Library Progress International *Print version ISSN 0970 1052*
Vol.44 No.3, Jul-Dec 2024: P. 26486-26489 *Online version ISSN 2320*

Original Article *Available online at www.bpasjournals.com*

PROJECT-BASED COOPERATIVE LEARNING NEEDS ASSESSMENT MODEL

Yolnasdi , Wakhinuddin , Hendry, Reno Renaldi

Universitas Negeri Padang, Indonesia.
Universitas Negeri Padang, Indonesia.
Universitas Negeri Padang, Indonesia.
Universitas Hang Tuah Pekanbaru

How to cite this article: Yolnasdi , Wakhinuddin , Hendry, Reno Renaldi (2024) PROJECT-BASED COOPERATIVE LEARNING NEEDS ASSESSMENT MODEL. *Library Progress International,* 44(3), 26486-26489

ABSTRACT
"This study aims to assess the need for developing a project-based cooperative learning model. This research used survey method. The subjects in this study were 100 students of Electrical Engineering Study Program in Pekanbaru city. Data collection was conducted using indirect communication through questionnaires given to students to measure the components of the project-based cooperative learning model in the Electrical Power Installation practicum course. The conclusion of this study shows that the need to develop a project-based cooperative learning model is feasible because this model encourages cooperation among students and the application of theory into real practice. This not only enhances the understanding of technical concepts but also develops important skills such as problem solving, communication, and teamwork which are highly relevant to current industry needs
.**KEYWORDS**

Introduction

Vocational education is an integral part of the educational system aimed at preparing graduates to be ready for the workforce in the industrial sector. One of the crucial courses in vocational education is the Electrical Installation Practicum. This course requiMelyanti, R., & Ambiyar, F. R. (2023). Validity And Practicality Of The Cooperative Project Based Learning Model On Smart Learning Environment In Java Programming Courses. *Journal of Namibian Studies …*, *34*, 3569–3586. https://namibian-studies.com/index.php/JNS/article/view/1851
res a deep theoretical understanding as well as practical skills in electrical installation, maintenance, and repair of electrical power systems. With the advancement of technology and industry needs, effective and relevant teaching methods are increasingly important to ensure that graduates have the necessary competencies.

Menurut (Markham, T., Larmer, J., & Ravitz, 2003) Project-Based Learning (PBL) has been recognized as an effective approach in vocational education. PBL involves students in real-world projects that require the application of their knowledge and skills in practical situations. By working on projects relevant to the workplace, students can develop critical thinking, problem-solving abilities, and technical competencies needed in the industry .

On the other hand, Cooperative Learning (CL) is a pedagogical approach that involves students working together in small groups to achieve common learning goals (Johnson & Johnson, 1999) . This method can enhance students' social, communication, and collaboration skills, which are crucial in a professional work environment . The combination of PBL and CL, known as Project-Based Cooperative Learning (PBCL), has shown promising results in various educational contexts, especially in increasing student engagement and motivation .

However, to implement PBCL effectively in the Electrical Installation Practicum course, a needs assessment is necessary. Needs assessment is a systematic process to identify and evaluate the educational and training needs

of students, as well as the gap between the current competencies of students and those expected by the industry. Through this assessment, educational institutions can design curricula and teaching methods that are more aligned with the needs of students and the demands of the industry. This research aims to develop a needs assessment model based on PBCL for the Electrical Installation Practicum course. This model is expected to help identify the specific needs of students in developing relevant practical and technical competencies and facilitate the effective implementation of PBCL in the learning process.

One of the key advantages of PBCL is its ability to foster a sense of ownership and accountability among students. When students are responsible for a project that has tangible outcomes, they are more likely to be invested in their learning. This investment translates into higher levels of motivation and engagement, as students see the direct relevance of their work to real-world applications. According to (Blumenfeld, P. C., Soloway, E., Marx, R. W., Krajcik, J. S., Guzdial, M., & Palincsar, 1991) students involved in PBCL projects often demonstrate improved problem-solving skills and a greater ability to work effectively in teams, skills that are highly valued in the workplace .

In addition, PBCL supports the development of important 21st century skills, such as critical thinking, creativity, and collaboration. In a PBCL environment, students must navigate complex tasks that require innovative solutions and effective communication with their peers. This process not only enhances their cognitive abilities, but also prepares them for the collaborative nature of the modern work environment. Research by (Johnson & Johnson, 1999) shows that students involved in cooperative learning environments tend to exhibit better interpersonal skills and higher academic achievement compared to those in traditional learning environments. In addition, it is conveyed by (Melyanti & Ambiyar, 2023) in his research mentioned that the project-based learning model (PjBL) effectively stimulates and motivates students to solve problems and develop their potential, with the prerequisite of a strong understanding of knowledge concepts before starting the project. By incorporating these elements into vocational education, PBCL helps bridge the gap between academic knowledge and practical skills, ensuring that students are well prepared to face the demands of the industry.

NEED ASSESSSMENT

A needs assessment is conducted to identify the needs, objectives, content, implementation, target population, and outcomes of the intervention (Cohen, L., Manion, L., & Morrison, 2002). population, and intervention outcomes (Cohen, L., Manion, L., & Morrison, 2002). It is important to find information about specific needs. A needs assessment was conducted to find the institution's needs for development of project-based cooperative learning model because Universities who want to develop and implement the model need to know the needs expected by the students and the teachers.needs to know the needs expected by students and lecturers. Student needs: Assess the needs, interests, and characteristics of students. Consider various learning styles, readiness levels, and backgrounds of students.Industry and Workplace Needs: Ensure that the learning model is relevant to real-world needs, especially if it relates to work readiness or skills required in the industry (Jonassen et al., 2006).

2. Scope and Methodology

This research uses a survey method. The survey method was used to conduct

needs analysis in order to design a project-based cooperative learning model in the electric power installation practicum course. The survey method can be used as the basis of learning product development (Borg, W.R. & Gall, 2007).

The basis of the needs analysis for the project-based cooperative learning model in the Electrical Power Installation course comes from data on (1) learning models used by lecturers in teaching electrical engineering in higher education, (2) the existence of textbooks and learning tools used by lecturers in the electrical power installation course, (3) responses from lecturers and students about the plan to develop a project-based learning model, (4) responses from lecturers and students about their understanding of best practices in the electrical power industry, and (5) responses from lecturers and students that reflect the technical skills and professionalism values expected in the field of electrical power installation.

The population of this study were lecturers of electrical engineering study programmes, and students of electrical engineering study programmes in two universities in Pekanbaru city. Sampling the research sampling was determined by the presumptive sampling technique. Samples of lecturers and students the sample of lecturers and students was determined by selecting two universities in the city centre. In each college, 5 teachers were selected so that the total sample consisted of 10 lecturers. The sample for students was set at 100 people.

The data collected were sourced from lecturers of electrical engineering study programme and students of electrical engineering study programme. The variables that become the object of study in this research are (1) lecturers' responses about the models and learning tools used in the practicum course of electrical power installation, (2) lecturers responses about the development plan of the project-based cooperative learning model, (3) students responses about the effectiveness of the models and learning tools used, (4) students responses about the technical skills obtained from the practicum course of electrical power installation, and (5) students' responses about the values of professionalism and teamwork developed through the project-based cooperative learning model.

The research data were collected using questionnaires, interviews, and observations. The questionnaire technique was used to collect all research variables. The interview technique was used on lecturers and students, while the observation technique was only used on lecturers both in the learning process and its supporting devices. The purpose of conducting interviews and observations is to match the responses that have been expressed in the questionnaire. The material of the interview guidelines for lecturers and students and lecturer observation guidelines used used indicators that adjust to the indicators of the questionnaire material. To analyse the research data, descriptive analysis techniques were used.

3. Literature Review

This study was conducted to determine the needs assessment of the project-based cooperative learning model required. This is It is important to prepare the design related to the target users of the model according to the needs of the students, lecturers, and the University. Then prepare the content, teaching materials, subject matter, tests and feedback, student activities such as discussions, to collaborate with each other, testing and evaluation strategies applied in the learning process.and evaluation strategies applied in the learning process (Ahmad, 2012) Project-based Co-operative Learning Model. According to (Zaturrahmi et al., 2017), based on the research data on the learning process through the project-based STAD type cooperative learning model to make simple experimental tools from the three cycles that have been implemented, there is an increase in the learning process.

4. Result and Discussion

This research presents the responses of lecturers and students to the development of a project-based cooperative learning model. The project-based cooperative learning learning model was developed for the electrical power installation practicum course for fourth semester students.

The results of the research that became the basis for development were obtained from lecturer and student respondents.The results of the research are presented in Table 1. Table 1 shows that lecturers' responses about the models and learning tools used in the practicum course of electric power installation are moderate. lecturers' responses about the development plan of the project-based cooperative learning model are moderate. This indicates that the project-based cooperative model has not been used as a policy basis as a strategic basis for learning by lecturers. Meanwhile, students responses on the effectiveness of the model and learning tools used were categorised as moderate and students' responses on the values of professionalism and teamwork developed through the project-based cooperative learning model. These responses make an indication of the importance of development, so the development of the learning model is a necessity to do.

Lecturers responses to the learning models and tools used in the current electrical power installation practicum course are categorised as insufficient. This response indicates that the models and learning tools are not fully effective and have not accommodated the needs of applicable and collaborative learning. The results of interviews with lecturers as well as observations of learning and documents such as syllabi, lesson plans, and practicum modules used by lecturers to date tend to confirm that the learning models and tools used are still conventional, containing general concepts and principles without real project applications. Lecturers' responses about the development plan of project-based cooperative learning model are positive. This response implies that learning so far has not integrated a project-based approach that supports teamwork and practical skills development.

After matching with interviews and observations of teaching materials and learning tools, these responses indicate the need for updates and adjustments in the learning model. Students responses on the effectiveness of the current learning model and tools were moderate, indicating a need for improvement in technical skills and professionalism values through a more interactive and collaborative approach. Students' responses on the technical skills and professionalism values gained from this course were categorised as good. This response is an indication of their support for the plan to develop a project-based co-operative learning model. Lecturers' and students' responses on the development of the project-based cooperative learning model and tools were categorised as excellent. This

response indicates the importance of the development, so that the development of the model and learning tools is a necessity to be done.

Table 1. shows that lecturers' responses about the models and learning tools used in the practicum course of electric power installation are moderate.

5. Conclusion

Based on the results of the research and discussion, it can be concluded as follows. It has been needs analysis of the development of a project-based cooperative learning model in the electric power installation practicum course has been carried out. The results of the analysis

analysis results show that the development of the learning model is very important and feasible to be done.

Conflict of interest The author declares that there are no conflicts of interest regarding the publication of this dissertation. All aspects of this research, including the design, data collection, analysis, and interpretation, were conducted with full academic integrity and independence.

References

[1] Ahmad, S. A. M. J. (2012). The Use of Formative Assessment Techniques in Science Subject in Primary One: A Case Study. *The Asian Conference on the Social Sciences*, *2*, 19–31.

[2] Arikunto, S. (1998). *Prosedur Penelitian Suatu Pendekatan Proses*. Reneka Cipta.

[3] Arikunto, S. (2010). *"Prosedur penelitian suatu pendekatan praktek*.

[4] Blumenfeld, P. C., Soloway, E., Marx, R. W., Krajcik, J. S., Guzdial, M., & Palincsar, A. (1991). Motivating project-based learning: Sustaining the doing, supporting the learning. Educational psychologist. *Educational Psychologist*.

[5] Borg, W.R. & Gall, M. . (2007). *Educational Research: An Introduction*. Longman.

[6] Cohen, L., Manion, L., & Morrison, K. (2002). *Research methods in education*. Routledge.

[7] Johnson, D. W., & Johnson, R. T. (1999). Making cooperative learning work. *Theory into Practice*, *38*(2), 67–73. https://doi.org/10.1080/00405849909543834

[8] Jonassen, D., Strobel, J., Lee, C., Technologies, L., Programme, E. T., Sciences, L., & Group, T. A. (2006). Everyday Problem Solving in Engineering : *Journal of Engineering Education*, *9*(2), 139–151. http://onlinelibrary.wiley.com/doi/10.1002/j.2168-9830.2006.tb00885.x/abstract

[9] Markham, T., Larmer, J., & Ravitz, J. (2003). *Project based learning handbook: A guide to standards-focused project based learning for middle and high school teachers*.

[10]Melyanti, R., & Ambiyar, F. R. (2023). Validity And Practicality Of The Cooperative Project Based Learning Model On Smart Learning Environment In Java Programming Courses. *Journal of Namibian Studies: History Politics Culture*, *34*, 3569-3586.

[11] Zaturrahmi, Z., Hamdi, H., & Ratnawulan, R. (2017). Penerapan Model Pembelajaran Kooperatif Tipe Stad Berbasis Proyek Membuat Alat Eksperimen Sederhana Untuk Meningkatkan Aktivitas Belajar Dan Kompetensi Fisika Siswa Di Kelas Xi Tkr Smk Adzkia Padang. *Gravity : Jurnal Ilmiah Penelitian Dan Pembelajaran Fisika*, *3*(2), 172–186. https://doi.org/10.30870/gravity.v3i2.2601