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Bridging Gaps in Entrepreneurial Learning: A Needs Analysis of Project-Based Education

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ABSTRACT

This study aims to identify the main gaps in project-based entrepreneurship learning by analyzing students' needs, thereby formulating more effective strategies for implementing this method. The analysis seeks to identify aspects that need improvement in the design and implementation of projects, as well as provide data-driven recommendations for developing a more relevant curriculum. The researchers employed a descriptive quantitative approach to identify the gaps in project-based entrepreneurship learning based on students' perceptions. A needs analysis was conducted through surveys using questionnaires, while a literature review was used to strengthen the findings and compare them with previous studies. The research population consisted of students from the Faculty of Economics and Business, Jenderal Soedirman University, who had participated in project-based entrepreneurship learning. Data processing techniques involved calculating averages, standard deviations, and percentages to evaluate how students perceive the effectiveness of Project-Based Learning (PjBL). The results indicate that project-based learning in entrepreneurship effectively enhances students' critical thinking skills, creativity, and interest in entrepreneurship, although challenges remain in student engagement and alignment with industry needs. Strengthening the implementation of PjBL requires collaboration with industry, integration of innovative teaching methods, and policy support to optimize learning outcomes in entrepreneurship.

Keywords: Entrepreneurship Learning; Project-Based Learning; and Needs Analysis

1. Introduction

Entrepreneurship education has become a primary focus in various higher education institutions in response to the global demand for innovative and independent human resources. Entrepreneurship is closely tied to the changes and demands of the 21st century, such as the knowledge-based economy, digitalization, labor market dynamics, communication advancements, and issues of environmental sustainability (Darling-Hammond, Flook, Cook-Harvey, Barron, & Osher, 2020; Jenssen & Haara, 2019). Employment challenges due to competitive labor markets have driven developing countries and industries to pursue entrepreneurship, as it is seen as a key to market competition and improving economic welfare (Anwar & Abdullah, 2021). Higher education institutions play a strategic role in instilling an entrepreneurial mindset in students, either

independently or through collaboration with industry and society (Dewi, 2018). Many experts argue that entrepreneurship education can be a solution to employment challenges while promoting sustainable economic growth (Carpenter & Wilson, 2022; Fattah, 2025; Rideout & Gray, 2013). One of the primary objectives of entrepreneurship development is for universities to play a key role in enhancing students' entrepreneurial competencies, which are crucial for business success and economic development (Bosma & Kelley, 2019).

In Indonesia, entrepreneurship programs have long been implemented, particularly in formal institutions, to prevent an increase in youth unemployment (Natsir, Rasjid, Syawaluddin, & Mahmud, 2023). Tounés, Lassas-Clerc, and Fayolle (2014) conducted an analysis focusing on developing entrepreneurial competencies to create new ventures within students' academic environments. Conceptual models can also be developed to link entrepreneurial competencies with the performance and competitiveness of small and medium enterprises (Fransisca & Ie, 2023; Rindrayani, 2016). Various entrepreneurial learning models have been applied; however, not all approaches have proven effective in diverse cultural contexts and business ecosystems. Given the significant potential of entrepreneurship, there is a strong need for further research and better evidence on entrepreneurship education (Carpenter & Wilson, 2022). Further studies are required to evaluate the most effective methods for building entrepreneurial skills tailored to characteristics of students and local market needs. This inspires curriculum design in the education sector with experience-based learning designs and practical entrepreneurial activities to directly assess students' entrepreneurial proficiency (Ferreras-Garcia, Sales-Zaguirre, & Serradell-López, 2021).

An experience-based approach emphasizes active learning through hands-on practices or entrepreneurial projects that involve students in the development of real businesses (Rideout & Gray, 2013). Several studies have shown that the project-based learning (PjBL) method in entrepreneurship can enhance students' critical thinking, creativity, and problem-solving skills (Hägg & Kurczewska, 2020). Students involved in real business projects are more prepared to face challenges in the business world as they directly experience processes such as business planning, risk management, and decision-making in dynamic environments (Fayolle & Gailly, 2015). Additionally, other research highlights the importance of integrating local wisdom into entrepreneurship curricula as a strategy to strengthen culture-based innovation and improve business competitiveness (Astuti & Saefudin, 2024; Hamdan, 2024). However, although PjBL is expected to bridge the gap between entrepreneurship theory and practice, many studies indicate that its implementation still faces various challenges. A combination of specialized learning models in project-based entrepreneurship courses tailored to students' characteristics and industry needs is required (Noviyanti, Prakasa, Saldi, Sembadha, & Santana, 2024; Wibowo, 2017). A mismatch between curricula and industry demands persists, leaving students without the skills necessary to meet industrial challenges.

Lackéus and Williams Middleton (2015) in their research, called for the creation of a stronger and theory-driven framework to assess the tangible impacts of entrepreneurship education. Others argue for an increased emphasis on entrepreneurial capabilities through entrepreneurship education that aligns with the developments of globalization to support students' entrepreneurial growth (Dewi, 2018). These changes encourage learners to develop adaptive skills, competencies, and mindsets to thrive and excel in evolving situations (Du Toit, 2021). Thus, to make project-based learning more effective in enhancing students' entrepreneurial skills, a comprehensive needs analysis is required. This analysis can identify aspects that need

improvement in the design and implementation of PjBL and provide data-driven recommendations for developing a more relevant curriculum. This research aims to identify the main gaps in project-based entrepreneurship learning by analyzing students' needs, thereby formulating more effective strategies for implementing this method.

2. Literature Review

A learning model is a conceptual framework that outlines systematic steps to organize a learning system to achieve goals and serves as a guide for instructional designers and educators in conducting learning activities (Saefuddin & Berdiati, 2014). Learning models refer to frameworks or general plans used to structure the teaching and learning process (Chikita & Sari, 2023).

2.1 Entrepreneurship Education

Zimmerer, 1996 (Kasmir, 2011), states that entrepreneurship is a process of applying creativity and innovation to solve problems and discover opportunities to improve life (business). Entrepreneurship can also be defined as the process of establishing and running a business. Meanwhile, education is a learning process aimed at developing individuals' potential, skills, knowledge, and character to contribute effectively to society. Education is conducted in a structured and planned manner to develop students' potential, shaping individuals who are ready to contribute to community life (Herlambang, 2021). Thus, entrepreneurship education is a learning process aimed at developing individuals' potential, skills, knowledge, and character in the field of entrepreneurship, enabling them to contribute effectively to society.

Entrepreneurship education involves a set of educational efforts designed to develop broader skills and abilities related to entrepreneurship (Papagiannis, 2018). It has become an important area in higher education, implemented in both developed and developing countries (Anubhav, Dwivedi, & Aashish, 2024). In higher education, entrepreneurship education is necessary in any field, regardless of a person's area of study or profession (Susilaningsih, 2015). Entrepreneurship education programs at universities aim to train students interested in starting a business by playing a significant role in developing key skills, particularly in communication, operations, and management (Alakaleek, Harb, & Harb, 2023). Another primary goal is to enhance students' entrepreneurial competencies relevant to business success and economic development (Bosma & Kelley, 2019). Entrepreneurship education in higher education plays a crucial role in developing entrepreneurial skills and competencies that support business success and contribute to economic development. It is essential to continually develop entrepreneurship education in higher education to produce graduates equipped with entrepreneurial skills, competitiveness, and readiness to face economic challenges.

2.2 Project-Based Learning

A learning model refers to a framework or general plan used to organize the teaching and learning process. One of the recommended learning models today is project-based learning (PjBL), which utilizes projects as activities in the learning process. Project-Based Learning (PjBL) is an active, student-centered learning approach characterized by constructive inquiry, goal setting, collaboration, communication, and reflection within real-world practices (Kokotsaki, Menzies, & Wiggins, 2016). PjBL engages students in scientific inquiry, leverages cognitive tools, encourages collaboration, and fosters deeper conceptual understanding compared to traditional methods

(Krajcik & Blumenfeld, 2006). Ultimately, students demonstrate their new knowledge based on how much they have learned and how effectively they communicate it (Solomon, 2003).

PjBL has been explored in various contexts and across different educational levels, from primary education to higher education (Kokotsaki et al., 2016). Entrepreneurship education is one of the fields well-suited for the application of project-based learning. This approach encourages students to learn through hands-on experience via real business projects. Several studies have shown that the PjBL method in entrepreneurship enhances students' critical thinking, creativity, and problem-solving skills (Hägg & Kurczewska, 2020). Students involved in real business projects are proven to be better prepared to face business challenges as they directly experience processes such as business planning, risk management, and decision-making in dynamic environments (Fayolle & Gailly, 2015). Thus, the implementation of PjBL in entrepreneurship education not only improves students' conceptual understanding but also equips them with practical skills relevant to success in the business world.

3. Research Methodology

This study employs a descriptive quantitative approach to identify gaps in project-based entrepreneurship learning based on students' perceptions. The descriptive quantitative data analysis method is a technique used to systematically describe, present, or summarize data (Sulistyawati, Wahyudi, & Trinuryono, 2022). This approach involves statistical tools that assist in understanding data details by summarizing and identifying patterns from a specific sample (Sudirman et al., 2023). A needs analysis was conducted through a survey using questionnaires, while a literature review was utilized to strengthen findings and compare them with previous studies. The primary data for this study was obtained from questionnaires filled out by students who had participated in project-based learning in entrepreneurship courses. Meanwhile, secondary data was sourced from literature and prior research related to PjBL in entrepreneurship. The questionnaire was designed using a Likert scale (scale 1–5) to measure students' perceptions of the effectiveness of PjBL.

The research population consisted of students from the Faculty of Economics and Business at Universitas Jenderal Soedirman who had undergone project-based entrepreneurship learning. The researchers used a random sampling technique to select samples randomly from the population without applying specific criteria or characteristics. Sudirman et al. (2023), several techniques can be employed in descriptive quantitative analysis, including measures of central tendency (mean, median, mode), measures of data dispersion (range, variance, standard deviation, quartiles, deciles, percentiles), and measures of data skewness. This study utilized mean, standard deviation, and percentage to evaluate how students assessed the effectiveness of PjBL. The results were visualized in bar charts or pie charts to illustrate the distribution of responses. The collected literature was used to compare survey findings with prior research results. This comparison was performed using content analysis techniques to categorize findings based on key themes identified in the literature.

4. Results

The data collection measurement instrument used a questionnaire with a Likert scale ranging from 1 to 5. The questionnaire items were adapted from previous studies. (Candra, Waskito,

Erizon, & Wulansari, 2023; Farida, Djatmika, Siswoyo, & Witjaksono, 2017), which have been proven for their validity and reliability. Descriptive statistical analysis was conducted based on the lowest value, highest value, mean, mode, median, and standard deviation. The mean analysis results for each item in the instrument were described according to the categorical scale table in Table 1. Explanation: minimum score = 1; maximum score = 5; interval = 2 (5 – 1); and interval range = 0.8 ((5 – 1) / 5).

Table 1. Category Scale

Scale	Category
4,21 – 5,00	Very high
3,41 – 4,20	High
2,61 – 3,40	Currently
1,81 – 2,60	Low
1,00 – 1,80	Very Low

The descriptive statistical data processing results from 183 research respondents are presented in Table 2. The results show that all indicators had high mean values. Specifically, the indicator for enhancing students' entrepreneurial skills achieved a very high mean score of 4.3. The lowest mean score was found in the indicator of students' direct involvement in project-based entrepreneurship learning, which scored 3.6 (high category). Overall, the analysis results indicate that project-based entrepreneurship learning was well-received by students, with most indicators falling into the high or very high category, although students' direct involvement still has room for improvement.

Table 2. Descriptive Statistics Result

Indicators	Median	Mode	SD	Mean	Category
Alignment with 21st-Century Learning	4	4	0,6	4,0	High
Direct involvement of students in learning	3	3	1,0	3,6	High
Enhancing students' critical thinking skills	4	4	0,6	4,1	High
Improving students' entrepreneurial skills	4	4	0,6	4,3	Very high
Increasing students' interest in entrepreneurship	4	4	0,7	4,2	High
Alignment of PjBL implementation with the curriculum	4	4	0,6	4,2	High
Effectiveness of project-based entrepreneurial learning	4	4	0,7	4,1	High

Source: Processed research data, 2024

Furthermore, based on the analysis of responses from open-ended questionnaire items, students as research samples provided insights into the gaps or challenges in project-based entrepreneurship learning and suggestions for improvement to make it more effective in enhancing skills, entrepreneurial interest, and learning outcomes. The analysis results of the open-ended questionnaire, which reflected students' evaluation of the learning process they had undertaken, are presented in Table 3. The results reveal that students desire active entrepreneurship learning that incorporates project-based and collaborative methods. This type of learning aligns with the demands of 21st-century education, which emphasizes the strengthening of soft skills and critical thinking. The evaluation demonstrates that this method is effective in improving students' entrepreneurial skills, though further efforts are needed to enhance their involvement.

Table 3. Learner Analysis of Project-Based Entrepreneurship Learning Program

Assessment Aspects	Needs Analysis	Assessment Aspects	Evaluation
Entrepreneurship Learning in the 21st Century	- Active Learning - Project-Based Learning (PjBL) - Emphasis on Soft Skills - Encouragement of Critical Thinking - Collaborative Learning	Expectations from Project-Based Entrepreneurship Learning	- Knowledge about entrepreneurship can be applied to starting a business - Increasing students' motivation to become entrepreneurs - Encouraging students to generate entrepreneurial ideas - Broader understanding of the entrepreneurial world - Training entrepreneurial soft skills
Appropriate Entrepreneurship Learning Methods	- Project-Based Learning - Collaborative Learning - Group Discussions	Suggestions for Entrepreneurship Project Learning	- Involvement of practitioners as mentors or inspirators - More hands-on practice opportunities - Combination of various learning methods - Direct engagement with the community, such as small and medium enterprises (SMEs) around the campus area

5. Discussion

Previous research shows that students require the implementation of project-based learning (PjBL) in entrepreneurship courses. PjBL aligns with the demands of 21st-century education, making it effective in preparing students to face modern challenges. This finding is consistent with Susilaningsih (2015), who stated that entrepreneurial attitudes are essential for students to tackle future challenges filled with competition. The framework of entrepreneurial projects serves as a bridge between education and the professional world students will encounter in this modern era (Ferreras-Garcia et al., 2021). Direct involvement of students in the learning process is a key driver of the success of this model. However, some students report lacking significant roles within their groups. PjBL is a learning approach based on experiential learning through entrepreneurial practices or projects, involving students in developing real businesses (Rideout & Gray, 2013). Students engaged in real business projects are better prepared to face the challenges of the business world (Fayolle & Gailly, 2015).

Previous studies indicate that the PjBL method in entrepreneurship enhances students' critical thinking, creativity, and problem-solving skills (Hägg & Kurczewska, 2020). This aligns with the findings that students perceive tangible benefits from PjBL in developing skills relevant to the business world. PjBL provides opportunities for students to identify problems, seek innovative solutions, and make business decisions directly, contributing to their critical thinking abilities. Entrepreneurship education focuses on developing entrepreneurial traits, mindsets, and actions rooted in critical thinking (Susilaningsih, 2015). The primary goal of this strategy is to

improve students' critical thinking and problem-solving skills (Pantiwati & Permana, 2020). Another crucial aspect of entrepreneurship learning is its impact on students' interest in entrepreneurship. The research findings show that students feel motivated to engage in entrepreneurship after participating in PjBL. This aligns with previous studies, which found that hands-on experience in managing business projects increases students' confidence and motivation to start their ventures (Lestari, 2019; Setianingrum, 2022). The method is considered effective in enhancing entrepreneurial skills and fostering interest in entrepreneurship, though its implementation still requires strengthening for optimal outcomes.

The alignment of entrepreneurial projects with higher education entrepreneurship curricula alone is insufficient. Challenges arise in synchronizing industry needs with academic curricula, particularly regarding access to business mentors, startup funding, and entrepreneurial regulations, which require greater attention in future curriculum development. Hamdan (2024), also highlighted that current curricula often emphasize theory without providing sufficient opportunities for students to apply their knowledge in real-world contexts. Recommendations include exploring the role of entrepreneurial intent in startup success, formulating effective strategies for entrepreneurship education, and integrating supportive entrepreneurship policies (Anubhav et al., 2024). The learning process becomes valuable when it connects to real-life applications and involves adult skills such as collaboration and reflection (Solomon, 2003). Building collaboration with industry practitioners to provide access to business mentors, internship opportunities, and entrepreneurial projects based on industry needs is essential. Higher education institutions hold a strategic role and extensive access to foster collaboration with industries and communities, enhancing students' entrepreneurial skills (Dewi, 2018). Suggestions from students include providing direct experiences in the community through small and medium enterprises (SMEs) around the university environment.

The outcomes expected by students from this approach include increased knowledge, motivation, and creativity in entrepreneurship, as well as broader insights into the entrepreneurial world. Entrepreneurial project learning can be combined with various teaching methods. Integrating renowned entrepreneurship education methods such as design thinking, simulations, discussions with role models, prototyping, and testing during appropriate project phases can be effective (Vollmar & Euler, 2023). Integrative approaches, independent entrepreneurship programs, on-campus business incubators, entrepreneurship competitions, and entrepreneurship courses are also viable strategies (Hamdan, 2024). Thus, this study reveals several positive findings regarding the effectiveness of entrepreneurial project-based learning based on students' perceptions, alongside evaluations that universities can use to address the gaps experienced by students in entrepreneurship education.

6. Conclusion

Project-based learning in entrepreneurship has been proven effective in enhancing critical thinking skills, creativity, and students' interest in entrepreneurship, although challenges remain in student engagement and alignment with industry needs. Therefore, strengthening its implementation is necessary through collaboration with the industry, integration of innovative teaching methods, and policy support to optimize entrepreneurship learning outcomes. Increasing active student involvement through individual evaluation mechanisms within projects is also needed, ensuring that each student has a clearer role within the team. Furthermore, reinforcing

connections with industries and business mentors can provide students with more tangible insights into real-world entrepreneurial challenges. With a more comprehensive implementation strategy, project-based learning in entrepreneurship can become more effective and sustainable, while bridging the gap between academia and the business world.

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