Interdisciplinary Social Studies
P-ISSN: 2808-0467
E-ISSN: 2808-5051

The Role of Entrepreneurship Education in Enhancing Students' Innovation Capability and Competitiveness in Facing the 4.0 Era

Nining Wahyuningsih*, Rudi Salam, Mila Kurnia Pinandita, Rina Setyaningsih
Universitas Negeri Semarang, Indonesia
Email: nining_ayu@mail.unnes.ac.id*

Keywords:

Innovation, Entrepreneurship, Era 4.0

ABSTRACT

Economic globalization has brought significant changes to the labor market structure, where competition is no longer limited to the local or national level but extends across international borders. In this context, university graduates are required not only to possess academic knowledge but also innovative capabilities and entrepreneurial skills to compete globally. Data from the Central Statistics Agency (BPS) in 2024 shows that 11.28% of bachelor's, master's, and doctoral graduates between August 2022 and August 2024 were unemployed, highlighting the urgency of strengthening entrepreneurship education. This research aims to analyze The Role of Entrepreneurship Education in Enhancing Students' Innovation Capability and Competitiveness in Facing the 4.0 Era. A qualitative method, through a literature review, was employed, analyzing various relevant sources such as journals, books, and articles published in the last five years. The results indicate that entrepreneurship education plays a crucial role in shaping an innovative mindset, building self-confidence, and preparing students to create their own job opportunities. Effective implementation requires competent lecturers, adequate infrastructure, and sustainable programs integrated with technological developments. Thus, entrepreneurship education not only enhances individual competencies but also contributes to reducing unemployment rates and supporting national economic growth.

INTRODUCTION

Pursuing higher education, both scientific and educational paths, is the right choice for high school graduates or equivalent for provisions in the future (Pengaruh Pelatihan Kerja dan Rekrutmen Terhadap Kinerja Karyawan Di Perguruan Tinggi Deddy Novie Citra Arta et al., 2023). In the current era, if you are only armed with a high school diploma or equivalent, of course, if you apply for a job, you will only get a less prestigious position, therefore a student needs to raise his bargaining position in the world of work by improving education.

Economic globalization has brought about significant changes in the structure of the labor market. Competition is no longer limited to the local or national level, but also crosses international boundaries. In this situation, students need to have skills and knowledge that are not only locally relevant, but also able to compete in the global market (Pertiwi et al., 2024).

A person who has a bachelor's degree must also compete with his fellow human beings considering that the current era of 4.0 is a lot of human labor that is replaced by machines or robots, so every graduate must also increase his value with other education which if he graduates can actually open up jobs. One of the things that needs to be strengthened is entrepreneurship education because students who have entrepreneurial skills and can innovate will certainly have more competitiveness in facing job competition.

Data from the central statistics agency in 2024 found that 11.28% of S1/S2/S3 graduates for the August 2022 to August 2024 graduation period were unemployed (Badan Pusat Statistik,

2024). Therefore, it is necessary to strengthen apart from government programs also from the side of higher education, in this case entrepreneurship education so that when it graduates it has more benefits to the community.

Several studies that have a similar scope include a study entitled The Role of Entrepreneurship Education in Higher Education in Increasing Student Competitiveness in Entering the World of Work. The research was conducted by Hamdan in 2024. The results of the research are that the Entrepreneurship Program significantly shapes students' entrepreneurial attitudes and skills. The challenges include curriculum integration, soft skills development, and adaptation to technological advancements (Hamdan, 2024).

The next research with the title The Role of Entrepreneurship Education on the Entrepreneurial Interest of Private University Students in Serang City was conducted by Saripudin Saputra in 2022. The results of the study revealed that Hypothesis 1 obtained a path coefficient value of 0.334 with a t-statistical value of 3.177 > 1.96 so that entrepreneurship education has an effect on entrepreneurial interest (Saputra & Hasryningsih, 2022).

The next research is titled The Role of Entrepreneurship Education in Moderating the Influence of Entrepreneurial Self-Efficacy on the Entrepreneurial Intention of YPPI Rembang University Students by Susanti Dwi Ilhami in 2022. The results of the study show that Entrepreneurial self-efficacy has a significant effect on entrepreneurial intention, while entrepreneurship education does not moderate the influence of entrepreneurial self-efficacy on the entrepreneurial intention of YPPI Rembang University students (Dwi Ilhami, 2022).

The next research was titled The Role of Formal Education and Self-Concept on Entrepreneurial Potential in Students by Zulia Khairani in 2018. The results of this descriptive research indicate that the formal education, self-concept and entrepreneurial potential of students of the Faculty of Economics management study program are in good condition criteria. Formal education and self-concept positively and significantly have an impact on students' entrepreneurial potential. This means that improving the quality of formal education and self-concept will increase the entrepreneurial potential of students (Khairani & Faizah, 2018).

The research with the title The Role of Entrepreneurial Orientation as a Mediation between Education and Entrepreneurial Interest in Students was conducted by Abrista Devi in 2017. The results of the study were using the SEM (Structural Equation Modeling) methodology. These findings are, entrepreneurship education has a positive and significant influence on entrepreneurial orientation; Entrepreneurial orientation has a positive and significant influence on entrepreneurship; and entrepreneurship education has a positive and significant effect on entrepreneurial intentions indirectly through entrepreneurial orientation (Abrista, 2017).

The next research with the title Analysis of the Role of Entrepreneurship Education and Social Media in Fostering Entrepreneurial Interest in Management Students of the Management Study Program, Universitas Sarjanawiyata Tamansiswa Yogyakarta by Agus Dwi Cahya in 2021. The results of the study were that the t-test showed that the entrepreneurial education variable (X1) had a positive and significant impact on the entrepreneurial interest variable (y) with a value of 0.003 and the social media variable (X2) also had a significant effect on entrepreneurial interest (Y). with a value of 0.0000. In the F test, entrepreneurship education and social media continuously affect entrepreneurial interest which is an indication with a significant value of 0.0000 (Dwi Agus & Anis Lisa, 2021).

The next research with the title The Role of Entrepreneurship Education and Love of Money on Entrepreneurial Intentions in Accounting Students, was conducted by Agni Astungkara in 2020. The results of his research show that independent entrepreneurship education has not been able to encourage the intention to be entrepreneurial, but students with a high level of Love of Money have an influence on entrepreneurial intention. The sample in this study is 70 accounting students at a private university in Surakarta. Through this research, it is hoped that universities will be able to encourage accounting students to become entrepreneurs, as well as package activity patterns to be more effective and efficient (Astungkara & Widayanti, 2020).

The next research entitled The Role of Entrepreneurship Education in Fostering Entrepreneurial Interest in Students of the Economics Education Study Program, Bhinneka PGRI University, was conducted by Rovita Arum in 2024. The results of this study show that; 1. Entrepreneurship education carried out at Bhinneka PGRI University directly and indirectly as a step for universities to equip their students in growing and developing interest in entrepreneurship, 2. The implementation of entrepreneurship education learning activities does not only emphasize materials and theories but there is applicative training by directly participating in the field, 3. Students' interest in entrepreneurship is influenced by several factors including entrepreneurial education factors, environmental factors, family factors, relationship factors, expectation factors and capital factors (Arum & Muhammad, 2024).

Challenges in the era of the industrial revolution 4.0 where technology and information technology are increasingly advanced have shifted the function of humans as a workforce which is now replaced by machines and robots, this raises the problem of unemployment in graduates starting from high school graduates and even penetrating S1/S2 and S3 graduates. Therefore, from an early age, students need to be strengthened in terms of entrepreneurship education so that students are more innovative and have competitiveness as a provision to face the 4.0 era

The purpose of this study is to find out the extent of the role of entrepreneurship education in improving students' ability to innovate and competitiveness in facing the 4.0 Era, a literature review of various articles, papers, and books in the last 5 years will be carried out so that it is new and accurate data. Furthermore, this research is expected to provide significant benefits. Theoretically, this study aims to enrich the literature on entrepreneurship education, particularly its role in fostering innovation and competitiveness in the context of the Industrial Revolution 4.0. Practically, the findings of this research can serve as a valuable reference for higher education institutions (universities and polytechnics) in designing and developing more effective, relevant, and application-oriented entrepreneurship curricula. For policymakers, this research can provide insights to support and strengthen national programs that promote entrepreneurship education. Ultimately, for students, this research is expected to inspire and motivate them to actively develop innovation capabilities and an entrepreneurial spirit as crucial capital to win the global competition in the 4.0 era.

METHOD

The research method used was qualitative, employing a literature review that aimed to explore and analyze various views, thoughts, and findings in greater depth about concepts, theories, and practices related to the role of entrepreneurship education in higher education in improving students' ability to innovate.

The first step was to identify sources relevant to the keywords entrepreneurship education and innovation in several academic databases. Then, the selected articles were screened. Relevant and eligible articles included a focus on entrepreneurship education, discussions of students' interest in entrepreneurship, and the context of the digital age. Articles that were irrelevant or did not meet the criteria were excluded from the review (Fajar et al., 2023).

After the identification process, the next step was to extract data and synthesize it using a qualitative approach. Once the data was extracted, the next step was data analysis. This analysis included organizing and grouping findings from various sources, as well as developing an in-depth interpretation of the implications of these findings in the context of the role of entrepreneurship education in the digital age (Moleong, 2017).

RESULTS AND DISCUSSION

If we look back, when traveling through toll roads or expressways, we meet officers when paying toll levies. But now everything has been replaced by barcoded machines using e-money cards. Then in banking offices, where in the past when saving or withdrawing money or transfers we easily encountered tellers, now the function of tellers has been replaced by an Auto Teller Machine which can serve the process of saving, transferring and withdrawing money. These are some of the things that happened in the 4.0 era.

The Industrial Revolution 4.0 or often referred to as cyber physical systems is a revolution that emphasizes automation and collaboration between cyber technologies. The 4.0 revolution itself emerged in the 21st century with the main feature of the merger of information and communication technology into the industrial field. With the emergence of this revolution, many things have changed in various sectors. Where at first it required a lot of workers to carry out its operations, it is now replaced by the use of technological machines (Gramedia, n.d.).

This is in line with research conducted by Wenny Murdiana in 2024 entitled The Role of Entrepreneurship Education on Students' Innovative Behavior in Facing the Industrial Revolution 4.0. The results of his research show that there is a role in entrepreneurship education in influencing students' technoprenership abilities towards the innovative behavior of students with skills in the Industrial Revolution 4.0 era as a mediation variable (Murdiana & Insannul, 2020).

Entrepreneurship or entrepreneurship is a process of doing something new or creative and different (innovative) that is useful in providing more value. Entrepreneurship comes from the words hero and business. Wira means warrior, hero, superior human being, exemplary, virtuous, brave and with a great character. Effort is an act of charity, work, and doing something. So an entrepreneur can be defined as someone who does something (Binus Business School, 2019).

Entrepreneurship education in college has a significant impact on shaping entrepreneurial attitudes, and skills. The program carried out by universities is the focus of preparing from the process of starting a business, managing a business and overcoming obstacles encountered in entrepreneurship. This is in line with a research entitled The Role of Formal Education and Self-Concept on Entrepreneurial Potential in Students, conducted by Zulia Khairani in 2018. The results of this descriptive research indicate that the formal education, self-concept and entrepreneurial potential of students of the Faculty of Economics management study program are in good condition criteria. Formal education and self-concept positively and significantly have an impact on students' entrepreneurial potential. This means that improving the quality of

formal education and self-concept will increase the entrepreneurial potential of students (Khairani & Faizah, 2018).

Furthermore, related to innovation, for example, some time ago we got to know written batik which was designed using canting by batik craftsmen, thus the price set on this piece of cloth feels so expensive. Now batik designs can be designed digitally and then applied to fabrics that result in semi-written fabrics with more stable motifs, and quality not inferior to written batik fabric.

In higher education, students are taught to innovate in order to have more competitiveness, the goals of innovation are: to be a replacement for previous products, improve quality, expand networks and create new markets. And the signs/characteristics of innovation: new, planned, distinctive, have a clear purpose and have advantages (Media Indonesia, n.d.).

The research with the title The Role of Entrepreneurship Education in Fostering Entrepreneurial Interest in Business Administration Students of the Indonesian Polytechnic Institute of Education and Professional Development Makassar was conducted by Muhammad Arfah in 2023. The results of the study show that a lecturer plays a role in motivating students to have confidence, so that the courage to act against the risks taken is born, and the lecturer teaches that students must have entrepreneurial traits, namely creative and innovative. Students' interest in entrepreneurship is influenced by internal factors, namely the desire of oneself. In addition, external factors such as the academic environment and the entrepreneurial environment can be seen directly in running a business. It can be concluded that entrepreneurship courses are one of the important courses that play a role in educating students in taking steps to become an entrepreneur (Arfah & Syam, 2023).

CONCLUSION

Entrepreneurship education in higher education coupled with the provision of innovations provided to students increases student competitiveness in the 4.0 era. To take advantage of this potential, efforts from universities are needed, be it competent teachers, adequate infrastructure, and sustainable entrepreneurship program programs that will boost students' abilities and readiness in innovative entrepreneurship to win competition. For future development, it is recommended that universities not only focus on theory but also strengthen practical aspects through collaboration with industry and business incubation programs. For future researchers, it is important to explore mixed methods approaches to measure the impact of entrepreneurship education more comprehensively, as well as research the role of digital literacy and social media in strengthening students' innovation capacity and entrepreneurial spirit.

REFERENCES

Abrista, D. (2017). Peran orientasi kewirausahaan sebagai mediasi antara pendidikan dan minat berwirausaha pada mahasiswa. *Journal Li Falah*, 2(2).

Arfah, M., & Syam, S. (2023). Peran pendidikan kewirausahaan dalam menumbuhkan minat berwirausaha pada mahasiswa administrasi bisnis Politeknik Lembaga Pendidikan dan Pengembangan Profesi Indonesia Makassar. *Journal INNOVATIVE*, 3(1). Retrieved from j-innovative.org/index.php/Innovative

Arum, R., & Muhammad, A. (2024). Peran pendidikan kewirausahaan dalam menumbuhkan minat wirausaha mahasiswa Program Studi Pendidikan Ekonomi Universitas Bhinneka

PGRI. *Journal Penkomi*, 7(2). Retrieved from http://jurnal.stkipbima.ac.id/index.php/PK/article

Astungkara, A., & Widayanti, R. (2020). Peran pendidikan kewirausahaan dan love of money terhadap intensi berwirausaha pada mahasiswa akuntansi. *Journal Akuntansi dan Pajak*, 20(2), 257-265. Retrieved from http://jurnal.stie-aas.ac.id/index.php/jap

Badan Pusat Statistik. (2024, November 5). *Tingkat pengangguran terbuka (TPT) sebesar 4,91 persen*. Retrieved from https://www.bps.go.id/id/pressrelease/2024/11/05/2373/tingkat-pengangguran-terbuka--tpt--sebesar-4-91-persen-.html

Binus Business School. (2019, April). *Kewirausahaan*. Retrieved from https://bbs.binus.ac.id/business-creation/2019/04/kewirausahaan/

Dwi Agus, C., & Anis Lisa, S. (2021). Analisis peran pendidikan kewirausahaan dan media sosial dalam menumbuhkan minat wirausaha mahasiswa Program Studi Manajemen, Universitas Sarjanawiyata Tamansiswa Yogyakarta. *Journal PERFORMANCE*, 11(2).

Dwi Ilhami, S. (2022). Peran pendidikan kewirausahaan dalam memoderasi pengaruh entrepreneurial self-efficacy terhadap intensi wirausaha mahasiswa Universitas YPPI Rembang. *Journal FEASIBLE*, 4(2), 135-144.

Fajar, Gafur, R., & Muhattan Jasmine. (2023). Pemberdayaan pelaku UMKM kerajinan anyaman bambu. *Batara Wisnu Journal: Indonesia Journal of Community Services*, 2(2), 340-345.

Gramedia. (n.d.). *Revolusi industri 4.0*. Retrieved from https://www.gramedia.com/best-seller/revolusi-industri-4-0/

Hamdan. (2024). Peran pendidikan kewirausahaan di perguruan tinggi dalam meningkatkan daya saing mahasiswa dalam memasuki dunia kerja. *Journal Pendidikan dan Kewirausahaan*, 12(2). Retrieved from https://journalstkipgrisitubondo.ac.id/index.php/PKWU/index

Khairani, Z., & Faizah, K. (2018). Peran pendidikan formal dan konsep diri terhadap potensi kewirausahaan pada mahasiswa. *Journal Ilmiah Ekonomi dan Bisnis*, 15(2).

Media Indonesia. (n.d.). *Inovasi adalah pengertian, tujuan, ciri-ciri, dan contohnya*. Retrieved from https://mediaindonesia.com/humaniora/534865/inovasi-adalah-pengertian-tujuan-ciri-ciri-dan-contohnya

Moleong, L. J. (2017). *Metodologi penelitian kualitatif edisi revisi*.

Murdiana, W., & Insannul, K. (2020). Peran pendidikan kewirausahaan terhadap perilaku inovatif mahasiswa dalam menghadapi revolusi industri 4.0. *Journal Manajemen, Kepemimpinan dan Supervisi Pendidikan (JMKSP)*, 5(1).

Pengaruh Pelatihan Kerja dan Rekrutmen Terhadap Kinerja Karyawan Di Perguruan Tinggi Deddy Novie Citra Arta, A., Tannady, H., Fitriadi, H., Supriatna, D., Yuniwati, I., Penerbangan Jayapura, P., Multimedia Nusantara, U., Serelo Lahat, S., Al Farabi Pangandaran, S., & Negeri Banyuwangi, P. (2023). Analysis of The Influence Of Job Training And Recruitment On Employee Performance In Higher Education. *Management Studies and Entrepreneurship Journal*, *4*(1), 587–596.

Pertiwi, T. P., Pangestuti, D. D., & Febrian. (2024). Strategi pengembangan kompetensi dosen untuk menanggapi tantangan pendidikan abad ke-21. *Journal Review Pendidikan dan Pengajaran (JRPP)*, 2586-2596. https://doi.org/10.31004/JRPP.v711.25779

Saputra, S., & Hasryningsih, A. A. (2022). Peran pendidikan kewirausahaan terhadap minat

berwirausaha mahasiswa universitas swasta di Kota Serang. *Indonesia Journal of Economy, Business, Entrepreneurship and Finance*, 2(2). https://doi.org/10.53067/ijebef.v2i2