Factors That Influence Students' Entrepreneurial Competence: Efforts to Improve Project-Based Learning

S Khotimah[1], Bambang[2], O Setiarso[2], and A.S Purwanti[3]

[1]Department of Economic Education, Universitas Jenderal Soedirman, Indonesia
[2]Department of Development Economics, Jenderal Soedirman University, Indonesia
[3]Department of Accounting, Jenderal Soedirman University, Indonesia

Abstract. The objective of this research is to identify the factors that influence students' entrepreneurial competence and to explore the effectiveness of project-based learning in improving their entrepreneurial skills. This study employed a mixed-methods approach, combining quantitative and qualitative data collection methods. The initial method involves analyzing documentation and observational studies that utilize secondary data in the form of learning guidelines, along with primary data gathered through observations. Subsequently, questionnaires were distributed to students from various faculties at Jenderal Soedirman University. The survey questionnaire included questions pertaining to students' entrepreneurial competencies, project-based learning, their perceptions of its impact on their entrepreneurial skills, and other relevant factors. Students who participated in project-based learning reported higher levels of creativity, problem-solving skills, and self-efficacy compared to those who did not participate. The qualitative data provided further insights into the specific aspects of project-based learning that were most effective in improving students' entrepreneurial skills.

Keyword: Entrepreneurial Competence, Project-Based Learning, and Higher Education

1. Introduction

Entrepreneurship has become a complex economic field widely discussed in various countries, elucidating its role in supporting economic theory [1] [2]. Entrepreneurship has been proven to make a significant contribution to the growth and economic development of a country [3]. Instilling the spirit of entrepreneurship is an initial step towards creating entrepreneurs as one of the driving forces of the economy [4]. The implementation of entrepreneurship in Indonesia is supported by Presidential Regulation of the Republic of Indonesia Number 2 of 2022 concerning the Development of National Entrepreneurship for the period 2021-2024.The National Entrepreneurship Movement aims to cultivate skilled entrepreneurs to serve as a means for the development of local products and the competitive potential of the regions. This aligns with theGlobal Entrepreneurship Monitor 2022/2023, which indicates that the government is promoting new entrepreneurship as a primary political goal to contribute to business development, the creation of new jobs, and the resolution of social issues. This phenomenon propels entrepreneurs to excel in competitivecompetition and dynamic markets for the purpose of sustainable development [5].

Sustainable entrepreneurship is closely related to the quality of the initial conception of an idea generated by human resources, resulting from the combination of entrepreneurial concepts and sustainable development [6]. Experts argue that the context of concern in this

issue is the role of higher education and the enhancement of the entrepreneurial competencies of its students [7]. Entrepreneurship education can serve as an engine in economic development [8]. Bibliometric analysis conducted by [9] indicates that the field of entrepreneurship education has shown a continuously increasing research trend and is considered an important field. Schumpeter's theory states that a country's economic growth can be achieved through the innovation of creative and independent individuals who create something valuable, namely an entrepreneur [10]. Entrepreneurship education carried out sustainably has a significant contribution to raising awareness among the younger generation to continually develop knowledge, competencies, practices, and mindsets in leveraging global opportunities [11]. Learners should not only be equipped with entrepreneurial knowledge but also emphasize the formation of skills, values, and relevant competencies within the framework of sustainability. It isnecessary to determine suitable learning programs and focus on the entrepreneurial competencies to beachieved [12], [13], thusthe learning process must be designed to enhance learners' experiences to attain these competencies [14]. Entrepreneurial competence is related to the ability to leverage new business opportunities to innovate solutions for uncertainty gained from learning experiences [15]. The educational curriculum in higher education should have implementedentrepreneurial competencies, such as in the aspects of creativity and problem-solving [16]. With the development of these competencies, learners are expected to have adequate abilities to identify and leverage various entrepreneurial opportunities that may arise, enabling them toinitiate and develop their own ventures. Learners with higher competencies are those who are inalignment with educators regarding the importance of entrepreneurial competencies [17].

Research findings suggest that scientific exploration, in the form of practical methods and project-based learning, can be recognized to enhance various competencies of learners in entrepreneurship education [18]. Project-based learning, involving the creation of business plans, can encourage the achievement of high learning outcomes in entrepreneurial competencies, and such learning is conducted under real-world conditions [19]. Project-based learning is a teaching strategy where learners engage in the completion of complex projects over a considerable period [20]. The aim is to gain a deeper understanding of the subject matter related to the project. This type of learning can enhance learners' knowledge and skills, preparing them for professional practice [21]. The project-based learning model is highly suitable for analyzing the entrepreneurial competency of learners [22].

In detail, research results indicate that the process of project-based learning activities can shape learners to be independent, creative, risk-taking, communicative, collaborative, and success-oriented [23]. Several research findings have demonstrated the significance of project-based learning that integrates direct experiences in creating and enhancing learners' entrepreneurial competencies. However, does project-based learning relate to factors influencing learners' entrepreneurial competencies? Thus, this study aims to identify the factors influencing students'entrepreneurial competencies and to explore the effectiveness of project-based learning in enhancing their entrepreneurial skills.

2. Method

This study utilizes a mixed-method approach, combining both quantitative and qualitative data collection methods. Mixed-method research is a type of research in which a researcher combines elements of qualitative and quantitative research approaches (such as the use of qualitative andquantitative perspectives, data collection, analysis, inference, techniques) for

the purpose of broad and in-depth understanding and substantiation [24]. The initial methods include documentation analysis and observational studies that utilize secondary data in the form of learning guidelines, as well as primary data collected through observations. Subsequently, questionnaires were distributed to students from various faculties at Jenderal Soedirman University. The survey questionnaire includes questions related to students' entrepreneurial competencies, project-based learning, their perceptions of its impact on their entrepreneurial skills, and other relevant factors.

3. Result

The documents analyzed include the curriculum, syllabi, modules, and previous learning evaluation reports. The entrepreneurship learning curriculum specifically utilized at the Faculty of Economics and Business, Jenderal Soedirman University, has supported the development of project theory and student competencies. However, weaknesses have been identified in the implementation of these project activities and competencies in real-world situations. Documentation also reveals that previous learning evaluations have not fully reflected the expected competency aspects. The level of Project-based Learning (PjBL) model implementation in entrepreneurship courses is relatively low. This indicates that educators have not applied the appropriate teaching model, namely PjBL, in entrepreneurship courses. The table 1 below presents an overview of the responses of educators and students regarding the importance of having competency indicators that align with the learning objectives in project-based entrepreneurship learning evaluations.

Tabel 1. Entrepreneurial competency indicators are important in achieving project-basedentrepreneurial learning goals

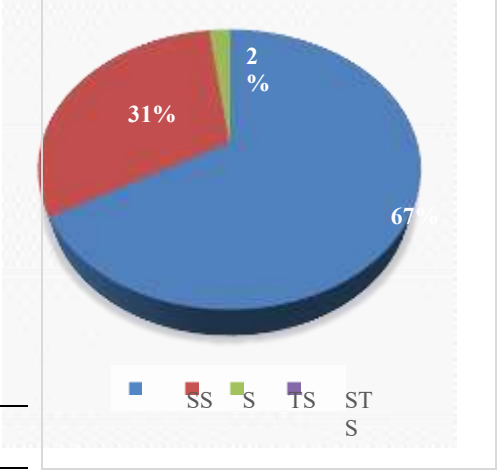
Statement Items	Total	Percentage	Chart
Strongly Agree (SS)	32	66.67%	
Agree (S)	15	31.25%	
Disagree (TS)	1	2.08%	
Strongly Disagree (STS)	0	0%	
Total	**48**	**100%**	

Table 1 above shows that 66.67% of the respondents, comprising educators and students, strongly agree on the importance of having clear competency indicators for the purpose of appropriate evaluation tools aligned with the entrepreneurial project learning objectives. The high level of agreement is attributed to the project-based learning characteristics that are highly suitable for enhancing entrepreneurial competencies through the integration of students' direct experiences. The effectiveness of entrepreneurial education lies in the creation of student learning experiences that will facilitate the achievement of desired learning outcomes [25].

The entrepreneurial competencies of students in entrepreneurship education driven by project- based learning are manifested in several aspects. Individual competence represents a set of knowledge,skills, and attitudes associated with achieved goals and performed tasks that enable an individual to succeed in their work [26],[27]. There are essential competencies that an entrepreneur must possess, including the need for achievement, autonomy, power, social orientation, self-efficacy, endurance, and a propensity for risk-taking [28] (Glackin& Phelan, 2020). Skill components comprise market awareness, creativity, and flexibility [29]. This study only focuses on the three most important competencies: Creativity (CR), Problem-solving (PS), and Self-efficacy (SE). The average entrepreneurial competencies of students who received project-based learning and those who did not receive project-based learning are presentedin Table 2.

Tabel 2. Average Results of Student Entrepreneurship Competencies

Sample	CR	PS	SE	Average Percentage	Category
Project-Based Learning	25	28	23	84.44	Very Good
NonProject-Based Learning	19	21	17	63.33	Quite Good

In Table 2, it can be observed that students who participated in project-based learning reported higher levels of creativity, problem-solving skills, and self-efficacy compared to those who did not participate. The average attainment of student competencies in project-based learning is 84.44, with thehighest competency being in problem-solving. On the other hand, student competencies in non-project-based learning have a lower average of 63.33, with the highest competency also found in problem- solving.

4. Discussion

In Indonesia, the Main Performance Indicators of State Universities have been established through the Minister of Education and Culture's Decree of 2017, specifically under indicator 7 (Collaborative and Participatory Classrooms). Many studies have revealed that Project-Based Learning(PjBL) can serve as a key strategy in 21st-century education. PjBL presents an engaging and relevant teaching strategy, trains learners to become self-directed, and can be applied across various disciplines [30]. Research findings indicate that with PjBL, learners feel providedwith the opportunity to collaborate with their peers in a collaborative learning environment [31]. Project-based learning supports collaborative learning by involving active interaction among students, both in small groups and larger teams. In PjBL, students work together to complete specific projects that require collaboration, coordination, and communication among team members. PjBL serves as a learner-centered and collaborative method, wherein educators play the role of facilitators orcoaches [32]

The significant implementation of the PjBL method aims to enhance students' competencies andskills overall, as well as to assist students in boosting their self-confidence [33]. Furthermore, PjBL can be utilized to increase student participation and enhance their communication skills effectively [34]. There are other crucial factors in project-based learning that can strengthenstudents' entrepreneurial skills, prepare them to face real-world challenges, and help them develop a proactive and creative approach to problem-solving. PjBL is an alternative teaching strategy that engages students in meaningful learning, particularly in

enhancing their creativity [35]. Student creativity through project-based learning has been extensively discussed in previous research. There are four dimensions of creativity: direct experience, curiosity, imagination, andchallenge [36]. The ability to think creatively when confronted with problems or challenges that arise during a project can help students hone their entrepreneurial skills.

Higher education employs various teaching strategies to develop students' problem-solving skills,aiding them in tackling new challenges and linking theoretical concepts with real-life situations [37]. Direct and active participation in projects has also been proposed in the literature to facilitate the problem-solving learning process. Direct experience in designing, implementing, and evaluating entrepreneurial projects can significantly influence students' entrepreneurial competencies. Problem-solving competency is crucial in project-based learning as this skill enables them to tackle complex challenges and find innovative solutions, which is essential in preparing them to face real-world situations in the business world.

5. Conclusion

Students and educators agree on the importance of having clear competency indicators and evaluation tools that are appropriate to learning objectives. Students participating in project-based learning report higher levels of creativity, problem-solving skills, and self-efficacy compared to those who do not participate. Qualitative data provides further insight into the specific aspects of project-based learning that are most effective in enhancing students' entrepreneurial skills. It is important for students and educators to have clear competence indicators and appropriate evaluation tools because participationin project-based learning has been shown to enhance students' creativity, problem-solving skills, and self-efficacy, as revealed through qualitative data identifying the most effective learning aspects in building entrepreneurial skills.

Acknowledgments

The author would like to express gratitude to the Institute for Research and Community Service (LPPM) of Jenderal Soedirman University (Unsoed) for the financial support provided during the implementation of this research. This support has enabled the author to develop this research comprehensively and enhance our understanding of the researched topic. Without the financial assistance provided by LPPM Unsoed, this research might not have been possible.

References

[1]. Isac, C., Iordache, A. M. M., Baltador, L., Coculescu, C., & Niță, D. (2023). Enhancing Students' Entrepreneurial Competencies through Extracurricular Activities—A Pragmatic Approach to Sustainability-Oriented Higher Education. *Sustainability, 15*(11), 8708.

[2]. Morris, M. H., Neumeyer, X., & Kuratko, D. F. (2015). A portfolio perspective on entrepreneurship andeconomic development. *Small Business Economics, 45*, 713-728.

[3]. Bell, R., & Bell, H. (2020). Applying educational theory to develop a framework to support the delivery of experiential entrepreneurship education. *Journal of Small Business and Enterprise Development, 27*(6), 987-1004.

[4]. Yuliana, F., Hasmidyani, D., Susanti, E., & Budiman, M. A. (2023). Menumbuhkan semangat wirausaha mahasiswa melalui webinar kewirausahaan berkelanjutan. *Warta LPM*, 22-30

[5]. Al-Qudah, A. A., Al-Okaily, M., & Alqudah, H. (2022). The relationship between social

entrepreneurship and sustainable development from economic growth perspective: 15 'RCEP'countries. *Journal of Sustainable Finance & Investment, 12*(1), 44-61.

[6]. Gupta, B. B., Gaurav, A., Panigrahi, P. K., & Arya, V. (2023). Analysis of artificial intelligence-based technologies and approaches on sustainable entrepreneurship. *Technological Forecasting and Social Change, 186*, 122152.

[7]. Fors, P., & Lennerfors, T. T. (2019). The individual-care nexus: A theory of entrepreneurial care forsustainable entrepreneurship. *Sustainability, 11*(18), 4904.

[8]. Gabrielsson, J., Hägg, G., Landström, H., & Politis, D. (2020). Connecting the past with the present: the development of research on pedagogy in entrepreneurial education. *Education+ Training, 62*(9), 1061-1086

[9]. Durán-Sánchez, A., Del Río, M. d. l. C., Álvarez-García, J., & García-Vélez, D. F. (2019). Mapping ofscientific coverage on education for Entrepreneurship in Higher Education. *Journal of Enterprising Communities: People and Places in the Global Economy, 13*(1/2), 84-104.

[10]. Schumpeter, J. A., & Opie, R. (1934). *The theory of economic development: an inquiry into profits, capital, credit, interest, and the business cycle*: Harvard University Press.

[11]. Schaltegger, S., & Wagner, M. (2011). Sustainable entrepreneurship and sustainability innovation: categories and interactions. *Business strategy and the environment, 20*(4), 222-237.

[12]. RezaeiZadeh, M., Hogan, M., O'Reilly, J., Cunningham, J., & Murphy, E. (2017). Core entrepreneurialcompetencies and their interdependencies: insights from a study of Irish and Iranian entrepreneurs, university students and academics. *International Entrepreneurship and Management Journal, 13*, 35-73.

[13]. Tittel, A., & Terzidis, O. (2020). Entrepreneurial competences revised: developing a consolidated and categorized list of entrepreneurial competences. *Entrepreneurship Education, 3*, 1-35.

[14]. Bauman, A., & Lucy, C. (2021). Enhancing entrepreneurial education: Developing competencies for success. *The International Journal of Management Education, 19*(1), 100293.

[15]. Reis, D. A., Fleury, A. L., & Carvalho, M. M. (2021). Consolidating core entrepreneurial competences:toward a meta-competence framework. *International Journal of Entrepreneurial Behavior & Research, 27*(1), 179-204.

[16]. Kozlinska, I., Mets, T., & Rõigas, K. (2020). Measuring learning outcomes of entrepreneurship education using structural equation modeling. *Administrative Sciences, 10*(3), 58.

[17]. García-Cabrera, A. M., Martín-Santana, J. D., de la Cruz Déniz-Déniz, M., Suárez-Ortega, S. M., García-Soto, M. G., & Melián-Alzola, L. (2023). The relevance of entrepreneurial competences from a faculty and students' perspective: The role of consensus for the achievement of competences. *The International Journal of Management Education, 21*(2), 100774.

[18]. Gabrielsson, J., Hägg, G., Landström, H., & Politis, D. (2020). Connecting the past with the present: the development of research on pedagogy in entrepreneurial education. *Education+ Training, 62*(9), 1061-1086.

[19]. Ferreras-Garcia, R., Hernández-Lara, A. B., & Serradell-López, E. (2019). Entrepreneurial competencesin a higher education business plan course. *Education+ Training, 61*(7/8), 850-869.

[20]. Ergül, N. R., & Kargın, E. K. (2014). The effect of project based learning on students' science success. *Procedia-Social and Behavioral Sciences, 136*, 537-541.

[21]. Fernandes, S. R. G. (2014). Preparing graduates for professional practice: findings from a case study of Project-based Learning (PBL). *Procedia-Social and Behavioral*

Sciences, 139, 219-226.

[22]. Prastyaningrum, I., & Hardiyanto, D. (2022). *Analysis of Project-Based Learning Effect on Student Entrepreneurial Ability.* Paper presented at the Conference Proceedings International Conference on Education Innovation and Social Science.

[23]. Lelahester, R., Murtini, W., & Indriayu, M. (2018). Establishment of entrepreneurial character in the foundation based school system through project based learning. *International Journal ofEducational Research Review, 3*(4), 128-140.

[24]. Creswell, J. W., & Clark, V. L. P. (2017). *Designing and conducting mixed methods research*: Sage publications.

[25]. Winsor & Hanlon, (2016). An opportunity evaluation framework for introductory courses in entrepreneurship. *Journal of Entrepreneurship Education* 19 (2), 24

[26]. Ngoasong, M. Z. (2018). Digital entrepreneurship in a resource-scarce context: A focus on entrepreneurial digital competencies. *Journal of Small Business and Enterprise Development, 25*(3), 483-500.

[27]. Yaghoubi Farani, A., Karimi, S., & Motaghed, M. (2017). The role of entrepreneurial knowledge as a competence in shaping Iranian students' career intentions to start a new digital business. *European Journal of Training and Development, 41*(1), 83-100.

[28]. Glackin, C. E., & Phelan, S. E. (2020). Improving entrepreneurial competencies in the classroom: an extension and in-study replication. *New England Journal of Entrepreneurship, 23*(2), 79-96.

[29]. Singh, R., & Dwivedi, A. (2022). Digital entrepreneurship competency and digital entrepreneurial intention: Role of entrepreneurial motivation. *Journal of Positive School Psychology*, 2310- 2322.

[30]. Lim, S. W., Jawawi, R., Jaidin, J. H., & Roslan, R. (2023). Learning history through project-based learning. *Journal of Education and Learning (EduLearn), 17*(1), 67-75.

[31]. Yufrizal, H. (2021). The impact of project based-CLIL on students' english proficiency. *Journal of Education and Learning (EduLearn), 15*(1), 11-18.

[32]. Tan, O.-S. (2021). *Problem-based learning innovation: Using problems to power learning in the 21st century*: Gale Cengage Learning.

[33]. Pinto, A. P., & KJ, R. (2021). Impact of Project-Based Learning on Entrepreneurial and Social Skills Development. *Journal of Engineering Education Transformations, 34*.

[34]. Liu, X. (2016). Motivation Management of Project-Based Learning for Business English Adult Learners. *International Journal of higher education, 5*(3), 137-145.

[35]. Hanif, S., Wijaya, A. F. C., & Winarno, N. (2019). Enhancing Students' Creativity through STEM Project-Based Learning. *Journal of science Learning, 2*(2), 50-57.

[36]. Lou, S.-J., Chou, Y.-C., Shih, R.-C., & Chung, C.-C. (2017). A study of creativity in CaC2 steamship- derived STEM project-based learning. *Eurasia Journal of Mathematics, Science and Technology Education, 13*(6), 2387-2404.

[37]. Karan, E., & Brown, L. (2022). Enhancing Student's Problem-Solving Skills through Project-Based Learning. *Journal of Problem Based Learning in Higher Education, 10*(1), 74-87.