Indonesian Journal of Education Research (IJoER)
Vol. 4, No. 6, December 2023, pp. 175~181
ISSN: 2722-1326, DOI: 10.37251/ijoer.v4i6.952

Cultivating an Entrepreneurial Spirit: Evaluation of Project-Based Learning in Increasing Students' Entrepreneurial Spirit

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Article Info

Article history:

Received Oct 3, 2023
Revised Nov 7, 2023
Accepted Dec 20, 2023

Keywords:

Entrepreneurial Spirit
Evaluation
Skills Development
Project Based Learning

ABSTRACT

Purpose of the study: The aim of this research is to evaluate the effectiveness of the project-based learning approach in increasing students' entrepreneurial spirit.

Methodology: The type of research used is quantitative research with an experimental design. The research sample was selected from two classes, each consisting of 30 students, so the total sample was 60 people. The data collection technique in this research will use a questionnaire. The data analysis technique in research uses comparative statistics in the form of the T-test.

Main Findings: There is a difference in the entrepreneurial spirit of students who take part in learning with a project-based learning model and students who do not take part in learning with a project-based learning model with a Sig value. < 0.05, namely 0.041.

Novelty/Originality of this study: The novelty of this research is a comprehensive evaluative approach to project-based learning in enhancing students' entrepreneurial spirit, which aims to provide a deeper understanding of its effectiveness.

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1. INTRODUCTION

The importance of developing an entrepreneurial spirit in the younger generation cannot be underestimated. In the midst of rapidly changing global economic dynamics, entrepreneurship has become an indispensable skill [1]–[3]. The younger generation needs to be empowered with an entrepreneurial spirit to face future challenges [4]–[6]. The entrepreneurial spirit encourages innovation, creativity and resilience in facing risk [7]–[9]. With strong entrepreneurship, the younger generation can become drivers of economic growth and solvers of social problems in the future.

Project Based Learning is an innovative approach in education that places students as active subjects in the learning process. In this approach, students engage in real projects that allow them to apply knowledge and skills in a practical context [10]–[12]. These projects are often designed to challenge students in solving complex problems or creating creative solutions to specific challenges [13]–[15]. Project-based learning encourages student-to-student collaboration, critical thinking, and creativity, while providing deep and meaningful learning experiences [16]–[18]. Through this approach, students not only gain knowledge, but also develop skills relevant to the real world, including entrepreneurial skills that are essential for future success.

The influence of the learning environment is very significant on students' entrepreneurial spirit. A supportive environment, including support from teachers and classmates, can spark students' interest and motivation to explore creative ideas in business [19], [20]. On the other hand, an environment that does not support or stimulates creativity can extinguish students' entrepreneurial spirit [21], [22]. Factors such as availability of resources and school culture also play an important role in shaping students' perceptions of entrepreneurship [23], [24]. Therefore, creating a learning environment that motivates and stimulates creativity is the key to effectively developing students' entrepreneurial spirit.

Project-based learning plays a crucial role in encouraging creativity and innovation among students. Through projects that demand critical thinking and original solutions, students are encouraged to think outside conventional boundaries [25]–[27]. This learning process provides space for students to explore new ideas and develop innovative solutions to the problems they face [28]–[30]. By facing real challenges in a project context, students are invited to develop creative thinking skills and find new approaches to solving problems [31], [32]. Over time, project-based learning can shape a mindset that is open to innovation and provide a strong foundation for the development of future entrepreneurial skills.

Previous research conducted by Kurniawan et al., [33] obtained results that the application of product-based learning succeeded in increasing students' entrepreneurial spirit scores. The difference in this research lies in the learning approach used and the focus on increasing students' entrepreneurial spirit. Apart from that, the research location is also a difference in this research. Measuring the effectiveness of project-based learning in enhancing students' entrepreneurial spirit is an important step in understanding the impact of this approach on the development of their entrepreneurial skills. Appropriate evaluation methods can help identify the extent to which project-based learning influences students' motivation to think creatively and develop business ideas. Structured assessments can also allow educators to evaluate students' progress in designing, implementing, and evaluating their own business projects.

Through measuring this effectiveness, we can discover emerging patterns in the development of students' entrepreneurial spirit and design more effective learning strategies for the future. Accurate and comprehensive evaluation results will provide valuable insight into the potential and limitations of project-based learning in forming entrepreneurial attitudes among students. Based on the background above, the aim of this research is to evaluate the effectiveness of the project-based learning approach in increasing students' entrepreneurial spirit.

2. RESEARCH METHOD

2.1. Types of research

The type of research used is quantitative research with an experimental design. This research used an experimental approach by dividing a control group and a treatment group [34], [35]. The control class received conventional learning or no additional treatment, while the treatment class received project-based learning. Before and after treatment, both groups were measured using valid and reliable evaluation instruments to measure the level of students' entrepreneurial spirit. By using an experimental design, this research can more accurately identify the impact of Project Based Learning Evaluation on increasing students' entrepreneurial spirit.

2.2. Population and Sample

The population of this study were students of Setih Setio 2 Muaro Bungo Vocational School, who were enrolled in a vocational program in the hospitality sector. The research sample was selected from two classes, each consisting of 30 students, so the total sample was 60 people. Class A acts as a control class, where the control class receives conventional learning or no additional treatment. Meanwhile, class B acts as an experimental class, where the experimental class receives project-based learning treatment.

2.3. Data collection technique

Data collection techniques in this research will focus on the use of questionnaires. Questionnaires will be used to collect data about the level of students' entrepreneurial spirit before and after project-based learning treatment. This questionnaire will be designed taking into account relevant indicators of entrepreneurial spirit and has been tested for validity. Respondents will be asked to rate statements related to entrepreneurial spirit, and their scores will be recorded for analysis. The use of questionnaires as the main data collection technique will allow researchers to obtain systematic and consistent information from the entire research sample [36], [37], as well as facilitating statistical analysis to comprehensively evaluate the impact of project-based learning on students' entrepreneurial spirit. The indicators of students' entrepreneurial spirit can be seen in the table below:

Table 1. Indicators of Student Entrepreneurial Spirit

No.	Entrepreneurial Spirit Indicator	No. Statement
1.	Creativity	1,2,3
2.	Independence	4,5,6
3.	Perseverance	7,8,9
4.	Initiative	10,11,12
5.	Communication and Networking Skills	13,14,15
6.	Awareness of Opportunities	16,17,18
7.	Action Orientation	19,20,21
8.	Fighting Power and Desire to Learn	22,23,24,25
	Amount	25

The category intervals for each variable measured can be seen in the table below:

Table 2. Interval Categories of Entrepreneurial Spirit

Interval	Category
25.00 – 43.75	Very good
43.76 – 62.5	Good
62.6 – 81.25	Not good
81.26 - 100	Very Not Good

2.4. Data analysis technique

The data analysis technique in this research will focus on comparative statistical analysis. First, the data collected from the questionnaire will be compiled and processed using statistical software such as SPSS (Statistical Package for the Social Sciences). Comparative analysis will be carried out by comparing [38], [39] Student entrepreneurial spirit scores before and after treatment using appropriate statistical tests, such as the t-test. Before carrying out the T-test, researchers will first carry out an assumption test in the form of a normality test and a homogeneity test.

2.5. Research procedure

This research procedure begins with the preparation stage, where the researcher will design a questionnaire that will be used to collect data about the level of students' entrepreneurial spirit before and after the project-based learning treatment. After the questionnaire has been designed, the researcher will approach the school, especially the teachers involved in the business and management skills program at SMKS Setih Setio 2 Muaro Bungo, to obtain approval and cooperation in carrying out the research. Then, the researcher will schedule a time and place to distribute the questionnaire to the two classes selected as the research sample. After the data is collected, researchers will use statistical software such as SPSS to analyze the data, including carrying out normality tests and homogeneity of variance tests to check the assumptions needed for comparative statistical analysis. Next, researchers will conduct a comparative analysis between students' entrepreneurial spirit scores before and after treatment using the t-test. The results of the analysis will be presented and interpreted in detail in the research report. By following this procedure, it is hoped that this research can provide a better understanding of the effectiveness of project-based learning in increasing the entrepreneurial spirit of students at SMKS Setih Setio 2 Muaro Bungo.

3. RESULTS AND DISCUSSION

3.1. Research result

The results of the assumption tests carried out in the form of normality tests and homogeneity tests can be seen in table 3 and table 4 below:

Table 3. Data Normality Test Results

Variable	Class	Sig.	Distribute
Entrepreneurial Spirit	A	.200	Normal
	B	.200	Normal

Based on the table of data normality test results used in this research, it can be concluded that the data is normally distributed with a Sig. > 0.05.

Table 4. Data Homogeneity Test Results

Variable	Class	Sig.	Distribute
Entrepreneurial Spirit	A	.451	Homogen
	B	.482	Homogen

Based on the table of data homogeneity test results used in this research, it can be concluded that the data is homogeneously distributed with a Sig. > 0.05.

After testing the assumptions and fulfilling the requirements, you can then carry out a hypothesis test in the form of a T test which aims to determine the difference in the entrepreneurial spirit of students who take part in learning with a project-based learning model and students who do not take part in learning with a project-based learning model. The results of the T test in this study can be seen in the table below:

Table 5. T-test results of the entrepreneurial spirit of students who took part in learning with a project-based learning model and students who did not take part in learning with a project-based learning model

Variable	Class	Sig.(2-tailed)
Entrepreneurial Spirit	A	0.041
	B	

Based on the results of the T-test that has been carried out, it can be concluded that there are differences in the level of entrepreneurial spirit of students who follow learning with a project-based learning model and students who do not follow learning with a project-based learning model

3.2. Discussion

Based on the results of the assumption tests carried out by the researchers, namely the normality and homogeneity tests, the results obtained for the normality test of the Sig value. > 0.05, namely 0.200 for class A and class B, so it can be concluded that the data is normally distributed. Meanwhile, for the homogeneity test, results were obtained with a Sig value. > 0.05, namely 0.451 for class A and 0.482 for class B, so it can be concluded that the data is homogeneously distributed. Because the data used meets the requirements, further tests can be carried out in the form of hypothesis tests, where the hypothesis test used in this research is the T-test.

Based on the results of the T-test conducted by researchers regarding the differences in the entrepreneurial spirit of students who took part in learning with a project-based learning model and students who did not take part in learning with a project-based learning model, results were obtained with a value of Sig. < 0.05, which is 0.041, so it can be concluded that there is a difference in the entrepreneurial spirit of students who take part in learning with a project-based learning model and students who do not take part in learning with a project-based learning model.

Project Based Learning Evaluation has been recognized as an effective method in increasing students' entrepreneurial spirit [40], [41]. Through this approach, students not only learn about entrepreneurship theories and concepts, but they also apply them in real projects. Project-based evaluations allow students to experience the challenges and failures they may face in the real world, helping them develop the resilience and perseverance required in entrepreneurship. By receiving direct feedback from instructors and peers, students have the opportunity to refine their ideas and hone their skills on an ongoing basis.

In addition, project-based learning evaluation also encourages collaboration and creativity among students [42], [43]. In a project environment, students are often placed on teams that require collaborative thinking, strategic planning, and joint problem solving [44], [45]. Through this teamwork, students learn to appreciate their own individual strengths as well as the contributions of others, which is an important skill in the entrepreneurial world that often requires solid teamwork [46]. Additionally, these projects also awaken students' creativity, as they are challenged to find innovative solutions to the problems encountered in their projects.

Project-based learning evaluation provides a comprehensive and integrated learning experience. Through these projects, students can integrate knowledge from various subjects such as mathematics, social sciences, and languages, as well as practical skills such as time management, communication, and leadership required in entrepreneurship [47], [48]. Thus, project-based evaluation not only helps students understand entrepreneurial concepts, but also hone the skills and knowledge necessary to become successful entrepreneurs in the future.

This research is in line with previous research conducted by Blesia et al., 2021[49] These findings indicate a change in students' mindset, where self-confidence is the most dominant weighting factor in forming students' entrepreneurial spirit.

The novelty of the project-based learning evaluation approach lies in the direct combination of entrepreneurial theory with real practice through relevant projects. This approach introduces students to a dynamic and authentic learning experience, where they not only learn entrepreneurial concepts theoretically, but also apply them in challenging practical contexts. The implication is that there is a paradigm shift in entrepreneurship

education, where the focus is no longer only on theoretical knowledge, but also on developing practical skills and a strong entrepreneurial spirit. By integrating hands-on learning into projects, students become better prepared to face the real world with deeper understanding and relevant skills [50], which in turn can increase their potential to become successful and influential entrepreneurs.

Although the project-based learning evaluation approach offers many advantages in enhancing students' entrepreneurial spirit, there are several limitations that need to be considered. First, in some cases, implementing these projects requires significant resources, including time, funding, and support from the school or educational institution. This can be an obstacle for institutions that have limited resources. Additionally, project-based evaluation requires careful monitoring and assessment to ensure that learning objectives are achieved effectively. Therefore, future research could investigate more efficient and resource-saving implementation strategies as well as the development of more standardized and objective evaluation methods. Recommendations could also include longitudinal research to evaluate the long-term impact of project-based learning on students' entrepreneurial spirit after they leave the formal educational environment and enter the workforce or start their own businesses. Thus, future research can provide deeper insight into the effectiveness and sustainability of this approach in enhancing students' entrepreneurial spirit.

4. CONCLUSION

Based on the results of the T-test conducted by researchers regarding the differences in the entrepreneurial spirit of students who took part in learning with a project-based learning model and students who did not take part in learning with a project-based learning model, results were obtained with a value of Sig. < 0.05, which is 0.041, so it can be concluded that there is a difference in the entrepreneurial spirit of students who take part in learning with a project-based learning model and students who do not take part in learning with a project-based learning model. Recommendations for further research could be to investigate more efficient and resource-saving implementation strategies as well as the development of more standardized and objective evaluation methods.

ACKNOWLEDGEMENTS

The author would like to express his thanks to all parties involved in this research.

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