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Examining the Effectiveness of an Entrepreneurship Module Integrated with Project-Based Learning

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Abstract
This study aims to test the effectiveness of an entrepreneurship learning module integrated with the Project-Based Learning (PjBL) model for students of Economics Education at Pamulang University. This study uses a Research and Development (R&D) approach by adapting the Borg and Gall model. The instrument used in this study was a test given to 20 students taking the entrepreneurship course. Data collection techniques included student response questionnaires, as well as pre-tests and post-tests. The results showed a significant increase in student learning outcomes that the sig a value of 0.000 <0.005, which means that there is a significant difference in student learning outcomes before and after using the project-based learning module. This finding indicates that the module is effective in improving students' understanding of entrepreneurship material. In addition, the discussion shows that the use of the PjBL-based module not only improves cognitive abilities but also strengthens students' self-confidence, creativity, collaboration skills, and problem-solving. Therefore, this module is considered feasible and has a positive impact as an entrepreneurship learning tool in higher education.

INTRODUCTION

Entrepreneurship plays a crucial role in strengthening the pillars of national economic development, particularly amidst the challenges of unemployment and increasingly complex global competition. The Indonesian government continues to optimize the presence of entrepreneurs, targeting an increase in the entrepreneurship ratio of 3.95% by 2024 in an effort to achieve economic independence (Bappenas, 2022). However, this data indicates a serious challenge, as seen in the data. The open unemployment rate among university graduates is at 4.83% for diploma I/II/III degrees and 5.25% for diploma IV to doctoral degrees. Furthermore, according to data from the Central Statistics Agency (BPS), the number of unemployed in August 2024 reached 7.47 million people, an increase of 0.27 million people (3.75 percent) compared to February 2024 (7.20 million people) (BPS, 2024). Furthermore, the presence of universities is expected to produce young entrepreneurs with talent and high competitiveness. Based on observations of Economics Education students at Pamulang University, they view entrepreneurship as limited to theory without any direct experience in developing business ideas that can be actualized in the students' real lives.

One of the reasons for the weak achievement of these expectations is the learning approach that does not fully encourage students to be more contextually active in generating and actualizing ideas. Learning that focuses more on discussion methods carried out by lecturers has actually closed off students' creative and innovative space to explore through real-life experiences. This results in students having difficulty actualizing theory in practice and are less encouraged to develop creativity and entrepreneurial initiatives. Other problems such as supporting facilities and infrastructure, such as the existence of specific laboratories for student practice, are one of the obstacles for students in implementing the theory they have learned in class (Wita, 2019). Students also have limited opportunities for direct learning to practice skills in actualizing ideas, one of which is through a structured and systematic internship program in the curriculum (Siswadi, 2013).

Learning in higher education is carried out in an effort to develop students' thinking and social skills (Kusworo & Rahayu, 2020). A learning model that has been proven effective in training students' critical

and creative thinking skills is the project-based learning (PJBL) model (Andirasdini & Fuadiyah, 2024; Lestyoningsih & Hidayati, 2020; Pratiwi & Setyaningtyas, 2020). This model provides opportunities to activate students in learning activities (Anggraini & Sukardi, 2016). The PJBL learning model effectively improves the quality of learning where students skillfully apply their knowledge in the learning process (Utama et al., 2020). This is certainly with PJBL learning effectively can improve student learning outcomes and is interesting to implement in learning (Manggala & Nugraha, 2021; Maros et al., 2023). However, to ensure this approach runs optimally, appropriate learning tools are needed, such as modules that can guide students systematically and effectively. The use of learning resources such as modules can also make a positive contribution to improving the quality of learning, such as training students' learning independence and collaboration skills (Anggraini & Wulandari, 2020; Prasetya & Sukardi, 2016)

Many researchers have conducted research related to the PJBL model, but most focus on the model's application in learning (Anggraini & Wulandari, 2020; Lestyoningsih & Hidayati, 2020; Pratiwi & Setyaningtyas, 2020). Furthermore, the use of modules as learning resources integrated with the PJBL model is still lacking, with the focus instead on other models such as student companies and entrepreneurship modules (Anggraini & Sukardi, 2016; Prasetya & Sukardi, 2016). This presents an important gap and opportunity for this research. This research not only develops a PjBL-based entrepreneurship module but also tests its effectiveness on students. Thus, this research is here to meet the need for contextual, measurable, and applicable teaching materials. Based on the explanation above, the main objective of this study is to develop and test the effectiveness of a Project-Based Learning (PjBL) entrepreneurship learning module for Economics Education students at Pamulang University. More specifically, this study aims to design a module that aligns with the PjBL approach and student needs and to examine the impact of module use on student learning outcomes and entrepreneurial skills. It is hoped that this module can be a learning solution that can foster entrepreneurial spirit and competence among students.

METHODS

This study adopted a Research and Development (R&D) approach with the primary objective of testing the effectiveness of an entrepreneurship learning module designed using the Project-Based Learning (PjBL) model. The applied development model refers to the stages developed by Borg and Gall (Borg & Gall, 1983). Although this model consists of ten steps overall, this study only included the initial seven steps, deemed most relevant and sufficient to produce a viable product ready for testing. This research was conducted in the Economics Education Study Program at Pamulang University, focusing primarily on 20 students taking the Entrepreneurship course during the field test. The lecturer in charge of the course was also involved to ensure the module's suitability to field needs.

To collect the necessary data, the researchers employed several data collection techniques: a student response questionnaire after using the module to evaluate the module's ease of use, engagement, and usefulness; and a learning outcome test, consisting of a pre-test and post-test, to measure the module's impact on improving students' entrepreneurial knowledge and skills.

RESULTS AND DISCUSSION

A. Result

The research results provide an overview of the implementation of an entrepreneurship module based on Project-Based Learning. The research focused on evaluating the module's effectiveness in improving students' understanding of entrepreneurship material. Effectiveness was measured by comparing the results of a pre-test and post-test conducted before and after the learning process using the module. This test was used to determine the differences in learning outcomes obtained by students before and after the learning process was implemented. The test used in this study was a paired sample t-test, which can be seen in Table 1 below.

Table 1. Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pretest	62.6750	20	6.36792	1.42391
	Postest	74.1700	20	5.81596	1.30049

Table 1 above shows a description of the pre-test value data obtained an average learning outcome of 62.67. While for the post-test obtained an average learning outcome of 74.17. Based on this description because the average pre-test 62.67 < the average post-test 74.17, empirically there is a difference in the average learning outcomes of the pre-test and post-test. This shows that descriptively there is a difference in the average learning outcomes of students before using the project-based learning entrepreneurship learning module and after using the project-based learning entrepreneurship learning module. To see the effect of using the project-based learning entrepreneurship learning module in this study can be seen in Table 11 below.

Table 2. Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Pretest - Postest	-11.49500	6.71734	1.50204	-14.63881	-8.35119	-7.653	19	.000

Based on Table 11 above, it can be seen that the Sig value (2-tailed) shows a value of 0.000. This shows that the sig value of 0.000 <0.005, which means that there is a significant difference in student learning outcomes before and after using the project-based learning module. In addition, it can also be seen that the t-count value is greater than the t-table, which is 7.653 > 2.861. This shows that there is a significant difference in student learning outcomes before and after using the project-based learning module for entrepreneurship. This is supported by the results of previous research conducted by (Prasetya & Sukardi, 2016), which showed an increase in student understanding by using the developed module in the medium category with an average gain score of 0.62 and a difference in value (effect size) of 14.5 with a student completion percentage of 87%. Overall, these results indicate that learning using project-based modules provides a more realistic, enjoyable learning experience and has a direct impact on improving student learning outcomes.

B. Discussion

The research results above indicate an increase in student learning outcomes, as seen from the pretest and posttest. This finding aligns with several other studies on the implementation of PjBL in entrepreneurship courses, which show an increase in learning outcomes, as seen from the pretest and posttest (Affandi et al., 2021). This means that PJBL learning has provided students with the opportunity to internalize entrepreneurship theory more deeply and implement it in real-world projects. This is in accordance with constructivism theory, where direct learning practices can provide a good understanding of concepts and create student activeness and a learning process that can be controlled independently by students (Löbler, 2006). Students will directly construct knowledge through authentic experiences in the real world (Sioukas, 2023).

Learning using independent learning resources, in this case integrated modules using the PJBL model, in fact not only provides a positive contribution to improving students' cognitive abilities. Furthermore, this learning can provide students with confidence in taking (Masdarini et al., 2024). The PjBL learning stages provide students with experience starting from the implementation of learning, from preparation to evaluation of the project program being carried out. In addition, students gain experience in creativity in the learning environment (Andirasdini & Fuadiyah, 2024; Pratiwi & Setyaningtyas, 2020).

Current 21st-century learning activities demonstrate the ability of collaboration, communication, creativity, and critical thinking (Chitamba et al., 2025; Lestyoningsih & Hidayati, 2020). This can be

demonstrated in entrepreneurship learning using integrated PJBL modules which provide students with skills in problem-solving. The student paradigm is related to entrepreneurial characteristics, namely being able to solve problems quickly and responsively to change (Kusworo & Putranto, 2018). This certainly confirms that using independent learning modules is relevant to global trends in entrepreneurship education. In addition, this learning also equips students to master the skills needed to solve problems in the real world.

In addition to cognitive and affective aspects, modules also appear to foster practical skills such as collaboration and project management. Santoso et al. (2023) found that the Project-Based Learning (PjBL) model facilitates students in developing prototypes and real-life business products. This demonstrates that with the right modules, students not only learn theory but also directly apply it in real-world contexts, enhancing the relevance and impact of their learning.

CONCLUSIONS AND SUGGESTIONS

A. Conclusion

This study reveals that an entrepreneurship learning module integrated with the Project-Based Learning (PjBL) model has been developed and proven effective in improving the learning outcomes of Economics Education students at Pamulang University. The increase in scores from pre-test to post-test indicates that the implementation of this module can encourage a deeper understanding of concepts and strengthen students' confidence in taking action. This module not only provides theoretical understanding but also trains 21st-century skills such as creativity, collaboration, problem-solving, and independence in learning. Therefore, the PjBL-based module is highly suitable as a strategic alternative in entrepreneurship learning in higher education.

B. Suggestion

Lecturers and program managers are advised to integrate PjBL-based modules into entrepreneurship learning on an ongoing basis to improve the quality of the process and student learning outcomes. Future module development can be enriched with interactive digital elements, local case studies, and structured reflections to make them more contextual and engaging. Future researchers are encouraged to test the effectiveness of this module on a broader scale and in other learning contexts, and explore its impact on students' entrepreneurial attitudes and behaviors in greater depth.

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