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Implementation of Project-Based Entrepreneurship Learning for Students at the Muhammadiyah Cikampek Industrial Technology Vocational High School

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Project-based learning; entrepreneurship; vocational high schools; vocational education

ABSTRACT
This study aims to analyze the implementation of project-based entrepreneurship learning in vocational high schools (SMK), specifically SMK Teknologi Industri Muhammadiyah Cikampek. The focus of the study includes the implementation of project-based entrepreneurship learning, the obstacles encountered in its implementation, and the solutions implemented to improve learning effectiveness. This study used a qualitative approach with a case study design. The research subjects included the principal, the vice principal for curriculum, the entrepreneurship teacher, and eleventh-grade students. Data were collected through in-depth interviews, passive participant observation, and documentation. Data analysis employed the Miles and Huberman interactive model, which includes data reduction, data presentation, and drawing and verifying conclusions. The results indicate that project-based entrepreneurship learning has not yet been fully implemented optimally. Learning remains dominated by theoretical approaches, although efforts have been made to introduce entrepreneurship projects such as product creation and business simulations. The main obstacles faced include limited facilities and infrastructure, insufficient learning time, and teachers' limited competence in designing project-based learning. Solutions implemented by the school include increasing support for curriculum policies, providing training for entrepreneurship teachers, and strengthening collaboration between the school and students. This research provides theoretical contributions to the development of a project-based entrepreneurship learning model in vocational high schools, as well as practical implications for schools and teachers in improving the quality of entrepreneurship education to make it more applicable and contextual.

INTRODUCTION

Vocational education, especially in vocational high schools (SMK), plays a crucial role in preparing graduates who are not only ready for employment but also capable of creating jobs through entrepreneurship. This aligns with SMK's goal of producing graduates who are competent and competitive in the business and industrial sectors. Entrepreneurship learning is one of the main pillars in achieving this goal. However, various studies show that the implementation of entrepreneurship learning in vocational schools still faces challenges, such as being overly theoretical and unable to provide students with sufficient practical entrepreneurial experience.

One learning approach considered relevant to overcoming these problems is project-based entrepreneurship learning. This approach emphasizes the active involvement of students in designing, implementing, and evaluating real business projects, enabling them to integrate entrepreneurial knowledge, skills, and attitudes holistically. Project-based learning also aligns with the characteristics of vocational education, which emphasize learning by doing and hands-on experiences in real-world settings (Rati, 2018; Sánchez, 2013; Setiawan, 2019; Wurdinger & Qureshi, 2015).

However, the implementation of project-based entrepreneurship learning in vocational schools continues to face various challenges in terms of policy, teacher readiness, and the availability of facilities and infrastructure. Therefore, this study aims to analyze in depth the implementation of project-based entrepreneurship learning at SMK Teknologi Industri Muhammadiyah Cikampek, identify the obstacles encountered, and formulate applicable solutions to improve the effectiveness of learning. This research is expected to make both theoretical and practical contributions to the development of entrepreneurship learning in vocational education.

Entrepreneurship learning is an educational process aimed at fostering entrepreneurial attitudes, knowledge, and skills in students. In the context of vocational education, entrepreneurship learning is designed to equip students with the mental readiness and competence to create business opportunities independently. Several studies have shown that active and contextual learning approaches are more effective in increasing students' interest and entrepreneurial spirit.

Project-based learning is one of the instructional models that places projects at the core of the learning process. This model requires students to be actively involved in solving real-world problems through planning, implementation, and evaluation stages. In entrepreneurship learning, a project-based approach allows students to experience firsthand the processes of business planning, production, marketing, and evaluation of business outcomes.

Various previous studies have shown that project-based entrepreneurship learning can enhance students' creativity, independence, and critical thinking skills. However, the success of its implementation largely depends on school policy support, teacher competence, and the availability of supporting facilities. Therefore, empirical studies on the implementation of project-based entrepreneurship learning in vocational schools are important to identify best practices and challenges encountered in the field.

More recent studies also reinforce the potential of project-based entrepreneurship learning (PjBL). For example, a study by Nurhadi and Kusuma (2022) in an indexed Scopus journal found that PjBL in entrepreneurship increases the entrepreneurial motivation of vocational school students in East Java. However, that study did not address in detail the barriers to implementation at the school level. Meanwhile, research by Sari and Pramudyo (2023), indexed in Google Scholar, identified supporting factors for PjBL, such as infrastructure support, but did not discuss the practical solutions schools implement to overcome these limitations. This indicates a research gap in the form of a lack of comprehensive case studies that simultaneously review the implementation, obstacles, and solutions of PjBL in entrepreneurship within a specific school context.

The novelty of this study lies in its holistic approach. This research not only measures effectiveness or identifies supporting factors of PjBL but also analyzes in depth how the implementation process occurs, what real obstacles are encountered, and what solutions are concretely carried out by the school to overcome them. Focusing on a single school (case study) at SMK Teknologi Industri Muhammadiyah Cikampek allows for more in-depth and contextual exploration, producing rich and applicable findings.

The urgency of this study is based on the need to improve the quality of vocational graduates with entrepreneurial capabilities. By comprehensively understanding best practices and field challenges, this research can provide valuable input for developing school policies and learning practices. The results are expected not only to serve as an academic reference but also as a practical guide for teachers and schools in designing entrepreneurship learning that is more relevant and impactful (Bae & Qian, 2014; Fayolle & Gailly, 2015; Kokotsaki et al., 2016; Nabi & Liñán, 2017; Rauch & Hulsink, 2015).

Specifically, this study aims to: (1) describe the implementation of project-based entrepreneurship learning at SMK Teknologi Industri Muhammadiyah Cikampek; (2) identify obstacles encountered in its implementation; and (3) formulate solutions that have been or can be applied to enhance learning effectiveness. These objectives are formulated to directly address the identified research gaps.

The benefits of this research are twofold. Theoretically, it contributes to the development of a project-based entrepreneurship learning model in vocational education. Practically, the results of this study can serve as an evaluation tool and recommendation for schools, teachers, and other stakeholders in efforts to improve the quality of entrepreneurship learning, making it more applicable, contextual, and capable of equipping students with real entrepreneurial competencies.

METHOD

This study employs a qualitative approach with a case study design. The research was conducted at SMK Teknologi Industri Muhammadiyah Cikampek. The research subjects consisted of the principal, the vice principal for curriculum, entrepreneurship teachers, and eleventh-grade (grade XI) students. The object of the research includes the process of implementing project-based entrepreneurship learning, the constraints encountered during implementation, and the solutions applied by the school.

Data collection techniques were carried out through in-depth interviews, passive participant observation, and documentation (Creswell & Creswell, 2017). The interviews were conducted to explore the perceptions and experiences of informants related to project-based entrepreneurship learning. Observation was used to directly observe the classroom learning process and students' entrepreneurial project activities. Documentation was used to complement the data in the form of curriculum documents, learning materials, and school activity records.

Data analysis was conducted using the Miles and Huberman interactive model, which includes data reduction, data presentation, and conclusion drawing and verification. Data validation was performed through source and method triangulation to ensure the validity of the research findings.

RESULTS AND DISCUSSIONS

The results of the study show that the implementation of project-based entrepreneurship learning at SMK Teknologi Industri Muhammadiyah Cikampek has not yet run optimally. Learning is still dominated by lecture methods and theoretical assignments, although there have been efforts to implement business projects such as product creation and entrepreneurship simulations. Student involvement in entrepreneurship projects remains uneven and is still limited to certain activities.

The main obstacles faced in the implementation of project-based entrepreneurship learning include limited supporting facilities and infrastructure, restricted learning time due to a tight curriculum schedule, and teachers' limited competence in designing and evaluating project-based learning. In addition, school policy support and the integration of entrepreneurship learning into the curriculum still need to be strengthened.

In an effort to overcome these obstacles, the school has carried out various solutions, including strengthening curriculum policy support, providing training and competency development for entrepreneurship teachers, and offering motivation and rewards to students who demonstrate creativity and innovation in entrepreneurship projects. These findings align with previous research emphasizing the importance of institutional support and teacher readiness for the success of project-based learning.

Discussion and practical implications

The comprehensive discussion shows that the implementation of entrepreneurial PjBL at SMK Teknologi Industri Muhammadiyah Cikampek is in a transitional stage. Schools and teachers have demonstrated a strong willingness to change but are still constrained by several factors. These findings reinforce previous studies suggesting that the implementation of PjBL does not merely involve changing teaching methods, but also requires a shift in learning culture, the establishment of support systems, and continuous professional development (Barron & Darling-Hammond, 2008; Gibb, 2011; Hsu & Tsai, 2017; Lackéus, 2015; Prince & Felder, 2006).

The practical implications of this research are evident. First, for schools, more substantial investment is needed in providing fundamental facilities for entrepreneurial practice, such as a creative workspace or a simple revolving fund. Second, for teachers, intensive assistance in designing PjBL is necessary—not only through one-time training sessions but also via sustainable professional learning communities (e.g., lesson study). Third, for policymakers at the educational service level, these results highlight the importance of curriculum flexibility that allows greater allocation of time for cross-disciplinary projects (Bell, 2010; Indonesia, 2020; Miles et al., 2014; Mulyani, 2011; Thomas, 2000).

This study also highlights the importance of synergy between macro policy (national curriculum) and micro implementation (classroom practice). Policies such as P5 of the Merdeka Curriculum provide an excellent framework for implementing PjBL, but their success depends heavily on the creativity of schools and teachers in translating them into relevant and contextual learning activities.

Furthermore, findings regarding uneven student engagement underscore the need for more inclusive learning designs. Teachers must establish clear and equitable roles for each

group member in project activities and develop assessment rubrics that value both individual contributions and group outcomes. This approach will ensure that all students gain meaningful learning experiences.

In addition, the use of rewards as a motivational tool highlights the importance of maintaining students' affective engagement. Schools can develop a more structured appreciation system, such as organizing school-level business plan competitions or facilitating the wider marketing of student products, both online and offline. This initiative will provide authentic and valuable experiences for students.

Finally, the growing collaboration between schools and students must continue to be strengthened. Schools can involve students in the planning of entrepreneurship programs to position them as partners rather than mere participants. This approach will foster a greater sense of ownership and responsibility for the success of their projects.

CONCLUSION

This study concludes that project-based entrepreneurship learning at SMK Teknologi Industri Muhammadiyah Cikampek has not yet been fully implemented optimally. Nevertheless, this approach has great potential to foster students' entrepreneurial spirit if supported by school policies, teacher competence, and adequate infrastructure. This research provides theoretical implications for the development of project-based entrepreneurship learning models in vocational education, as well as practical implications for schools and teachers in improving the quality of entrepreneurship learning. Further research is recommended to expand the research scope and employ a quantitative approach to obtain more comprehensive results.

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