that the business plan developed otherwise quite practical (70.55%) for use in electronic circuits based production-based learning.

Table 6. The Result of theField test

		no item						
		1	2	3	4	5	6	7
Students name	Bz	67	86	88	72	63	68	48
	Mn	83	80	78	65	69	46	64
	Kl	70	63	83	44	89	79	62
	Ho	87	70	60	65	77	76	70
	Rt	89	67	75	86	73	46	80
	Yo	80	49	73	70	71	67	68
	Jg	79	70	76	77	46	61	66
	Th	68	68	80	78	72	62	79
	Rg	65	86	76	59	79	44	87
	Sf	60	80	71	73	72	64	68
	Ew	89	79	69	82	89	47	59
	Ky	59	60	65	72	75	89	64
	Gh	67	58	71	80	68	63	f87
	Gs	85	65	89	60	70	46	66
	Fr	88	81	69	62	71	71	61
	Total	1136	1062	1123	1045	1084	929	
	Averages	75.73	70.80	74.87	69.67	72.27	61.93	68.60

From tests carried out on 15 students of electrical engineering using instruments PIKEN already standardized, so the average results obtained are as follows:

Table 7. The average result of student learning outcomes on the first phase implementation

Learning outcomes indicators	Percentage average
Internal Locus of Control	71.62
Entrepreneurship Motivation	63.54
The Needs to Achieve Learning outcome	60.00

Entrepreneurship Mindset	65.34
Average	65,13

Table 8. Average result of student learning outcomes on second phase implementation implementation

Learning outcomes indicators	Percentage average
Internal Locus of Control	82.73
Entrepreneurship Motivation	78.40
The Needs to Achieve Learning outcome	75.12
Entrepreneurship Mindset	80.00
Average	79.06

Discussions

The discussion in this section is based on the results of the existing ones. Discussion related to validation of content aspects of the business plan, the quality and presentation aspects Validation of business plan, Format and designing aspects Validation of business plan, the average result of student learning outcomes on the implementation.

Validation of content aspects of the business plan related to conformity with the curriculum, compliance with industry, conformity with the learning outcomes and soft skill to be achieved. Designed content have been adapted to the needs of product manufacturing and development capabilities of students' soft skills, so that students are expected to produce more quality content business plan. From the test results the expert there are some general suggestions to achieve perfection from the aspect of content. As for suggestions that need to be considered are:

1. Check the suitability of the business plan to the curriculum.
2. The suitability of the business plan with industry standards and market needs? So if this refers tostep two in developing business plan based on production-based learning model, identification and analysis of the product, according to Kusumaningrum, Ganefri & Hidayat, (2015), the student must: a) Determine minimum competency standards subjects, this is very important so that learners can measure the ability and competence in carrying out learning activities, b) Determine the suitability of the product to the needs of the community, this meant that the product created can be used and answer the problems of society.
3. Conformity with the learning outcomes of students.
4. The business plan developed shouldfacilitates students' soft skills such as motivation, interest, and self confidense of students in intrepreunership.

The quality and presentation aspects validation of business plan related to clarity of instructions for use, clear language, word choice, appropriateness and clarity of image and business plan interface. In this section are designed business plan should provide convenience of the reader and use, especially on language and the use of the word clear.

Based on the results of the quality and presentation aspects validation of business plan, there are some general suggestions to achieve perfection as follows:

1. The instructions for use should be made as simple as possible aiming at facilitating the reader to implement the business plan of the product to be translated.
2. The use of clear language is an important consideration.
3. Use the standard paper, Times New Roman font type, and Calibri.
4. The illustration used must be in proportion and do not spend a lot of pages.
5. The selection of colors and layout should be considered to make the overall appearence attractive.

Format and designing aspects Validation of business plan related to title, executive summary, table of content, background, product detail, marketing, finance, operational strategy, development strategy, financial summary and appendices. The format and design of the business plan is made simple and modest but has a complete all required information readers and potential investors. format and draft business plan evaluated by experts to obtain suggestions for improvements to the format and draft business plan that is in use can be accepted by the market.

From the test results by the experts, there are some general suggestions to achieve perfection from the aspect of the format. As for suggestions that need to be considered are:

1. The title or cover page contains the identity of the manufacturer's business plan.
2. The executive summary, should explain the who, what, when, where, why, and how the business plan, business background, vision and mission.
3. The table of contentscan facilitate the systematic arrangement and page order. In this section there are no obstacles that need to be repaired.
4. The background that needs to be emphasized is the need to clear between expectations and reality as well as alternative solutions offered, so that the readers or investorscan understand the underlying goods or service outlined in the business plan.
5. The details of the production process must be considered. There are five things to be considered as factors of production, namely labor, capital, physical resources, entrepreneurship, and information resources.
6. Marketing should be considered in the development of business plans, especially regarding general overview of the market. Marketing strategies that can be used to analyze namely (a) Product; (b) Price; (c) Promotion; (d) Placement;(e) People; (f) Process; (g) Physical Evidence.
7. The improvementof financial aspects that must be considered are the amount of capital needed and a brief explanation of the use of the capital.
8. The emphasis ofoperational condition is on the technical aspects shown in making a standard operating procedure.
9. Consider long term and short term development strategy.
10. The financial summary should contain a brief description and examples of simple cases.
11. The annex should contain the profile or documentation relating to the product or service being offered.

Based on the general suggestion from experts then revisions and improvements of business plan were made. The reviewed prototype was then continued to undergo trials in particular group of students.

The effectiveness of the development of the business plan of the increased students' interest in entrepreneurship was seen by using PIKEN (Psychometric Entrepreneurship Index), an index that can measure a person's interest in entrepreneurship. According to Ghazali, (2012), it was developed by CESMED Fellow.There are several aspects measured

to see the effectiveness of the business plan related to the learning outcomes of students: (a) internal locus of control; (b) entrepreneurship motivation; (c) Achievement Needs and (d) Thought Entrepreneurship.

To see an increase in learning outcomes of the students in implementation of the valid and practical business plan, the researchers used the production-based learning model with the production stages, namely 1) Analysis of curriculum and student characteristics; 2) Identification and analysis of products; 3) Make the important question of the product; 4) Mapping the question; 5) Analysis of the needs of the equipment and materials of the products to be made; 6) Preparation Schedule of manufacturing of products; 7) The process of making the product; 8) Evaluate periodically; and 9) Making the Business Plan (Ganefri & Hidayat, 2015), (Kusumaningrum, Ganefri & Hidayat, 2015). Later in the stage of learning to use production-based learning model is doing measurements using psychometric entrepreneurship. Instruments is useful to see the impact the use of a business plan that has been developed with a production-based learning model approach to the learning outcomes of students. On this measures are seen several indicators (Koh, 1996), namely: (a) internal locus control; (b) entrepreneurship motivation; (c) achievement needs and (d) entrepreneurship mindset. Business plan part of the entrepreneurial learning that impact to the skills and knowledge that is essential for the development of an entrepreneurial mindset (Guardia & Allegra, 2014), (Bager, 2011).

The average result of student learning outcomes on the implementation, from table 6. The average result of the students' learning outcome is 65.13% (quite effective) but there are two indicators, entrepreneurship motivation, and the need to achieve learning outcome, are still below 65%, so it is necessary to conduct phase II implementation, from Table 7. The average result of the students' learning outcome on phase II implementation is 79.06% (effective), an increase in the implementation of phase I to phase II of 13.93%. Additionally, the use of models and interesting way of learning will have an impact on learning outcomes (Marina et al, 2016), (Ahmad et al, 2016). The overall results indicate that the business plan developed is valid, practical and effective to be usedin product-based learning on the subject ofthe electronics circuits. By using a business plan the students' entrepreneurial interests can be improved. According to Ames (1989), Burns (1990), Kahrs (1995), Rich & Gumpert (1985) those who have high entrepreneurship interest will have capabilities or competencies to create jobs. Therefore, in teaching the subject of electronic circuit,business plan should be developed in order to improve the quality of education, especially in preparing students to be able to have competencies that can help him ready to open up employment opportunities after graduation. In addition, the business plan with an element of entrepreneurship in vocational education are expected to provide long-term impact particularly of economic growth in the region (Isaacs & Brijlal 2007). Dissemination of the important of business plan development on learning the electronics circuit by using production-based learning can be done through seminars and journals.

Conclusion

Based on the results of research and development business plan on learning the circuit-based electronic product that has been stated above, it can be concluded:

1. Business Plan on electronic circuit by using production-based learning developed declared invalid after validation by the experts. Developed business plan has met with the validity of the content aspect 82, aspects of the quality and presentation of a business plan with a value of 80.4 validity and value aspects of the format with the validity 80.9.

2. Business Plan on electronic circuit by using production-based learning developed otherwise quite practical (70.55%) after implemented to students and a lecturer in the practice of electronic circuits in electro industry majors in Padang State University
3. Business Plan on electronic circuit by using production-based learning developed quite effective (79.06%) after the application of the impact on student learning outcomes.
4. The use of a business plan in electronic circuit by using production-based learning to maximize the learning lab products of electronic circuits is seen from the products of learning outcomes of students who are not only based on the curriculum but also based on the industry standard so it can be sold.

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

1. Business plan on a product-based learning can be one of the bridges that can help students to learn entrepreneurship.
2. Business plan on a product-based learning can be one strategy for lecturers to help increasing student interest in teaching entrepreneurship.
3. Business plan on a product-based learning can help to maximize students' product.

Disclosure statement

No potential conflict of interest was reported by the authors.

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