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RESEARCH ARTICLE

The Relevance of Learning Outcome in University with the Need of Automotive Engineering Teacher in Vocational High School

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Abstract

Competence graduate at the study program of mechanical engineering education in pedagogical competence is a graduate can become educators. Learning outcome at the subject of motorcycle and small motor in study program of mechanical engineering education designed to prepare students to become teachers in vocational high school. This study is focused to determine the relevance of learning outcome at the subject of motorcycle and small motor in study program of mechanical engineering education in state university of Jakarta with the need of automotive engineering teacher. The purpose of this study is to find out to determine the relevance of the learning outcome in university with the need of the automotive engineering teacher in vocational high school. The method used in this study is a survey method. Researchers using purposive sampling techniques, data collection techniques in this study done by structured interview. Automotive engineering teachers defined as the study population, the teacher is considered as an expert, because teachers practice in learning. Instruments to collect data in this study is the learning outcome in study program of mechanical engineering education in state university of Jakarta. Showed that in general are perceived learning outcome is needed to be controlled by the teacher of automotive engineering as a material to be taught to students. Based on the results of data collection and analysis results, it can be concluded that there is relevance between learning outcome at the subject of motorcycle and small motor set by the study program of mechanical engineering education in state university of Jakarta with the need of automotive engineering teacher. So the conclusion that, there is the relevance of learning outcome in university with the need of the automotive engineering teacher in vocational high school.

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INTRODUCTION

National education serves to develop the ability and character development and civilization of dignity in the context of the intellectual life of the nation, aimed at developing students' potentials in order to become a man of faith and fear of god almighty one, noble, healthy, knowledgeable, skilled, creative, independent, and became a citizen of a democratic and responsible (Law of the Republic of Indonesia Number 20 of 2003 Section 3).

Education can be obtained either formal or informal. Formal education obtained by following the programs that have been designed and planned in a structured by a particular agency or institution, department or ministry of state. While non-formal education is any activity organized and systematic, outside of the school system, implemented independently, which deliberately done to provide certain services for learners to achieve learning goals. Universities included in the formal educational institutions.

Universities are obliged to develop the ability and character development and civilization in order to achieve the dignity of citizens. The college is an organization that plays a major role in building, developing, and improving the quality of human resources in Indonesia. Colleges build faith and piety, exemplary, willingness, creativity in the learning process, develop a culture of reading, writing and arithmetic, empower all components of society, enhance community participation and create community service excellent, fast service marked, precise, accurate, corrected continuous, non-discriminatory, sustainable, and affordable.

State University of Jakarta, is one of the universities in Indonesia as an education provider that refers to the core functions of universities, namely, education, research and community service. In carrying out its functions, the State University of Jakarta has a vision, which became a university that has a competitive advantage in building the Indonesian society advanced, democratic and prosperous based on Pancasila in the era of globalization. While the mission of the State University of Jakarta was to develop science, technology, and art that can improve the quality of human life and the environment.

As colleges, State University of Jakarta shall meet national standards in order to realize the college national education goals. According to the Regulation of the Minister of Education and Culture of the Republic of Indonesia on national standards colleges, universities that national standards, are standard units include the National Education Standards, coupled with the National Standards Research, and the National Standards Community Service (Regulation of the Minister of Education and Culture of the Republic of Indonesia Number 49 of 2014 Article 1). National Education Standards consist of competency standards, standards of learning content, learning process standards, assessment standards of learning, faculty and staff standards, facilities and infrastructure standards of learning, learning management standards, and standards of learning financing (Regulation of the Minister of Education and Culture of the Republic of Indonesia Number 49 of 2014 Article 4, Paragraph 1).

There are seven faculties and graduate programs at the State University of Jakarta. Faculty are part of a study of a field of science. (Dessy Anwar, 2001, p. 138). One of them is the faculty of engineering, which has four departments, namely the department of electrical engineering, department of family welfare, department of mechanical engineering, and the department of civil engineering. Department of mechanical engineering has two study programs, namely study program of mechanical engineering education and study program of mechanical engineering. Department of mechanical engineering always improve to provide optimal service to students as consumers. Proved by the application of ISO 9001:2008 since 2011 until now. Department of mechanical engineering is committed to providing the best service for students and continues to perform quality control process. According Raviato, the quality control process is rotating PDCA cycle, ie planning, execution or process, checks or evaluations, and corrective action on issues related to quality (C. Rudy Prihantoro, 2012, p. 4).

As a form of optimal services to students as consumers, the standards set by the government will always be applied in the department of mechanical engineering, both in study program of mechanical engineering education and study programs of mechanical engineering. Subject of motorcycle and small motor is one of the compulsory subjects in concentration or specialization in automotive. Study program of mechanical engineering education provide facilities and infrastructure in accordance with the needs of the content and the learning process in order to meet the learning outcomes of graduate in subject of motorcycle and small motor.

Competence graduate in study program mechanical engineering education on group pedagogic competence is, graduates can become educators who are able to understand the development of learners, learning process planning in mechanical engineering, implementing the learning process correctly and be able to carry out the evaluation of the learning process in accordance with the character of the field of engineering materials the machine. (State University of Jakarta, 2011, p. 307). While in clumps of professional competence is, a graduate in mechanical engineering can master the material so that it has competence in accordance with national competency standards in mechanical engineering. (State University of Jakarta, 2011, p. 308). Learning outcome in subject of motorcycle and small motor in study program of mechanical engineering education designed to prepare students to become teachers in vocational high school.

1.1 Fokus of the research

From the background described, this research is focused to determine the relevance of learning outcome at the subject of motorcycle and small motor in study program of mechanical engineering education in state university of Jakarta to the need of automotive engineering teacher.

The purpose of this study is to find out to determine the relevance of the learning outcome in university with the need of the automotive engineering teacher in vocational high school.

2. Literature Review

2.1 Learning outcome

According to the Law of the Republic of Indonesia on the national education system, stating that, Learning is a process of interaction of learners with educators and learning resources in a learning environment (Law of the Republic of Indonesia Number 20 of 2003 Article 1).

Regulation of the President of the Republic of Indonesia on Indonesian national qualifications framework, states that, learning outcome are obtained through internalization capability knowledge, attitudes, skills, competencies, and the accumulation of work experience (President of the Republic of Indonesia Regulation Number 8 of 2012 Article 1).

So the learning outcome is the ability of learners obtained through a process of interaction with educators and learning resources on the learning environment through the internalization of knowledge, attitudes, skills, competencies, and the accumulation of work experience.

Learning outcome in the subject of motorcycle and small motor in study program of mechanical engineering education in state university of Jakarta described in the Draft Program and Semester Learning Activity (Rencana Program dan Kegiatan Pembelajaran Semester hereinafter referred RPKPS). The learning outcomes are: (Draft Program and Semester Learning Activity at Subject of Motorcycle and Small Motor in Study Program of Mechanical Engineering Education, Department of Mechanical Engineering, Faculty of Engineering, State University of Jakarta.)

- a. Students can explain the principles and workings of motorcycle engines and small motors
- b. Students can explain the function, how to work, and examination components motorcycle engines and small motors
- c. Students can perform inspection, repair parts and tuning slit valve engine motorcycle
- d. Students can explain the type of ignition system and working principle and the theory of adjustment when the ignition on motorcycle
- e. Students can perform gap adjustment platinum, while the ignition, and the examination of the motorcycle ignition system
- f. Students can do the inspection, measurement, and setting the timing chain on a motorcycle
- g. Students can explain the working principle and the kinds of motorcycle fuel system
- h. Students can perform maintenance, repair and inspection of the motorcycle carburetor
- i. Students can explain the principles and workings of the power transfer system of motorcycles
- j. Students can perform maintenance, repair and inspection of the motorcycle power transfer system
- k. Students can explain the maintenance, repair and inspection of brakes and suspension systems of motorcycles
- l. Students can explain the working principle, inspection and repair of cooling and lubrication systems
- m. Students can explain the working principle and system checks the starter

2.2 Automotive engineering teacher

In Article 39 paragraph 2 of the Law on National Education System, stated that, Educators are professionals in charge of planning and implementing the learning process, assessing learning outcomes, coaching and training, as well as conduct research and service to the community, especially for educators at colleges (Law of the Republic of Indonesia No. 20 of 2003).

Teachers are educators who become leaders, role models, and identification for the learners and the environment. Therefore, teachers must have certain personal quality standards that include responsibility dignity, independence and discipline. (E. Mulyasa, 2009, p. 37). The teacher is an educator to be a role model and example, and can be imitated by students and the surrounding environment.

3. Methodology of the Research

The purpose of this study is to find out to determine the relevance of the learning outcome in university with the need of the automotive engineering teacher in vocational high school.

Learning outcome at the subject of motorcycle and small motor consulted with automotive engineering teachers who teach technique especially motorcycles. The method used in this study is a survey method. Survey research is research conducted on large and small population, but the data is studied data from samples taken from the population, so find events relative, distribution and relationships between sociological and psychological variables (Sugiyono, 2004, p. 27) Researchers using purposive sampling technique, namely sampling technique with

particular consideration. (Sugiyono, 2009, p. 85). Data collection techniques in this study done by structured interview. Automotive engineering teacher is regarded as an expert, because teachers practice in learning. Teachers impart knowledge acquired during the first lecture to students. Teachers considered to know what needs to be taught to students. Therefore most teachers understand the relevance of learning outcomes at the subject of motorcycle and small motor with the needs of teaching teachers automotive engineering.

Instruments to collect data in this study is learning outcome at the subject of motorcycles and small motor in the study program of mechanical engineering education in state university of Jakarta. As explained in the study of theory, learning outcomes item number is 13, then for data collection was developed to 34 items.

4. Findings and Discussion

In accordance with the purpose and focus of this study was to find out to determine the relevance of the learning outcome in university with the need of the automotive engineering teacher in vocational high school. When questioned why the state university of Jakarta selected in this study. The reason is the state university of Jakarta is the creator of the institution of educators and education personnel. State university of Jakarta is considered as the main supplier of teachers, to Jakarta in particular and other areas in Indonesia.

State university of Jakarta as a reference education in the state capital of Indonesia. Thus the learning outcomes at the subject of motorcycle and small motor in study program of mechanical engineering education in state university of Jakarta used as instruments for data collection in this study. This section will discuss the results of data collection through interviews with automotive engineering teachers. The results are as follows:

- a. Students can explain the principles and workings of motorcycle engines and small motors. Respondents considered these item are very required to be ruled by teachers, as a material to be informed to the students.
- b. Students can explain the function, how to work, and examination components motorcycle engines and small motors. These item are considered very needed by teachers in the implementation of learning.
- c. Students can perform inspection, repair parts and tuning slit valve engine motorcycle. These competencies are considered highly needed by the respondent. Learning gains was used as material to be taught to students.
- d. Students can explain the type of ignition system and working principle and the theory of adjustment when the motorcycle ignition. Respondents considered these items required to be controlled by the teacher, as a material to be informed to the students.
- e. Students can perform gap adjustment platinum, while the ignition, and the examination of the motorcycle ignition system. Automotive engineering teachers assess these items are very required to be taught to students.
- f. Students can do the inspection, measurement, and setting the timing chain on a motorcycle. These items are considered very needed by teachers in the implementation of learning.
- g. Students can explain the working principle and the kinds of motorcycle fuel system. These competencies are considered highly needed by the respondent. Learning gains was used as material to be taught to students.
- h. Students can perform maintenance, repair and inspection of the motorcycle carburetor. Respondents considered these items are very required to be ruled by prospective teachers, as a material to be informed to the students.
- i. Students can explain the principles and workings of the power transfer system of the motorcycle. These items assessed need of the teacher in the implementation of learning.
- j. Students can perform maintenance, repair and inspection of the motorcycle power transfer system. These items are needed for the teacher. Learning outcome was used as material to be taught to students.
- k. Students can explain the maintenance, repair and inspection of brakes and suspension systems of motorcycles. Automotive engineering teachers assess these items are very required to be taught to students.
- l. Students can explain the working principle, inspection and repair of cooling and lubrication systems. Respondents considered these items are required to be controlled by the teacher, as a material to be informed to the students.
- m. Students can explain the working principle and system checks the starter. These competencies are considered highly needed by the respondent. Learning outcome was used as material to be taught to students.

From the results of a structured interview to the respondents, showed that in general are perceived learning outcomes is needed to be controlled by the teacher of automotive engineering as a material to be taught to students. Learning outcome are determined by the study program of mechanical engineering education in state university of Jakarta, in this study proved to meet the needs of automotive engineering teacher as a transmitter of knowledge to the students in the school.

5. Conclusion

Based on the results of data collection and analysis results, it can be concluded that there is relevance between the learning outcome at the subject of motorcycle and small motor set by the study program of mechanical engineering education in state university of Jakarta with the need of automotive engineering teacher. In general, the respondents in this case the automotive engineering teacher considers and assessing, about learning outcome at the subject of motorcycle and small motor is very needed to be controlled by the teacher as information and knowledge to be delivered to students at school.

So the conclusion that, there is the relevance of learning outcome in university with the need of the automotive engineering teachers in vocational high school.

5.1 Suggestions and recommendation

This study can be used as a reference in educational environments for educational purposes are integrated at every level can be realized. State university of Jakarta have proven the existence and role in achieving that goal. Moreover, education is the main basis of nation-building in this globalization era. Show that Indonesia could, Indonesia is ready and able to walk side by side with the ASEAN countries to meet Asean Economy Community. Love always Indonesia....

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