

Disparities in Entrepreneurial Readiness: A Comparative Analysis of Study Programs and Gender Differences in Higher Education

Saidun Hutasuhut¹, Muhmmad Bukhori Dalimunthe², Hasyim³, Haryadi⁴
{saidu@unimed.ac.id¹, daliori86@unimed.ac.id², hasyimesty@unimed.ac.id³, aryadi@unimed.ac.id⁴}
¹²³⁴ Faculty of Economics, Universitas Negeri Medan, Medan, Indonesia

Abstract. This study examines differences in entrepreneurial readiness among students of entrepreneurship, management, and education study programs and by gender. A total of 215 respondents were involved, consisting of 62 students of the Entrepreneurship study programs, 65 Management students, and 88 Education students of the Faculty of Economics, State University of Medan. The assumptions of normality and homogeneity were met. The research findings showed significant differences between groups. LSD further tests showed that management students had significantly higher entrepreneurial readiness than entrepreneurship and education students. However, a more conservative Dunnett T3 test showed that significant differences only occurred between management and education students. Based on gender, there are also differences in entrepreneurial readiness. Male students have higher readiness than female students. These findings indicate that the background of the study program affects the level of entrepreneurial readiness, with management students showing higher readiness.

Keywords: Entrepreneurial Readiness, Gender, Higher Education, Study Programs.

1 Introduction

Entrepreneurship plays an increasingly important role in driving economic growth and job creation, particularly in developing countries such as Indonesia. Although the micro, small, and medium enterprise (MSME) sector has experienced significant growth since the Asian financial crisis, most Indonesian entrepreneurs are still necessity-driven rather than strategically and innovatively driven [1]. This condition indicates that entrepreneurship education needs to be developed in higher education institutions as an important instrument for instilling an entrepreneurial mindset, knowledge, and skills in students. [2], [3].

Many studies have explained that entrepreneurship education plays a role in increasing readiness for entrepreneurship through strengthening self-efficacy, knowledge, and an entrepreneurial mindset[4], [5]. However, these studies generally only examine students as a homogeneous group, without considering the differences in academic backgrounds between study programs. Meanwhile, curriculum design, pedagogical approaches, and competency orientation may differ between study programs such as entrepreneurship, management, and education. These differences have the potential to have varying impacts on the level of entrepreneurial readiness.

In addition to academic factors, gender aspects also need to be a focus of attention. International studies explain that there is a gender gap in entrepreneurial activities, which is often influenced by institutional factors [6]. However, in Indonesia, studies on how gender differences affect entrepreneurial readiness at the university level, especially across study programs, are still very limited.

This condition explains the lack of studies, especially comparative analyses of entrepreneurial readiness between study programs, and the lack of studies on the role of gender in influencing entrepreneurial readiness in the academic world. This study attempts to fill this gap by analyzing the entrepreneurial readiness of students between entrepreneurship, management, and education study programmers and testing the differences based on gender. Through a comparative statistical approach (ANOVA, LSD), this study provides stronger empirical evidence regarding the heterogeneity of Indonesian students' entrepreneurial readiness. The findings of this study are expected to enrich the entrepreneurship literature, which forms the theoretical basis for the development of more adaptive and inclusive curricula and learning strategies in higher education.

2 Literature Review

2.1 Entrepreneurial Readiness and Education

Entrepreneurial readiness is a multifaceted concept that encompasses knowledge, interest, motivation, and ability. Personal, cognitive, and social capabilities enable an individual to take concrete steps in starting a business. This aspect reflects not only desire (intention) but also actual readiness, which includes skills, knowledge, resources, and emotional maturity [7]. Entrepreneurial readiness is often developed as a framework for measuring students' readiness to start a business. Factors that influence this include entrepreneurial training, environmental support, access to mentors, and the courage to take risks [8]. Participants in lifelong learning programs in Malaysia demonstrate moderate to high levels of readiness [9]. Similarly, undergraduate students in Nigeria demonstrate high entrepreneurial readiness, regardless of gender, business experience, or academic ability [10].

A theoretical framework for measuring entrepreneurial readiness is being developed, with the aim of providing a holistic and scientifically based tool for assessing entrepreneurial potential [11]. To measure an individual's readiness for entrepreneurship, it is grouped into three dimensions: sociological, psychological, and managerial-entrepreneurial factors [12]. Entrepreneurial readiness is basically measured from cognitive, affective, and psychomotor aspects. In the cognitive dimension, readiness is demonstrated through an individual's ability to recognize opportunities, understand business planning, and possess technical knowledge related to business management and the necessary regulations. Emphasize that entrepreneurial readiness depends on young people's mindset (tendency) towards entrepreneurial activities [13].

The affective dimension is reflected in positive attitudes towards entrepreneurship, intrinsic motivation, self-efficacy, and risk-taking behavior, which have been shown to contribute significantly to the formation of entrepreneurial intention [14],[15]. Meanwhile, the psychomotor dimension relates to practical skills that enable individuals to take concrete

actions, such as preparing a business plan, testing the market, managing resources, and implementing promotional strategies [16]. These three dimensions synergistically form entrepreneurial readiness that encourages individuals to engage in entrepreneurial practices.

2.2 Entrepreneurship Education:

Entrepreneurship education has developed significantly, becoming integrated into various disciplines such as engineering and business. This education aims to instill general skills such as creativity, innovation, and communication, which are important for a competitive global market [17], [18]. Active learning models, such as project-based courses and business plan development, are commonly used to enhance entrepreneurial competencies. These models have shown positive impacts on creativity and innovation, although they may not fully develop the skills associated with starting a new business [19].

In China, entrepreneurship education has developed in higher vocational education, with a focus on the practical skills and knowledge needed for business creation and management [20]. In Indonesia, entrepreneurship education is also taught at universities, especially in business-related fields, and has even expanded into non-business fields. Entrepreneurship education in Indonesia is also effective in increasing entrepreneurial intent and does not differ between genders [21].

2.3 Gender Differences and Fields of Study in Entrepreneurship

A number of existing studies explain that there are significant differences in entrepreneurial interest and readiness based on gender and study programs. Male students tend to be more confident and more interested in becoming entrepreneurs than female students, who often exhibit psychological barriers such as fear of failure and lack of self-confidence [22], [23].

In addition, backgrounds such as business, management, or technology generally show greater readiness and higher intentions than students from humanities, education, or other social science majors [24], [25]. The disparity in entrepreneurial intent may stem from differences in educational backgrounds between business and non-business fields, such as the humanities, arts, and health [26].

3 Research Method

This study uses a comparative quantitative approach with the aim of analysing differences in the level of entrepreneurial readiness among students based on their study programme and gender. The variable studied is entrepreneurial readiness as the dependent variable, while the study programs (Entrepreneurship, Management, and Education) and gender (male and female) are categorical independent variables.

3.1 Population and Sample

The research population consists of all students enrolled in the Entrepreneurship, Management, and Education programmes at the Faculty of Economics, Medan State University. The research sample consisted of 215 students, comprising 62 students from the Entrepreneurship study programs, 65 students from the Management study programs, and 88 students from the Education study programs. The sample was selected using purposive sampling, with the criteria

being students who were active in the even semester of the 2024/2025 academic year and had taken entrepreneurship courses.

3.2 Research Instruments and Data Collection

Data collection for this study used an entrepreneurial readiness questionnaire developed based on cognitive, affective, and psychomotor indicators. The measurement scale used a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). Validity was tested through item-total correlation analysis, while reliability was measured using Cronbach's alpha coefficient, which showed values in the reliable category (> 0.70). Data collection was conducted online by sharing the questionnaire link with respondents. Respondents participated in filling out the questionnaire on a voluntary basis.

3.3 Data Analysis Techniques

The data were analysed using an independent t-test to identify differences in entrepreneurial readiness based on study programs and gender. Prior to testing the hypothesis, normality and homogeneity of variance tests were conducted. To identify specific differences between groups, further tests were conducted using the Least Significant Difference (LSD) and a more conservative confirmation test, namely Dunnett T3. All analyses were performed using SPSS version 27 software.

4 Results and Discussion

4.1 Instrument Validity and Reliability Test

The results of the instrument validity test showed that all 23 items were valid because they had a Corrected Item-Total Correlation value above 0.30. The reliability test produced a Cronbach's alpha value of 0.955, which indicates a very high level of internal consistency [27]. Thus, this instrument is suitable for use in research.

4.2 Normality and Homogeneity Test

After the data was obtained through questionnaires, a normality test was conducted. The test results showed that the Entrepreneurship and Education study programmes had a normal distribution, with both the Kolmogorov-Smirnov test and the Shapiro-Wilk test being greater than alpha 0.05. However, for the Management study programs, the results of the two tests showed different conclusions. The Kolmogorov-Smirnov test (Sig. > 0.200) showed that the data were normal, but the Shapiro-Wilk test showed a significance value of 0.025, which was less than 0.05. Although the data in the Management group was not normally distributed based on the Shapiro-Wilk test and data transformation efforts had been made (logarithm and lognatural), it still did not meet the normal data requirements. The parametric one-way ANOVA analysis was still conducted. This decision was based on the opinion that ANOVA is quite robust against normality violations, especially when the sample size is large and relatively balanced [28], as in this study ($n > 60$ for each group). Then, the normality test of the Entrepreneurial Readiness score based on gender also showed that the data were normally distributed. The Kolmogorov-Smirnov test results showed a p-value of 0.200 ($p > 0.05$), and the Shapiro-Wilk test also showed a p-value of 0.293 ($p > 0.05$). The calculation results are presented in Table 1.

Furthermore, the results of the homogeneity of variance test using the Levene test obtained a mean of 0.245 ($p > 0.05$). This explains that the assumption of homogeneity of variance is fulfilled for the three study programme groups, so the data is suitable for further analysis with ANOVA. Then, the results of the homogeneity of variance test based on gender using Levene's Test produced a value of $F = 4.002$, $p = 0.047$ ($p < 0.05$). These results indicate that the variance in entrepreneurial readiness between male and female students is not homogeneous. Therefore, the interpretation of the test results using equal variances not assumed is more appropriate.

4.3. Analysis of Variance (ANOVA) Test of Entrepreneurial Readiness

The results of the one-way ANOVA test indicate a significant difference between students in the Entrepreneurship, Management, and Education programs. The $F(2,212)$ value = 7.725, $p = 0.001$ ($p < 0.05$) indicates that there is a difference in the level of entrepreneurial readiness between the study programme groups. Based on the mean values, students in the management study programme had the highest level of entrepreneurial readiness ($M = 93.97$, $SD = 13.05$), followed by students in entrepreneurship ($M = 89.10$, $SD = 13.13$), while Education students showed the lowest average entrepreneurial readiness ($M = 85.10$, $SD = 14.76$). These findings provide empirical evidence that academic background influences students' level of entrepreneurial readiness. These results also reinforce the view that different academic factors and curricula can affect students' entrepreneurial readiness in higher education.

Entrepreneurial readiness based on gender yielded a t-value of $t(119.53) = -2.097$, $p = 0.038$ ($p < 0.05$). This explains that there is a significant difference in entrepreneurial readiness between male and female students. Male students have a higher level of entrepreneurial readiness (mean = 92.00, $SD = 11.88$) compared to female students (mean = 87.86, $SD = 14.85$). The mean difference of 4.145 indicates that gender plays a role as a factor that differentiates the level of entrepreneurial readiness among students. The results of the difference test (ANOVA) are presented in Table 1.

Table 1. Summary of Normality, Homogeneity, and ANOVA Test Results

Analysis	Group	Normality Test	Homogeneity Test	ANOVA / t-test	Conclusion
Study Programme	Entrepreneurship	KS > 0.200; SW = 0.227 (Normal)			
Study Programme	Education	KS = 0.200; SW = 0.334 (Normal)	Levene's Test $p = 0.245$ (Homogeneous)	$F(2,212)=7.725$, $p=0.001$	There are significant differences between study programmes
Study Programme	Management	KS > 0.200; SW = 0.025 (Tidak normal)			
Gender	Male & Female	KS = 0.200; SW = 0.293 (Normal)	Levene's Test $F=4.002$, $p=0.047$ (Non-Homogenous)	$t(119.53)=-2.097$, $p=0.038$	

Furthermore, due to differences in entrepreneurial readiness between study programs, a post hoc LSD test was conducted. The results showed that, first, students in the entrepreneurship study programme had a significantly different level of entrepreneurial readiness compared to management students, with a mean difference of -4.87 ($p = 0.048$). This means that management students have a higher level of readiness than entrepreneurship students. This finding is interesting because, conceptually, entrepreneurship students should gain more applicable learning experiences through an entrepreneurship-based curriculum, but the results of this study confirm that management students have stronger readiness. This can be explained by the fact that management students generally have a broader business orientation and are exposed to comprehensive managerial theory, which in turn shapes their self-efficacy and readiness to face business challenges [29].

Second, a comparison between Entrepreneurship and Education students showed no significant difference ($p = 0.082$). This explains that the entrepreneurial readiness of education students is relatively the same as that of Entrepreneurship students. This is quite interesting, even though the education study programs do not specifically teach entrepreneurship, they still provide contextual experiences such as teaching practice, classroom leadership, and learning programs management that are relevant to entrepreneurial skills, such as problem-solving, creativity, and adaptability [30]. These findings explain that entrepreneurship courses and professional experience in the field of education contribute to entrepreneurial readiness.

Third, the most prominent result was seen in the comparison between management and education students, where there was a significant difference with a mean difference of 8.87 ($p < 0.001$). Management students had much higher entrepreneurial readiness than education students. This supports previous research findings stating that students with a business background tend to have higher intentions and readiness for entrepreneurship because their learning emphasises aspects of business management, market analysis, and business decision-making [31], [32]. The results of the further test calculations are presented in Table 2.

Table 2. Post Hoc LSD Test Results: Entrepreneurial Readiness

Group (I)	Group (J)	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval
Entrepreneurship	Management	-4.87246*	2.44949	0.048	-9.7009 s.d. -0.0440
Entrepreneurship	Education	3.99450	2.28789	0.082	-0.5154 s.d. 8.5044
Management	Entrepreneurship	4.87246*	2.44949	0.048	0.0440 s.d. 9.7009
Management	Education	8.86696*	2.25670	0.000	4.4185 s.d. 13.3154
Education	Entrepreneurship	-3.99450	2.28789	0.082	-8.5044 s.d. 0.5154
Education	Management	-8.86696*	2.25670	0.000	-13.3154 s.d. -4.4185

Upon further analysis, management students had the highest entrepreneurial readiness ($M = 93.97$, $SD = 13.05$), followed by entrepreneurship students ($M = 89.10$, $SD = 13.13$), while Education students ranked lowest ($M = 85.10$, $SD = 14.76$). This difference indicates that the curriculum and academic orientation influence the level of student readiness. The management study program, which emphasises market analysis, strategic planning, and business management, appears to contribute more strongly than other study programs. Conversely, the education study program relatively less emphasizes entrepreneurial competence, resulting in a lower level of readiness among its students. This finding reinforces the study that the curriculum and academic environment play a major role in shaping students' entrepreneurial readiness.

The differences in students' entrepreneurial readiness between study programs can be explained by the Theory of Planned Behaviour and the concept of entrepreneurial self-efficacy [33]. Management students show higher readiness because their curriculum strengthens perceived behavioural control through project-based learning, case studies, and organisational management, which are relevant to business management skills. Meanwhile, entrepreneurship students, despite their focus on business creation, often experience the realism effect due to more intense exposure to information about entrepreneurial risks and uncertainties, which affects their perception of readiness, tending to be lower despite their high competence in innovation and opportunity recognition [34].

From a curriculum perspective, it is necessary to focus on interdisciplinary learning that integrates managerial, innovative, and pedagogical competencies in all three study programs. Strengthening learning based on real-world experiences through internships, business projects, and teaching entrepreneurship programs needs to be improved so that students' self-efficacy and readiness have a positive impact. Other aspects that need to be integrated into the curriculum include digital literacy and technology-based entrepreneurship to ensure relevance to the demands of the digital economy, while assessment needs to be expanded to measure creativity, resilience, and the ability to transfer entrepreneurial knowledge, so that graduate profiles become more comprehensive [35].

Furthermore, based on gender, male students have a higher level of entrepreneurial readiness ($M = 92.00$, $SD = 11.88$) than female students ($M = 87.86$, $SD = 14.85$). This difference illustrates that gender factors play a role in influencing students' perceptions and readiness in facing entrepreneurial challenges. This finding confirms previous studies that reveal that men tend to have higher entrepreneurial self-efficacy than women, which implies a greater intention to start a business [36]. Social construction and gender stereotypes, in which entrepreneurship is more often associated with masculine characteristics, also influence these differences. This can hinder women from developing their interests and self-confidence to enter the business world [37]. Other research also explains that male students are more exposed to business experiences or environments that support entrepreneurship, while female students often face obstacles such as limited access to resources, gender stereotypes, and the double burden of social roles [38]. These findings confirm that academic factors (study programmes) and individual factors (gender) contribute to shaping students' entrepreneurial readiness. Therefore, the management of entrepreneurship education in higher education must be more adaptive, strengthen interdisciplinary curricula, and provide special support to reduce gender gaps in entrepreneurial readiness.

5 Conclusion

The results of this study indicate that there are differences in students' entrepreneurial readiness between study programs and genders. Management students have a higher level of entrepreneurial readiness than entrepreneurship and education students. Significant differences were found between the management and education study programs, and between management and entrepreneurship. However, there were no differences between entrepreneurship and education students. These results explain that differences in academic orientation and curriculum affect students' entrepreneurial readiness levels.

This study also reveals differences in entrepreneurial readiness based on gender, with male students having higher readiness than female students. This difference is the result of social and cultural factors, as well as different learning experiences between men and women.

The findings of this study emphasise the importance of strengthening interdisciplinary entrepreneurship curriculum and the need for more inclusive educational strategies to reduce gaps, both between study programmes and between genders. Universities are expected to provide broader practical experiences and integrate digital literacy and entrepreneurial technology in order to increase students' self-efficacy and readiness to face challenges in this era of disruption.

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