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Production based Learning: An Instructional Design Model in the Context of Vocational Education and Training (VET)

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Abstract- This research was aimed to create valid, practical, and efective syntax of production based learning model in the context of Vocational Education and Training (VET). Production based learning is an alternative learning model of VET which is relevant to the needs of learners in developing their knowledge, attitude, and skills in learning process. Reserach methodology used was Research and Development by conducting expert validity test with Focus Group Discussion (FGD) and limited test towards production learning based model. The results of this reasearch were formed in syntax of production based learning model which consisted of; (1) Analysis of curriculum and learners characteristics; (2) Identification and product analysis; (3) Creating important questions about product; (4) Questions mapping; (5) analysis of equipment and materials needed of the product which was going to be made; (6) making schedule of implementation of making product; (7) process of making product; (8) evaluated regularly; and (9) creating bussiness plan. Finally, by applying production based learning model in Vocational Education and Training (VET) can help learners preparing themselves to enter work, as well as developing their critical thinking and having good moral attitude.

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Production based Learning: An Instructional Design Model in the Context of Vocational Education and Training (VET)

Ganefri [α] & Hendra Hidayat [σ]

Abstract- This research was aimed to create valid, practical, and efective syntax of production based learning model in the context of Vocational Education and Training (VET). Production based learning is an alternative learning model of VET which is relevant to the needs of learners in developing their knowledge, attitude, and skills in learning process. Reserach methodology used was Research and Development by conducting expert validity test with Focus Group Discussion (FGD) and limited test towards production learning based model. The results of this reasearch were formed in syntax of production based learning model which consisted of; (1) Analysis of curriculum and learners characteristics; (2) Identification and product analysis; (3) Creating important questions about product; (4) Questions mapping; (5) analysis of equipment and materials needed of the product which was going to be made; (6) making schedule of implementation of making product; (7) process of making product; (8) evaluated regularly; and (9) creating bussiness plan. Finally, by applying production based learning model in Vocational Education and Training (VET) can help learners preparing themselves to enter work, as well as developing their critical thinking and having good moral attitude. In addition, it also can motivate the learners to be more active in the learning process which would contribute to the learners learning outcomes.

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I. Introduction

Vocational Education and training (VET) is a part of education system which prepares an individual for a work or a group of work, and also can develop him/her in the field of work itself. In order to be able to achieve the goals of the VET, as determined in government regulation UU No. 20 year 2003 article 15, the needs for learning components which can support learning process. One of the components is learning model which is appropriate to the standard to support education in order to be able to work effectively and efficiently.

Learning model is one of important components in supporting learning process. Therefore, it is needed to conduct a development in its empowering and organizing, to achieve desired goals. Models are description of a reality reflection which will be done as stated by [1] *"models by definition are a reflection of reality-temporary stand-ins for something more specific and real; model are helpful in explaining that may be difficult to describe; a model may illustrate a process; a model may be a representation of something".*

In fact, learning process is still far from principles which have been stated in PP No. 32 year 2013 and UU No. 20 year 2003 article 15. Besides, VET is hoped to create competent workers in increasing productivity and efficiency and also readiness for international workers market competition in the era of globalization. However, based on the data of Central Stats Agency (BPS) in launching numbers of unemployment are stood at 5,7% or 7,15 million people. This number has decreased compared to February 2013, 6,17% (7,41 million people). Moreover, BPS recorded that workers who have educational background are elementary school are still dominate employment. 52 million people or 46, 95 percent of Total of Indonesian Workers, Elementary school graduates. For workers which are Junior High School are 20,5 million people or 18,47 percent and people which have higher education only 10,5 million people, where 2,9 million people are Diploma and 7,6 million people are university graduate. This data describe that university graduate are still weak in the workers market. It is caused by learning process which is oriented to the output not to outcomes.

This is no exception to the implementation of the learning processes which are carried out in the Faculty of Engineering of The State University of Padang which still results output from each skills and have not touched outcomes. Therefore, it is needed an alternative solution in developing learning model which can give chance to the students to be active as in cognitive, affective, and psychomotor. One of the learning model which is developed is Production Based Learning Model. In the steps of its implementation are psrt of active learning, where the students are given chances to develop skills and their creativity in the learning process.

II. Research Objectives

The aim of this development is to develop production based learning model which is valid, practice, and effective in VET.

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III. Review Of Related Litterature of Vocational Education and Training (VET)

At the beginning, people said that vocational education was a simply training which was aimed for a skill only. *(Vocational education is simply training for skill only)* or just *training the hands*. VET is a part of education system which prepares an individual for a work or a group of work. In accordance to [4], who stated that "*...vocational education is that part of education which makes an individual more employable in one group of occupations than in another*."

Meanwhile, [13] state that VET is education for a or some kinds of work which individual interested in for his/her social needs. [3] argues that *"Vocational education is also designed to develop skills, abilities, understanding, attitudes, work habits and appreciation encompassing knowledge and information needed by a worker to enter and make progress in employment on a useful and productive basis"*. [17] stated that "educational programmes that assist people as they develop towards occupations and careers and is understood in relation to three components: technology, people and society. In his view vocational education is any education that provides experiences, visual stimuli, affective awareness, cognitive information, or psychomotor skills; and that enhances the vocational development processes of exploring, establishing, and maintaining oneself in the world of work".

Moreover, [15] propose that "vocational and technical is a program of specialized studies designed to prepare the learner for employment in a particular occupation". It is supported by [2] who states that, "Vocational education as organized educational programs which are directly related to the preparation of individuals for paid or unpaid employment, or for additional preparation for a career requiry other than a baccalaureate of advanced degree." [10] also supports that "Vocational education should facilitate students' creative and critical capacities to detect meaningful problems or challenges in their own experiences and surrounding cultural conditions, pose liberating and morally responsible visions, and actively engage in the struggles of living a coherent story of vocation or meaningful work"

From the explanation above, VET can be meant as an activity which develops every people potency in accordance to skills and interest which people have based on knowledge and skills to survive and work which is appropriate to areas of expertise and also be able to create a job for them.

IV. Review of Related Litterature of Production based Learning Model

Model is a systematic pattern or reference which can be a guide for educators. Learning models is a direction from the implementation of learning which are applied by educators with the aim to guide the students being active in the learning process.

[9] terms the learning model as work procedure which is regular and systematic and containing of thoughts, description or explanation of a concept. [12] means a learning as process of interaction between educators and students which can support them to study actively, participative, interactively by using methods, approaches, and media, and appropriate learning environment. [11] defines learning as the basic of adding information and new knowledge processes.

Therefore, it can be stated that learning model is a procedure or steps which are needed by educators to facilitate their students to study actively, participative, and interactively with the aim to be able to achieve the aims of education; the development of self potency of students optimally.

Based production learning Model give students the chances to develop thinking, and skills and also cooperation. In the learning process by using this model, the students are expected to be active for instance; creating important question that related to the product that are going to be made. According to [5], "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".

V. Research Method

The research design which will be used is *development research*. This research is included to the research that develops and results new product in a learning system which will be applied to the students as the users.

a) Procedure of Production Based Learning Model Development

i. *Needs Analysis*

This analysis includes learning facilities analysis, students' needs analysis, students' characteristics, educators' skills analysis in some obstacles which they faced during learning process.

ii. *Design*

In this step, the first thing that should be done is determine the main concept of learning model design which is integrated to the materials and determine courses which will be used as the subject of the research and then analyze the students first condition.

iii. *Evaluasi*

The development in the evaluation step will do the test by expert by filling observation sheet. From the observation sheet will be get the suggestion from the expert and students. The validity will be done by expert test by using focus group discussion and limited test towards production based learning model. Meanwhile,

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the test for students' will be done in three steps. They are small group test, big group test to see the practicality and effectifity of the product that is made and developed. Respond regarding appropriateness will be get after students give response in the sheet give, based on suggestion and response of expert and students, the product will be revised.

VI. Results of Research

The research results syntax of production based learning model which can be applied in the learning process of VET. The syntax consists of: (1) Analysis of curriculum and learners characteristics; (2) Identification and product analysis; (3) Creating important questions about product; (4) Questions mapping; (5) analysis of equipment and materials needed of the product which was going to be made; (6) making schedule of implementation of making product; (7) process of making product; (8) evaluated regularly; and (9) creating business plan. It can be seen in picture 1. Nine levels of production based learning model.

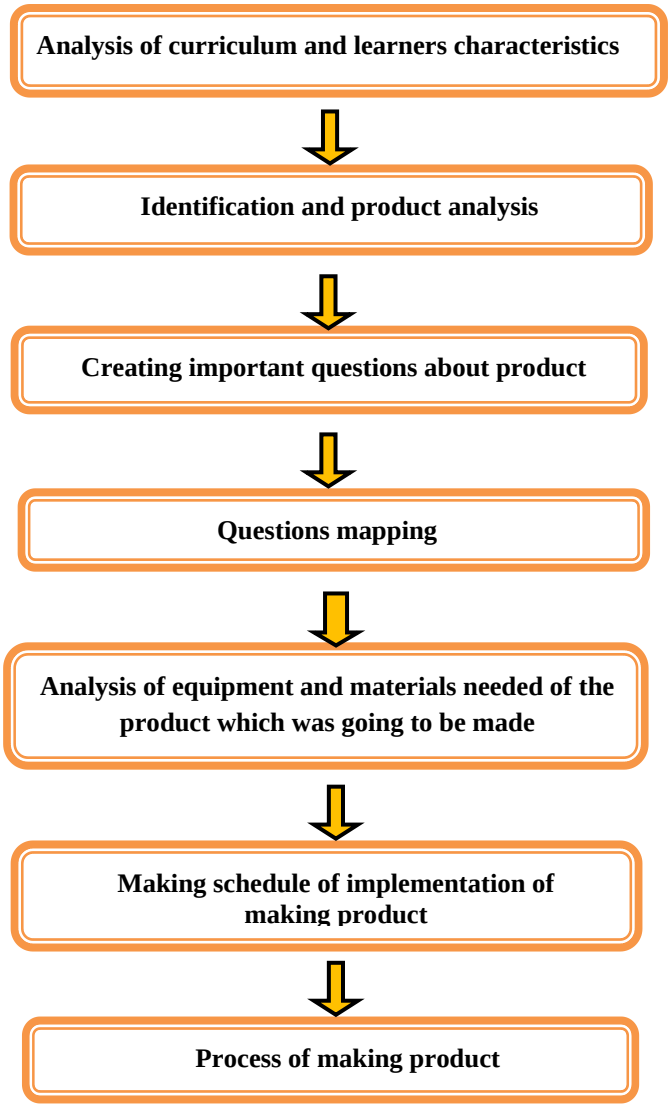

Figure 1 : Nine levels of Production Base Learning Model

VII. Discussion

Based on the results of the research of syntax of production based learning model where its implementation is done systematically ang logic as the explanation below:

a) Analysis of curriculum and learners characteristics

In this step, the analysis was done in courses of practice, identify the materials practices which was fit to the needs of the implementation of production based learning. Then, analysis of students characteristics are done by identify the learning process which done through individual and group. Analysis is needed to identify the appropriateness the precondition of the students and learning style which fit to the curriculum used [14].

b) Product identification and analysis

Product identification is important to see the appropriateness with the minimal competencies of courses. By knowing the minimal competencies of the courses, it is hoped that product can answer the kind of product that are going to be created. Besides, the product should also fit to the social need – the product should meet the minimum standard of courses competencies, it also social needs. Product created should also considered that the product has answered the problem in the social or not yet. Through the steps of Production Based Learning, it is hoped that it can answer the social needs especially for products that related to the daily needs.

c) Creating important question about product

Exploration and elaboration individually and group of the product analyzed which is aimed to create some questions around the product identified and analyzed before. In the learning process is started with important question, it is good for students activities. [16], according to [8], "started from giving challenging questions about ....".

d) Questioning mapping

Questions from the students is classified based on needs and its urgency towards the product. This mapping is aimed to make the students understand the meaning of the questions that related to the product,

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supported by [7] stated that when the learners learn something and can find the meaning. In this step, the mapping can be done if the students understand the questions which have essential meaning.

e) *Analysis of equipment and materials needed of the product which was going to be made*

In this step, it is important to analyze tools and materials which are needed based on the mapping. If the tools and materials have been prepared well, it is hoped that the creating process is run well.

f) *Making schedule of implementation of creating product*

The determination of when the product is finished, deadline, and this process can be done collaboratively, cooperatively between lecturers' and students.

g) *Process of making product*

In the process of creating product, it is important to notice the completeness of tools and materials and its time completion. As in the case of implementation of the courses, that is *Media Pembelajaran Berbasis* TIK, this course is practice course which have result a product and has not been structured. Therefore, by using the model which is designed can result a product which meet the minimal standard competencies of the course and social needs. In this case, media is really needed for all lecturers in the learning process.

h) *Regular Evaluation*

The assessment are done holistically since the beginning to the end, besides it is also specified for creating process implementation, we can use matrix of assessment in the form of rubric.

i) *Creating business plan*

In this step, the students are given, chances to make business plan of the product which is done through production based learning model. Creating this business plan gives the description about a product for instance; students make a business plan of Power Saving Devices. The business plan created is able to describe the aspect of entrepreneur such as product benefits, price, competitor, and marketing product. Therefore, by implementing the production based learning model, the students can results a product that is needed by social and also develop their entrepreneurships.

Production based learning model is an alternative in solving the problem of learning process of VET. In fact, the learnig process is still oriented to the shortterm result and just transfers the knowledge, not understanding the knowledge. (Griffith, 2007) it a fact that; "traditional scinece course focus on presenting the results of the scinetific process rather than the story of how scientist arrived at these results". Therefore, if the process of learning is understood by the students, the goals of VET can be achieved and compet as the skilled workers and develop themselves including entrepreneurships based on their skills.

Moreover, production based learning model has impact to the students' affective, because the students and lecturers are collaboratively in the learning process. The students also get opportunity to work together, and asking a question among them, giving response and suggestion towards the product, start from the scheduling steps creating, and evaluation. The learning which is done collaboratively including all process of learning, the students are taught each other. Moreover, it is not impossible the students will teach their lecturer. As the previous discussion production based learning model which applied the concept of student center, however, in the implementation the lecturers are still supervise. In the Production based learning model has impact to affective, cognitive, and psychomotor. It is supported by [18] where in his research summarized that the learning based on project facilitate the development of some competencies such as communication, cooperation, and writing skills.

VIII. Conclusion

Production based learning model is an alternative of learning model which is appropriate to VET, by using this model, the learning will be more meaningful. Moreover, Production based learning model which has been applied in VET can help learners in preparing entering the world of work, be able to develop critical thinking, and having good morale. Therefore, it can give support to the learners to be more active in the learning process which have impact to the results of learning process and their outcomes.

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