

The Influence of Learning Models and Motivation Learning on Motorbike Mechanic Competence in Motorcycle Engineering Training in Bandung District

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Abstract—The Central Statistics Agency (BPS) showed that West Java Province experiencing an increase in unemployment around 0.46 million people a year. The Government, through the Community-Based Training Program (PBM), carries out educational activities and training for job seekers needs to be supported by careful planning with an effective learning model. The aim to be achieved in this study was to determine the effect of problem-based learning models (PBL) and project-based learning models (PjBL) with learning motivation on the competence of motorcycle mechanics in motorcycle engineering training in Bandung District. The research method used is an experimental research method with a quasi-experimental design. The population shown in this study were participants in the training of motorcycle mechanic competencies in Lengkong Village, Bojongsoang Sub-district, Bandung District. The sampling technique for this study is to use purposive sampling. The result show that the Program Based Learning Model or Project Based Learning model is an appropriate learning model for Education and Training.

Keywords—*learning models; motivation learning; motorcycle engineering training*

I. INTRODUCTION

The Central Statistics Agency (BPS) showed that West Java Province in February 2017 experienced an increase in unemployment around 0.46 million people compared to February 2016. The open unemployment rate (TPT) is dominated by the Vocational High School which is 13.57 %. Then the next highest TPT is found in junior high schools (SMP) as much as 8.76%. The low competency or expertise possessed is the cause of rising unemployment.

Vocational Training Center (BLK) of Bandung Regency as the District Technical Implementation Unit (UPTD) of Bandung Regency Manpower Office provides skills training in order to realize skill competencies in order to be able to work in an area of expertise or open a business [1,2]. The training program in each village or sub-district is carried out for 30 days with a learning time of 8 hours a day. This certainly requires careful planning with an effective learning model. Likewise, other aspects that need to be considered regarding the learning motivation of the participants because learning is expected to

be able to achieve targets both with motivated and unmotivated participants in order to create competent training output [3,4].

The training is carried out aimed at providing experience in improving the competencies that must be possessed in order to become a professional person. Training is carried out through the implementation of learning which is usually carried out programmatically in a relatively short time. In this case an innovative learning model is needed so that the training material can be delivered according to the expected goals with a predetermined time [5-7].

Learning models are learning strategies that deliberately designed to create an innovative constructive learning process so that learning objectives can be achieved effectively and efficiently. Learning model is a plan or pattern that can be used to form a curriculum (long-term learning plan), design learning materials, and guide learning in the classroom or another by considering the objectives to be achieved and from the point of view of participants. Learning models that must be applied to build constructive learning with the characteristics of the learning process, namely student-centered, problematic, process of finding, social interaction, and new knowledge or understanding [8-10]. The constructive learning model in this study will be discussed about problem-based learning models and project-based learning models.

II. MATERIAL AND METHODS

A. Participants

The sample in this study was the overall training participants of motorcycle mechanic competence in Lengkong Village, Bojongsoang sub-district, Bandung District as many as 20 participants.

B. Data Collection

Data collection was taken from participants learning outcomes and using a questionnaire given to 20 training participants of motorcycle mechanic competence in Lengkong Village, Bojongsoang sub-district, Bandung District who were divided into 4 groups.

C. Method

In this study 30 journals were reviewed with details of the article Problem based Learning and Project based learning. The literature search process was carried out from reputable and Journals namely Scopus by science direct, Taylor & France, Sage Journal and Springer. The articles were analyzed, the key words were conceptualized from a literature review process and the findings analyzed the relation to the research objectives.

III. DISCUSSION

A. Problem Based Learning

Problem Based Learning is an innovation in learning that requires the ability of learners optimally through the process of group work systematically. Problem Based Learning (PBL) is an active learning method where students acquire and develop top-level skills through meaningful activities such as problem solving and critical thinking while increasing information from their previous experiences and gaining certain knowledge about their own learning [11-13]. This model requires the active role of students to be able to achieve the expected problem solving according to the learning objectives. Meanwhile, purpose PBM objectives in more detail, namely: (1) helping students develop thinking and problem-solving abilities; (2) learning various adult roles through their involvement in real experiences; (3) become autonomous students [14-15]. So, that students become independent in building their thoughts and understanding that involve cognitive and their experiences in the real world The Characteristics of problem-based learning are as follows [11]:

- Problems become a starting point in learning
- The problems that are released are problems that exist in the real world that are not structured
- Problems require multiple perspectives
- Problems, in-depth knowledge by students, attitudes and wholeness that then require learning needs and new fields of learning
- Learning towards yourself is the main thing
- Monitoring of diverse knowledge, their use, and evaluation of information resources available in the teaching and learning process
- Learning is collaborative, communication, and cooperative
- Questions for development and specialization of problems by strengthening knowledge to find solutions to a problem
- The process of openness in the teaching and learning process includes synthesis and integration of the learning process
- The teaching and learning process involve discussion and review of students' experiences and learning processes

Instructors must use learning that can move participants towards greater independence and life. For this reason, the instructor's learning environment must be reflective, critical evaluation and efficient ways of thinking. This is the role of facilitator who is assisting and supporting student learning but not offering any conclusive answers or simple solutions. Building a democratic process and emphasizing the active role of participants. The steps of problem-based learning are on the table below [14,16]:

TABLE I. THE STEPS OF PROBLEM BASED LEARNING

Phase	Indicator	Educator's behavior
1	Student orientation to problems.	Explain learning objectives, explain the logistics needed, and motivate students to engage in problem solving activities
2	Organizing students to learn.	Helping students define and organize learning tasks related to the problem
3	Guiding individual / group experience.	Encourage students to gather appropriate information, carry out experiments to get explanations and solutions
4	Develop and present work.	Helping students in planning and preparing appropriate works such as reports, and helping them to share assignments with their friends
5	Analyze and evaluate the problem solving process.	Helping students to reflect or evaluate their investigations and the processes they use.

Based on the explanation that has been stated, it is concluded that the problem-based learning model is a learning strategy in which students are faced with problems as stimuli to build skills in determining the right steps to solve each problem faced.

1) Advantages and weaknesses of Problem based Learning models: The advantages and weaknesses of problem based learning models: Advantages of Problem Based Learning Models 1) There is dynamic interaction between educators and students, students with educators, students and students. 2) Students have problem-solving skills. 3) Students have the ability to learn the role of adults. 4) Students can become independent and independent learners. 5) Students have high-level thinking skills. While, weaknesses of Problem Based Learning Models 1) Allows students to become bored because they have to deal directly with problems. 2) Enable students to have difficulties in processing a number of data and information in a short time, so that Problem-Based Learning takes a relatively long time [17-18].

B. Project Based Learning

Project based learning (PjBL) is a learning method by using a project or task as a learning media. Project-based learning is a constructive learning strategy that provides opportunities for students to think creatively and solve problems in developing their own knowledge creating new knowledge developed in the learning process [18-20]. With this method, students explore, assess, interpret and synthesize information to obtain a product as a result of their learning. For this reason, project-based learning activities are usually long-term and include several interdisciplinary disciplines. Project based learning resembles

problem-based learning because the beginning of learning is based on problems that must be expressed, and group learning activities that give rise to an active learning environment [5,9]. The difference lies in objects where problem-based learning requires problem formulation, data collection and analysis while in project-based learning, students are more encouraged in designing or designing activities from starting: formulating work, designing, calculating, carrying out work and evaluating results. Project based Learning Characteristics, namely [21]:

- Learners create frameworks and decisions.
- There are problems and solutions that have not been determined beforehand.
- Learners design processes to determine results.
- Learners are responsible for managing information obtained.
- There is a continuous evaluation.
- Learners regularly see the results of their work.
- The final product is the quality tested.

TABLE II. THE STEPS OF PROJECT BASED LEARNING

No	Step	Explain
1	Start With the Big Question	Learning begins with a big question that is meaningful, which is a question that can assign students to do an activity
2	Design a Plan for the Project.	Planning contains the rules of the game, the selection of activities that can support in answering the big questions that are meaningful, by integrating various possible subjects, and knowing the tools and materials that can be accessed to assist in the completion of the project
3	Create a Schedule.	Teachers and students collaboratively arrange a schedule of activities in completing the project. Activities at this stage include: (1) creating a timeline for completing projects, (2) making deadlines for project completion, (3) bringing students to plan new ways, (4) guiding students when they make ways that are not related to project, and (5) asking students to make an explanation (reason) about choosing a method.
4	Monitor the Students and the Progress of the Project.	The teacher is responsible for monitoring the activities of students during project completion. Monitoring done by facilitating students in each process. In other words, the teacher has the role of being a mentor for the activities of students.
5	Assess the Outcome.	Assessment is carried out to assist teachers in measuring standard achievement, play a role in evaluating the progress of each student, giving feedback about the level of understanding that has been achieved by students, helping teachers in developing the next learning strategy

Table 2. Cont.

6	Evaluate the Experience.	At the end of the learning process, the teacher and students reflect on the activities and results of the project that has been carried out. Teachers and students develop discussions in order to improve performance during the learning process, so that eventually a new inquiry is found to answer the problems raised in the first phase of learning.
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The real difference between PjBL and PBL is seen from the procedure, namely the procedure used by PjBL is planning, implementing / creating, and processing while PBL identifies the problem, confronts new information with its experience, and processes the discovery of personal knowledge.

Based on the description above, what is meant by project-based learning is a learning strategy that involves students in problem solving activities and other meaningful tasks in constructing their own learning to be able to produce knowledge and organize projects in learning.

1) Advantages and weaknesses of Problem based Learning models: The advantages of Project Based Learning include:

- Increase motivation, where students are diligent and try hard in achieving projects and feel that learning in projects is more fun than other curriculum components.
- Improving problem solving skills, from various sources describing a project-based learning environment makes students more active and successful in solving complex problems.
- Improving collaboration, the importance of group work in projects requires students to develop and practice communication skills.
- Improve resource management skills, if implemented properly, students will learn and practice in organizing projects, making time allocations and other resources such as equipment to complete tasks.
- Improve the skills of students in managing learning resources.
- Encourage students to develop and practice communication skills.
- Provide learning experiences that involve students
- Complex and designed to develop according to the real world.
- Making the learning atmosphere enjoyable, so that students and educators enjoy the learning process.

As a learning model, of course the project-based learning model also has the weaknesses of project-based learning:

- Requires a lot of time to solve problems and
- produce products.
- Requires sufficient costs.

- Requires teachers who are skilled and willing to learn.
- Requires adequate facilities, equipment and materials.
- Not suitable for students who give up easily and do not have the knowledge and skills needed.
- Difficulty involving all students in group work.

Project based learning model is able to create an atmosphere of effective learning, which provides direct experience to students as well as students can find their own concepts, and can develop mastery of the material. Besides, developing soft skills of students. The values contained in soft skills such as those presented earlier, are values that are able to realize that can be approached using a learning strategy approach. The learning integration strategy uses the project in an effort to grow and provide.

IV. CONCLUSION

Each learning model has its own strengths and weaknesses. The task of the instructor as an educator and facilitator must use the strengths and weaknesses with the right strategy. In education and training both of these education programs are deemed suitable to be implemented because of the development of a balanced cognitive, affective and psychomotor domain. As well, this second model provides a real experience in the learning process applied in education and training in achieving soft skills development. The result show that the Program Based Learning Model or Project Based Learning model is the right learning model for Education and Training.

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