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STRATEGY FOR DEVELOPING LEARNING MATERIALS ORIENTED TO OUTCOMES BASED EDUCATION CURRICULUM

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Abstract--Curriculum based on Outcomes Based Education (O.B.E) is a prerequisite for an educational institution that would like to obtain an international accreditation certificate. This phenomenon triggers universities to use O.B.E based curriculum. Therefore, many university rectors require all study programs to implement O.B.E based curriculum. This study aims to explain the strategy for developing learning materials of research methodology courses based on O.B.E based curriculum. This study used a qualitative research approach with research and development design. The focus of the research is the process of developing learning materials for research methodology courses based on the O.B.E curriculum, starting from needs analysis phase to implementation phase. Data were collected using observation techniques. Furthermore, the data were analysed using descriptive narrative technique. Based on the results of the analysis, it is obtained a description that to develop learning materials for research methodology courses based on the O.B.E curriculum, it is necessary to carry out the following activities: (1) conduct an analysis of the characteristics and objectives of O.B.E based curriculum and research methodology courses, (2) prepare the design of learning materials for research methodology courses that are in accordance with the objectives and characteristics of O.B.E based curriculum, (3) develop learning materials, (4) validate learning materials, (5) revise learning materials, and (6) conduct a try out of learning materials. By using this strategy, it can be obtained learning materials for research methodology courses that are valid, practical, and effective which can be used to support the implementation of O.B.E based curriculum.

Key word: *Outcomes Based Education, Curriculum, Research*

INTRODUCTION

United Nations Educational, Scientific, and Cultural Organization (UNESCO) describes the 21st century learning paradigm in four visions of 21st century education (1) learning to think that oriented to logical and rational knowledge, (2) learning to do that oriented to how to solve problems, (3) learn to be that oriented to character building, and (4) learning in society oriented to tolerance and cooperation (Hidayat, 2013).

In this regard, Indonesia government has issued Presidential Regulation number 8 of 2012 concerning the Indonesian National Qualifications Framework, as a guidance in developing curriculum and other learning designs. Then, in 2020, The Minister of Education and Culture of Indonesia issued the *Merdeka Belajar Kampus Merdeka* program as a strengthening and achievement strategy for the descriptors of Indonesian National Qualifications Framework and the National Higher Education Standards. The fundamental issue related to the implementation of Indonesian National Qualifications Framework and *Merdeka Belajar Kampus Merdeka* program is the changing learning patterns from competency-based learning to outcomes-based education (O.B.E). Spady (2007) stated that O.B.E is designed to realize learning objectives based on the results of learning process. The goal of O.B.E is strongly future-oriented and require lecturers to imagine how to achieve a real conditions in the future and how to develop the students competencies at the end of their studies. In this regard, it is require a total concentration in the whole of the education system.

Currently, Outcomes Based Education (O.B.E) learning has become the center of world attention in the education field. Many international accrediting institutions require the use of O.B.E based curriculum for universities that will register in international accreditation. In this regard, it is necessary to develop a curriculum and all other learning designs such as learning materials in the education system. In implementing O.B. E, the curriculum must be designed so that teaching and learning activities, assignments, and assessments are coordinated with the established Learning Outcomes (Biggs, 2003). The problem arises is how to develop O.B.E based learning materials. This article explains the effective strategies to develop O.B.E-based learning materials in the Research Methodology course.

Gunarathne, (2018) and Wahyudi (2018) stated that learning using the O.B.E model could improve student learning outcomes. Gunarathe further stated, the implementation of O.B.E based learning approach with various learning activities could provide various benefits for stakeholders. In connection with the results of the studies, the development of O.B.E based learning designs needs to be developed to improve the graduates quality and competitiveness in the world industry.

LITERATURE REVIEW

The O.B.E based curriculum is designed to meet the achievable 21st century frameworks. 21st century skills are a set of skills that students need to master in order to succeed in the information age and globalization (Rotherham, 2009). These skills involve mastery of core subject, life skills, thinking and innovation skills, and mastery of technology to support core subject. The World Economic Forum (2015) stated that 21st century students are required to have 16 types of 21st century skills which are classified into three categories: (1) basic literacy, (2) competency, and (3) character quality. The basic literacy aspect consists of six components, namely reading and writing literacy, numeracy literacy, scientific literacy, digital literacy, financial literacy, and cultural and civic literacy. The competency aspect consists of four skill components, namely critical thinking and problem solving, creativity, collaboration, and communication competencies. The aspect of character quality consists of seven components, namely curiosity, initiative, persistence, adaptability, leadership, and social and cultural concern.

In line with these concepts, Abidin (2015) stated that education in the 21st century, places more emphasis on efforts to create a generation who has the competence to think, to work, to live, and to master various instruments to work. Abidin further said that the education system should be able to equip students with these four 21st century competencies. Education should not only be used as an activity to deliver knowledge, but also an effort to train students to develop themselves according to their abilities.

To have a generation who has critical thinking skills, learning activities that involve higher order thinking are needed, such as analyzing problems, solving problems, evaluating programs, and developing creativity. Learning should not be limited to understanding the theory or concept but must use the concept in real activities and develop new concepts based on the analysis result of the concepts studied.

The characteristics of critical thinking activities consist of: (1) activities to formulate questions, (2) limiting problems, (3) testing data, (4) analyzing various views, (5) avoiding highly emotional considerations, (6) avoiding oversimplification, (7) consider multiple interpretations, and (8) tolerating ambiguity (Beyer, 1995). Based on these opinions, it appears that the final goal of developing critical thinking skills is to improve problem solving skills. Through the critical thinking activities, the problems found will can be solved.

Creativity is a person's ability to come up with a new composition, product, or idea. It could be imaginative activities or synthesis of thoughts whose results are not only summaries but also formation of new patterns based on experience or information previously obtained (Hurlock, 1978). In this regard, creative thinking is a mental activity that produces something new as a

development. These activities aim to increase the authenticity and sharpness of understanding in developing something new (Daryanto, 2009). Based on this opinion, creative thinking activities are activities to produce new concepts based on data and the concepts before.

Problem solving skills is a person's basic ability to solve a problem that involves critical thinking, logical thinking, and systematic thinking. Kaya, et al (2014) stated that problem solving skills are basic skills that a person must have so that they can be used in various areas of daily life. Problem solving skills contain four indicators, namely 1) understanding the problem, 2) planning a solution, 3) solving the problem according to the plan, and 4) re-checking all steps (Polya, in Hamiyah and Jauhar, 2011).

The educational paradigm shift towards O.B.E takes a long time and goes through different stages of development such as competency-based education, criteria-based learning, and mastery of learning (Harden, 2002; Parker and Walters, 2008). Further, a new learning paradigm that is oriented to the outputs emerged or known as Outcomes Based Education (O.B.E) (Tam, 2014). Through this development, there is more and more public interest in educational institutions that are oriented towards learning outcomes that can address the needs of contemporary society (Gurukkal, 2018).\

Some experts have defined O.B.E differently. Spady (1994) defined O.B.E as a learning that focuses and regulates the entire education system on student success which is shown in an outcome obtained from the student's learning activities. Similarly, O'Neil (1994) stated that the simple principle of O.B.E is decisions about curriculum and teaching should be oriented towards student learning outcomes that can be displayed at the end of their educational experience in a product. O.B.E is an education system that focuses on what students can do successfully at the end of their learning experience. O.B.E involves restructuring of curriculum, teaching and learning, assessment, and reporting practices in education. In O.B.E, both the structure and the curriculum are designed to achieve these abilities or qualities. In OBE based learning, students must be able to demonstrate their skills based on the material they have learned (Arifin, 2018). There are several things must be prepared to realize O.B.E in the education system, namely organizing the curriculum, learning system and assessment in a structured manner to ensure the O.B.E based learning process actually takes place as evidenced by outcomes that are in accordance with Learning Outcomes (Dikti, 2018). The organization of the O.B.E based curriculum is the responsibility of the study program along with all the lecturers involved in it. Meanwhile, the improvement of the learning and assessment system in the classroom is the responsibility of the lecturer or group of lecturers.

To realize O.B.E based learning, the first step must be developed is to determine the learning outcomes of graduates. This determination is the joint authority of all parties involved in the study program. Based on the learning outcomes of these graduates, studies are developed which are then structured in the course structure. The next step is to determine the Learning Outcomes of the Course. Based on the learning outcomes of this course, learning materials are developed.

One of the important components in learning is learning materials. The quality of learning materials will greatly affect the achievement of learning objectives. Therefore, the development of learning materials is needed to improve learning activities and teacher motivation in carrying out learning in the classroom (Dubin and Olstain, 1992).

Good material development must be appropriete to three development principles, namely the principles of relevance, consistency, and adequacy as outlined by the Ministry of National Education of Indonesia (2006). The principle of relevance means a good learning materials should be relevant to the achievement of competence standard and basic competence in the syllabus. The principle of consistency means that if the basic competencies that must be mastered by students is three, then the material that must be taught to students must also be three. The principle of adequacy is the material (content) taught must be sufficient to help students master the basic

competencies.

In connection with the concept of developing the material above, the problem that often occurs in learning practice is that the learning materials used in learning activities do not meet these criteria. The learning materials used are often less relevant to the competency standards and basic competencies in the syllabus. In addition, the learning materials also do not meet the standards of adequacy of learning materials to achieve the competency standards that have been set.

Tomlinson (1998) stated that it is necessary to provide good quality learning materials to facilitate learning. Learning materials could be a handout, textbook, or anything that can be used to improve students' knowledge and skills. Furthermore, Cunningsworth (1995) stated that there is no learning design that has a greater influence on the learning process than textbooks. In organizing the content of textbooks, Dubin and Olstain (1992) stated that it is necessary to consider the level of difficulty and the sequence of the series. In addition, it is also necessary to consider repetition, especially in difficult material. The variety of linguistic material also needs to be considered. Further, Tomlinson (1998) stated the principles of developing learning materials are as follows.

a. There is a strong influence on students to learn learning materials.
b. Learning materials should create a sense of pleasure in learning.
c. Learning materials should be able to develop students' self-confidence.
d. Learning materials must be considered relevant and useful by students.
e. Learning materials can help students develop their personal potential.
f. The language used in learning materials should be in accordance with the level of language used by students in their daily activities.
g. Learning materials should provide opportunities for students to use the target language to achieve communication goals.
h. Learning materials should consider the differences in learning styles, attitudes, and motivation of learners.
i. Learning materials should not demand too many controlled activities.
j. Learning materials should provide opportunities to generate feedback effects

RESEARCH METHOD

This research used a qualitative approach with the Fenrich model development research design which consists of five development phases, namely analysis, planning, design, development, and implementation (Fenrich, 2005). In each phase, evaluation and revision are carried out. The description of the research design of the Fenrich model is described in the image below.

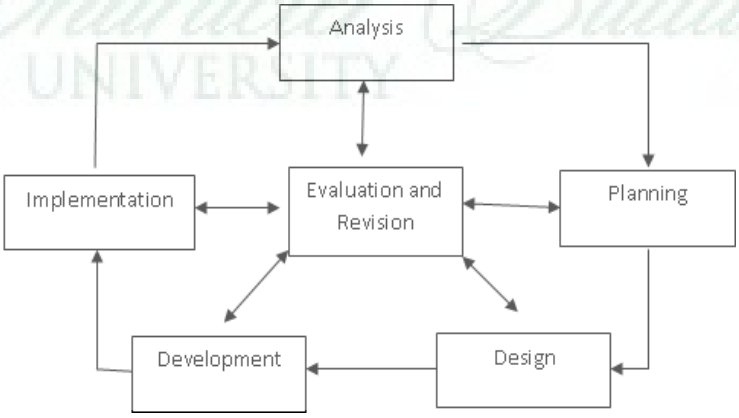

Image. Instructional Design Development Cycle Model (Fenrich, 2005)

In the analysis phase, an analysis of the need for the development of learning materials of the Research Methodology course based on O.B.E curriculum is carried out. Activities carried out include; literature studies, document studies related to Research Methodology learning, learning observations, and interviews with lecturers and students. The results of the needs analysis activities are then evaluated and revised. If a data deficiency or error is found in this phase, a needs analysis is carried out again until the adequacy of valid data is obtained. In the planning phase, we develop a description of the research team's duties, research schedule, and fulfillment of instruments to support research activities. The results of planning activities are evaluated and revised. If data deficiencies and data errors are found in this phase, planning is rearranged to obtain adequacy of valid data. In the design phase, a learning material design of the Research Methodology course based on O.B.E curriculum is prepared. The results of the design activities are evaluated and revised. If data deficiencies or errors are found in this phase, the design is carried out again until the adequacy of valid data is obtained. In the development phase, O.B.E based learning materials are developed in the Research Methodology course referring to the design of learning materials that have been prepared previously in the phase of design. The output in the development phase is a draft of learning materials of the Research Methodology course based on O.B.E curriculum. Then, the draft learning materials are validated by research experts. The validation process is an evaluation in the development phase. Based on the results of expert validation, draft of learning materials are revised to obtain valid learning materials. In the implementation phase, a trial of learning materials carried out in the learning class. The trial activity observed by colleagues to have supporting data for activity of evaluation and revision.

Data collected in this research is the data on the process of developing O.B.E based learning materials in the Research Methodology course from the analysis phase to the implementation phase. To obtain the data, some data collection techniques are carried out, namely observation, interviews, documentation studies, and expert validation. The instruments used to collect the data are (1) observation sheets, (2) research journals, (3) interview guidelines, (4) validators, (5) lecturer and student response questionnaires, and (6) researchers as main data collection instruments.

Furthermore, the data that has been collected is analysed based on the type of data. Observational data, documentation study data, and interview data were analysed using narrative techniques. The instrument used to analyse the data is the researcher as an instrument of data analysis. The expert validation data are analyzed using the average technique. The instrument to analyse the data is the Excel program. Data on the process of development learning materials of the Research Methodology course based on O.B.E curriculum are declared valid if all stages of the research can be carried out properly based on Fenrich's development theory (2005) and obtained a high value of validity, practicality, and effectiveness.

FINDINGS AND DISCUSSION

Based on the formulation of the research problem, there are two main topics described in this section, namely (1) the strategy for developing learning materials of the Research Methodology course oriented to the O.B.E curriculum using the Fenrich development model and (2) the quality of learning materials of the Research Methodology course oriented to the O.B.E curriculum.

1. The strategy for developing learning materials oriented to the O.B.E curriculum in the Research Methodology course using the Fenrich development model

   To develop learning materials for Research Methodology courses that are oriented to the O.B.E curriculum using the Fenrich development model, these activities should be carried out. First step is conducting an analysing the characteristics and objectives of O.B.E based curriculum and research methodology courses. This activity aims to obtain more in-depth data

about the characteristics of the O.B.E based curriculum and and what purposes it contains.
Based on the results of data analysis, the main characteristics and objectives of the O.B.E based curriculum are the application of learning strategies oriented towards the outcomes. Each subject that students learn in a learning activity must produce a certain product in accordance with the subject learned. On the other hand, the Research Methodology course aims to train students to develop research proposals and reports. Based on the two data, there are similarities in objectives between the O.B.E based curriculum and the Research Methodology course. The similarity of objectives ease the process of subsequent activities because researchers only need to find the right strategy to carry out learning that can accelerate the process of creating learning outcomes. The application of project-based learning models and case studies are considered as the appropriate strategy. Deciding the two learning models is also due to the similarity of their characteristics with the O.B.E based curriculum. However, it needs to be re-analyzed, in which part of the case study activities and projects activities are placed in the structure of learning materials. In this discussion, the case study activity can be placed in case study exercises in the structure of learning materials, while the project activity can be placed in the learning evaluation structure.
Second step is preparing the design of learning materials for Research Methodology courses that are in accordance with the objectives and characteristics of O.B.E based curriculum. In this part, each chapter of learning materials is arranged in a structure: (1) chapter of titles, (2) learning outcomes, (3) material (content), (4) error analysis exercises, (5) case study exercises, and (6) evaluation in a project model. By using this structure, there are several 21st century skills can be integrated in the learning activities of Research Methodology courses. The 21st century skills intended are: (1) data and information analysis skills, (2) collaboration skills, (3) critical thinking, (4) problem solving, and (5) creativity. These 21st century skills are certainly in line with the objectives of the O.B.E based curriculum.
Third step is developping learning materials. In this part, the learning materials are arranged based on the structure of the learning materials described in the second part. The learning materials compiled must be relevant to the Research Methodology course syllabus, meet the elements of adequacy, and have high readability. Thus, students will be able to learn the content of learning materials independently and more easily.
Forth step is validating learning materials. In this part, the learning materials are validated by experts in the field of research methodology. The results of the validation of learning materials by experts are used as input to revise learning materials. Then, the last step is to try out the learning materials that have been declared valid by the experts in the learning class. The purpose of this activity is to obtain data about the quality of learning materials in terms of their practicality and effectiveness.

2. The quality of learning materials of the Research Methodology course oriented to the O.B.E curriculum.
As stated in the previous section, to obtain data of the quality of the learning materials developed, we try out the learning materials that have been declared valid by the experts in the learning class. Based on the results of the try out, the quality score of learning materials is obtained 3.84 or in the “very good category”. The score is an accumulated average score of the score of student assessments in a total of 3.85, the average score of student learning outcomes through the correlation test in a total of 3.80, and the score of expert validation results in a total of 3.88. With this excellent quality, learning materials of Research Methodology course oriented to the O.B.E curriculum can be published and used on a larger scale.

DISCUSSION

There are two main factors influenced the quality of learning materials of Research Methodology courses oriented to the O.B.E curriculum developed, namely (1) the quality of learning materials design (structure), and (2) the quality of learning materials content. First factor, the design of learning materials that adopt the important elements of project-based learning and case studies learning model can make learning activities in the classroom to be more dynamic. Student-centered learning activities are very well implemented. This shown that the learning design model in the structure of learning materials can create a learning atmosphere that are active, dynamic, collaborative, motivational, creative, and autonomous. The learning activity begins with an explanation of the learning procedure and motivate the students. Activities to motivate students is intended to foster students' enthusiasm to learn by reducing the psychological burden of students due to incidents which they got before. Giving motivation in learning is very emphasized in the Quantum Teaching method (DePorter, 2000). It should be realized that every human being carry out an activity due to a need. In this case, many students that do not know their needs when they lear a particular subject. Therefore, lecturers must be able to show students the importance thing of learning a learning material.

The second step, students in small groups carry out a discussion to explore the content of learning materials. This activity trains students to collaborate and analyze information and data skills. To determine the success of the student group team, we have provided an error analysis exercise on the structure of learning materials. This activity trains students in case study analysis, critical thinking, and problem solving skills.

The next learning activity is conducting case study analysis. To support this activity, we have provided case study exercises on the structure of the learning materials. This activity can also be used to train the skills of problem analysis, critical thinking, and problem solving. The last step of learning is to explain about individual or collaborative projects assignments. Project creation activities are carried out independently, not in classroom. Furthermore, the project results are uploaded in the learning management system of the Research Methodology course. This project activity trains students collaborative skills, creativity, and digital literacy. By the learning process described above, it will be obtained a balance between mastery of core subjects and 21st century skills.

The second factor, the learning materials that arranged based on the structure of the proposals and reports of research can make it easier for students to understand and to apply research concepts as a whole. To arrive at the complete understanding, the learning materials begin with a topic of research approaches and research methods. Furthermore, we have presented topics regarding the components of the proposal and research report. Each topic is equipped with concrete examples, so that it can make easier for students to understand the concepts explained in the learning material. In addition, each subject is explained in more detail to ease students to learn autonomously.

Based on the explanation above, the learning materials developed can meet the elements of the characteristics and objectives of the O.B.E based curriculum. Furthermore, by the implementation of the O.B.E based curriculum, several 21st century skills can be integrated into learning activities. The model of integrating 21st century skills into learning materials is a very effective strategy to teach core subjects and 21st century skills simultaneously. Through this strategy, learning activities that apply Blended Learning, Project Based Learning, Case Study, Cooperative Learning, Integrated Learning, and Student Centered Learning will be carried out more easily.

CONCLUSION

To produce students who master core subjects and 21st century skills in depth, it is necessary to use an O.B.E based curriculum. The O.B.E based curriculum will be implemented better if

supported by the availability of learning materials and other learning designs that in accordance with the characteristics and objectives of the O.B.E based curriculum. Then, to develop learning materials oriented to the O.B.E based curriculum, it is recommended to carry out the following steps, namely (1) conduct an analysis of the characteristics and objectives of O.B.E based curriculum and research methodology courses, (2) prepare the design of learning materials for research methodology courses that are in accordance with the objectives and characteristics of O.B.E based curriculum, (3) develop learning materials, (4) validate learning materials, (5) revise learning materials, and (6) conduct try out of learning materials. By following the steps above, it will be possible to obtain a high quality learning materials oriented to the O.B.E based curriculum as the results obtained from this study. The results of this study have implications for the importance of developing learning materials in other courses that are oriented towards O.B.E based curriculum.

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