



Biology Students' Perceptions Towards Entrepreneurship Learning: A Comparative Study Based on Gender and Semester

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Abstract: This study aims to compare biology students' perceptions toward entrepreneurship learning based on gender and semester level. This study is an exploratory research with 35 biology education students as respondents. The research instrument used was a closed questionnaire with degraded answers according to a Likert scale that had been validated by experts and declared valid. Analysis of research data used is descriptive quantitative statistics and inferential statistics with t-test and ANOVA test at a significance level of 5%. The results of the study show that (1) the perception of biology education students towards entrepreneurship learning based on gender is known to male students have an average 3.11 in good category and women 3.18 in good category, while based on the semester level it is known that fourth semester students have an average 3.17 in good category, semester VI 3.14 in good category, and semester VIII 3.15 in good category (2) there is no significant difference in students' perceptions of entrepreneurship learning between male and female with a significance value of $0.613 > 0.05$; (3) there is no significant difference in students' perceptions of entrepreneurship learning between semesters IV, VI, VIII with a significance value of $0.988 > 0.05$.

Keywords: Entrepreneurship learning; Gender; Semester.

Introduction

Entrepreneurship has an important role in a country's economic growth (Budi & Fensi, 2018; Kurniasih et al., 2013; Raposo & Paco, 2011; Bruyat & Julien, 2000), and is referred to as an economic engine (Fitriati & Hermiati, 2010). Entrepreneurs play the role of being an engine driving the economy and can create jobs (Sulistiyowati et al., 2016). According to Hidayat, Rusdiana & Komarudin (2021), economic activity in developing countries such as Indonesia is heavily influenced by its entrepreneurial climate, because it can solve problems of unemployment and poverty, and encourage economic improvement (Said & Iskandar, 2020; Sulistiyowati et al., 2016). This strategic role is because entrepreneurship can foster creativity, innovation, and productivity (Raposo & Paco, 2011; Ambad & Damit, 2016).

The development of entrepreneurial values is not only important for entrepreneurs, but has begun to be developed in the world of education (Isrososiaawan, 2013). The integration of entrepreneurship in the world of education aims to shape human beings as a whole (holistic), as human beings who have character, understanding, and skills as entrepreneurs (Diandra, 2019; Nurjamiah et al., 2020; Suryana, 2011). This is confirmed by Normawati & Margono (2016) that entrepreneurship has a strategic role to develop skilled, independent, and competitive human beings. Thus, it is necessary to strengthen educational policies in order oriented towards life skills such as entrepreneurial skills (Afwan et al., 2022), in order to have 21st century skills, namely Critical Thinking, Creativity, Collaboration and Communication (Afwan et al., 2020; Maulidah, 2019; Setiawan, 2016).

Entrepreneurship education is an important policy to facilitate meaningful learning, not too theoretical, and

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has a link and match with work needs (Winarti, 2014; Samani, 2013). Entrepreneurship education can facilitate the development of entrepreneurial skills in a structured and systematic way (Muliadi et al., 2022; Muliadi & Mirawati, 2020). Thus, strengthening entrepreneurship education has a high urgency to accelerate the economic development of the Indonesian nation (Wardhani et al., 2018; Paramita, 2017). This opinion is supported by the results of Darwanto's research (2012) that entrepreneurship education has an important role in producing new entrepreneurs and has a direct impact on reducing unemployment and increasing economic growth. The growth of new businesses in various fields in the long term will have a positive impact on stabilizing the economy (Slamet et al., 2014). According to Listyawati (2017) entrepreneurship has a positive contribution to economic progress, where developed countries require an average 7% of the population to become entrepreneurs (Asy'ari et al., 2022; Mirawati et al., 2016).

According to Minniti et al. (2005), entrepreneurship has been believed to be an important force in global economic growth that creates new businesses and economic growth (Suwardi, et al., 2021). Thus, entrepreneurship learning is encouraged to be developed in the Indonesian education curriculum (Winarti, 2014), starting from the elementary level to university (Wardhani et al., 2018). Entrepreneurship education as a center for instructional activities influences students in increasing their capabilities through collaborative, innovative and creative learning (Harwiki, 2019). Entrepreneurship learning has been implemented in the tertiary curriculum to facilitate the development of student entrepreneurial skills in a structured and systematic way (Muliadi et al., 2021). This learning is expected to produce creative, innovative and independent college graduates to build their businesses and open new jobs (job creators) (Indriyatni et al., 2014).

Entrepreneurial learning is expected to reduce the unemployment rate contributed by universities (Muliadi & Mirawati, 2020). This is considering the unemployment data recorded at the Central Statistics Agency (BPS) in February 2022 that the Open Unemployment Rate (TPT) is 5.83% of the total working age population in Indonesia and 14% are university graduates (BPS, 2022). This official BPS data is one of the driving factors for revitalizing entrepreneurship learning in tertiary institutions (Muliadi, Mirawati & Prayogi, 2021) in order can produce quality graduates and contribute positively to people's lives (Muliadi et al., 2020; Muliadi, 2020b; Primandaru, 2017; Darmawan & Warmika, 2016; Fatimah, 2013). According to Muliadi, et al. (2021), every university graduate should be able to become an agent of change in people's lives. Thus,

university graduates can answer the expectations of the community which states that having a higher education will get a coveted job and improve their standard of living (Wardhani et al., 2018).

However, the availability of jobs is limited, while the increase in the workforce means that highly educated workers have not been optimally absorbed (Asy'ari et al., 2022). According to Santoso & Handoyo (2019), current conditions show that the level of the workforce in Indonesia is still quite high, because there is still dependence between individuals and job opportunities. Thus, college graduates should have life skills to be able to become job creators by empowering the resources around them, not just as job seekers (Muliadi & Mirawati, 2020; Muliadi, Asri & Lestarini, 2020). According to Wahyuni and Hidayati (2017), tertiary institutions are expected to develop curriculum and learning to facilitate improving student life skills, one of which is through strengthening entrepreneurial skills (Darmawan & Warmika, 2016; Mirawati et al., 2016). According to Subagio, Muliadi & Sutarto (2021), it is important for college graduates to have competence in the field of entrepreneurship in order to be able to pursue entrepreneurship as an alternative to anticipate limited job opportunities in their scientific fields (Muliadi et al., 2021; Munawar & Supriatna, 2018; Dewi, 2016).

The Indonesian government launched the National Entrepreneurship Movement in February 2011 to encourage people, especially the younger generation, to be active in entrepreneurship (Setyawan, 2016; Mirawati et al., 2016). The form of implementation through the policy of the Directorate General of Higher Education Education to enforce entrepreneurship education as a compulsory subject in the curriculum (Suwardi et al., 2021; Muliadi et al., 2020). This policy can develop student creativity and innovation in pursuing entrepreneurship (Primandaru, 2017; Darmawan & Warmika, 2016;), create jobs and improve welfare (Fatimah, 2013). The Mandalika Education University's Biology Education Study Program has established entrepreneurship education as a compulsory subject for every student. Entrepreneurial learning is expected to develop the competence of biology students to become skilled entrepreneurs in managing businesses independently and competitively (Wardhani et al., 2018). This is in accordance with the opinion of Bygrave (2003) that business interest is not innate but can be learned and taught.

Entrepreneurship education has a positive influence on the entrepreneurial character of students (Athayde, 2009), is able to build confidence to make entrepreneurship a career choice (Anderson & Jack, 2008), and can produce new entrepreneurs (Mohamad et al., 2015; Heinonen & Poikkijoki, 2006). The important

role of entrepreneurship education in developing student attitudes towards entrepreneurship has been proven by several research results, namely Muliadi, Mirawati & Prayogi (2021) that there is an influence of entrepreneurship education and subjective norms on student beliefs in pursuing entrepreneurship; Muliadi, Mirawati & Armansyah (2022) that there is a significant influence of entrepreneurship education on student attitudes in entrepreneurship; Wazni, et al. (2023) that there is a significant influence of entrepreneurship learning and subjective norms on students' attitudes and interests in entrepreneurship. Thus, entrepreneurship education has a positive influence on the development of students' beliefs, perceptions and attitudes in the field of entrepreneurship (Setiawan & Sukanti, 2016).

According to Alma (2011) there are two factors that determine a person's attitude towards entrepreneurship, namely personal attributes and personal environment. Gender is one of the personal attributes that has a role in moderating student attitudes towards the effectiveness of entrepreneurship learning (Setyawan, 2016). Wongnaa & Seyram (2014) explained that the gender factor has a significant positive effect on student decisions in assessing the importance of entrepreneurship. Gender is a productive variable that can be used to find out some information (Muliadi, Imran & Sutarto, 2021). There are biological differences between male and female students which enable them to develop different attitudes and behaviors (Bae et al., 2014). Meanwhile, one form of personal environment is the student semester level because students who are in higher semesters will have more knowledge and experience, so that it can influence their attitude towards learning entrepreneurship (Jabali et al., 2020). Thus, an exploratory study is needed to determine student perceptions of entrepreneurship education in terms of gender and semester level in lectures in the Biology Education Study Program.

Method

This study is an exploratory descriptive research (Muliadi & Mirawati, 2020; Muliadi et al., 2021), to describe students' perceptions of entrepreneurship learning based on gender differences and student semester levels. Respondents were 35 students of Biology Education at the Mandalika University of Education who were obtained using a convenience sampling technique with consideration of the accessibility of respondents in filling out online questionnaires (Fink, 2011). The research instrument was a closed questionnaire with degraded answers according to the Likert scale (Muliadi et al., 2021) and distributed using the media google form (Adha, et al., 2020). Questionnaire development is limited to

indicators regarding student perceptions of the positive impact of entrepreneurship learning in increasing knowledge, beliefs, and intentions in entrepreneurship. The questionnaire compiled was adopted from a questionnaire developed by Muliadi, Mirawati & Prayogi (2021) and has been validated by experts and declared valid.

Analysis of research data using quantitative descriptive statistics and inferential statistics. Quantitative descriptive analysis to describe data on student perceptions of entrepreneurship learning based on gender differences and student semester levels. The average student perception data is interpreted in the form of categories with the criteria as described (Muliadi, 2020a) in the Table 1.

Table 1. Criteria for interpreting student perceptions

Average score (\bar{p})	Interpretation
3.51 - 4.00	Excellent
2.51 - 3.50	Good
1.51 - 2.50	Fair
1.00 - 1.50	Less

Inferential statistical analysis was used to determine differences in student perceptions of entrepreneurship learning based on gender and semester level. Differences in student perceptions of entrepreneurship learning based on gender were analyzed using the t-test at a significance level of 5% with the formulation of a statistical hypothesis, namely $H_0: \mu_1 = \mu_2$ (no significant difference in student perceptions of entrepreneurship learning between male and female) and $H_1: \mu_1 \neq \mu_2$ (there is a significant difference in students' perceptions of entrepreneurship learning between male and female). Meanwhile, differences in student perceptions of entrepreneurship learning based on semester level were analyzed using the ANOVA (Analysis of Variance) test at a significance level of 5% with the formulation of a statistical hypothesis, namely $H_0: \mu_1 = \mu_2$ (no significant difference in student perceptions of entrepreneurship learning between semesters IV, VI, VIII) and $H_1: \mu_1 \neq \mu_2$ (there are significant differences in students' perceptions of entrepreneurship learning between semesters IV, VI, VIII). If the results of the analysis are significant or the p-value of the t-test and ANOVA test is less than 0.05, then H_0 is rejected and H_1 is accepted or vice versa.

Result and Discussion

A description of the data on perceptions of biology education students towards entrepreneurship learning based on gender and semester level is presented in Table 2.

Table 2. Data on perceptions of biology education students towards entrepreneurship learning

Variable		N	Σ Skor	\bar{p}	Category
Gender	Male	14	43.57	3.11	Good
	Female	21	66.71	3.18	Good
Semester	IV	5	15.86	3.17	Good
	VI	17	53.43	3.14	Good
	VIII	13	42.00	3.15	Good

The description of the measurement data in the table above shows that the perceptions of biology education students towards entrepreneurship learning based on gender, male students have an average 3.11 in good category and women 3.18 in good category, while based on semester level IV semester students have average 3.17 in good category, semester VI 3.14 in good category, and semester VIII 3.15 in good category. The description of the data is emphasized in the Figure 1.

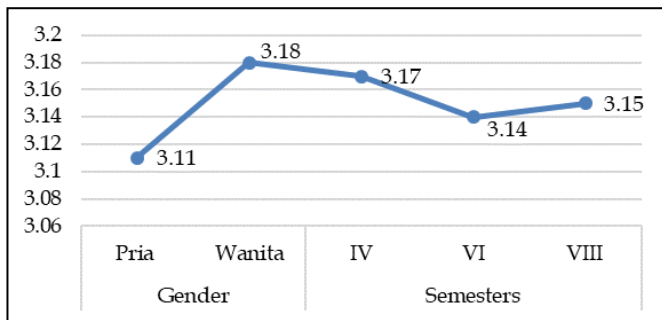


Figure 1. Average Score of Biology Students' Perceptions

Inferential statistical analysis was used to determine differences in student perceptions of entrepreneurship learning based on gender and semester level with the condition the data is normally distributed. The normality test was carried out using the Kolmogorov-Smirnov's test with the result that a significance value 0.711 was greater than the alpha testing value 0.05 (>0.05), so that the data on student perceptions of entrepreneurship learning was normally distributed. Furthermore, an analysis of differences in students' perceptions of entrepreneurship learning based on gender was carried out using the t-test (independent sample test) with the results as presented in Table 3.

Table 3. t-test results (independent sample test)

Variance	t-test for Equality for Means			
	t	df	Sig.	Mean diff.
Gender	-0.510	33	0.613	-0.45238

Based on the results of the t-test in table 3, it shows that the significance value of 0.613 is greater than the alpha testing value of 0.05 (>0.05), so that H_1 is rejected and H_0 is accepted, which means that there is no

significant difference in student perceptions of entrepreneurship learning between male and female.

Differences in student perceptions of entrepreneurship learning based on semester level were analyzed using the ANOVA (Analysis of Variance) test with the results as presented in Table 4.

Table 4. Anova test results

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	0.163	2	0.081	0.012	0.988
Within Groups	219.723	32	6.866		
Total	219.886	34			

Based on the results of the ANOVA test in table 2, it shows that the significance value of 0.988 is greater than the alpha testing value of 0.05 (>0.05), so that H_1 is rejected and H_0 is accepted, which means that there is no significant difference in students' perceptions of entrepreneurship learning between semesters IV, VI, VIII.

The results of this study explain that male and female biology education students have the same perception of entrepreneurship learning, which is in good category. This is evidenced by the results of statistical analysis which confirms that there is no significant difference in the perceptions of biology education students towards entrepreneurship learning based on gender. The results of this study support the results of previous research conducted by Muliadi (2020a) that there is no significant difference in entrepreneurial attitudes between male and female students; Subagio, et al. (2021) that there is no significant difference in interest in entrepreneurship between male and female students; Muliadi, et al. (2021) that there is no significant difference in motivation to study entrepreneurship between male and female students.

The results of this study also explain that biology education students in semesters IV, VI, and VIII have the same student perceptions of entrepreneurship learning, namely in good category. This result is confirmed by the results of statistical analysis which confirms that there is no significant difference in the perceptions of biology education students towards entrepreneurship learning based on semester level in lectures. Thus, it can be said that biology education students in semesters IV, VI, and VIII have quite good knowledge and experience about entrepreneurship even though they are at different semester levels. This is in accordance with the results of Muliadi's et al. research (2020) that there is an influence of knowledge and the family environment on the attitudes of student entrepreneurs. A similar opinion was conveyed by Jabali, et al. (2020) that students who

are in higher semesters will have more knowledge and experience, thus allowing for different perceptions of entrepreneurship learning. The development of entrepreneurial knowledge is influenced by individual values, motivation, learning, and desired goals (Rae, 2000).

This study explains that biology education students have good knowledge and experience about entrepreneurship, so they have a positive perception of entrepreneurship learning. Student knowledge and experience about entrepreneurship can be obtained from various sources such as learning, family environment, and daily experiences (Muliadi, 2020b). Student knowledge about entrepreneurship can be developed from the start through formal learning processes, family, and the surrounding environment (Srigustini, 2014). This is supported by the opinion of Muliadi, et al. (2021), entrepreneurship learning and the support of those around them have a positive impact on students' beliefs and attitudes towards entrepreneurship, because these two factors are proven to simultaneously strengthen students' knowledge and motivation to do entrepreneurship (Muliadi et al., 2021). Nevertheless, student knowledge about entrepreneurship obtained in the learning process is more effective in fostering student perceptions and attitudes towards entrepreneurship (Muliadi et al., 2020). Muliadi (2020b) emphasized that knowledge gained from learning experiences will change students' perceptions, attitudes, and behavior in building strong motivation to become reliable entrepreneurs.

Students' positive perception of entrepreneurship learning confirms that students have believed in the importance of entrepreneurship learning to develop student entrepreneurial knowledge and skills. This means that students give a positive assessment of the learning process in entrepreneurship education courses that have been held in the Biology Education Study Program. This is because entrepreneurship learning has a positive and significant influence in fostering student confidence and intentions in the field of entrepreneurship (Santi et al., 2017). The research results of Turker & Selcuk (2009) explain that entrepreneurship learning has a positive influence on students' confidence to pursue entrepreneurship. Wilson (2007) emphasized that the belief in entrepreneurship is a deliberate decision and can be planned and developed through entrepreneurship learning. Students having confidence in entrepreneurship are influenced by 42.3% by entrepreneurship learning and subjective norms (Muliadi et al., 2021).

Entrepreneurship learning is one of the important factors to foster students' understanding, skills, beliefs, perceptions, and attitudes towards entrepreneurship (Fiet, 2001; Kourilsky & Walstad, 1998). According to

Dewi (2016) learning entrepreneurship can drive intrinsic factors within students in building confidence for entrepreneurship (Muliadi, 2019; Antoncic and Hisrich, 2003). According to Alma (2011), students' knowledge and attitudes towards entrepreneurship can be formed through strengthening from the family environment such as parents, siblings, friends, successful entrepreneurs whom they idolize. This opinion is reinforced by the results of Rohmah's research (2011) that there is an influence of entrepreneurship learning in the family environment on personality characteristics and students' attitudes towards entrepreneurship. The research results of Wahyuningsih et al. (2017) confirm that there is a positive influence of the family environment on a person's personality. Santi, Hamzah & Rahmawati (2017) explained that subjective norms such as family, friends, lecturers, and successful entrepreneurs are external support and motivation that can influence student self-confidence in the field of entrepreneurship. This opinion is reinforced by Theory of Planned Behavior (TPB) which explains that subjective norms are factors that precede the beliefs, interests, and attitudes of an individual in the field of entrepreneurship (Listyawati, 2017; Wijaya, 2008).

Conclusion

Based on the results of the study, it can be concluded that (1) the perception of biology education students towards entrepreneurship learning based on gender, male students have an average 3.11 in good category and female 3.18 in good category, while based on the semester level it is known that students semester IV has an average 3.17 in good category, semester VI is 3.14 in good category, and semester VIII is 3.15 in good category; (2) there is no significant difference in students' perceptions of entrepreneurship learning between male and female with a significance value $0.613 > 0.05$; (3) there is no significant difference in students' perceptions of entrepreneurship learning between semesters IV, VI, VIII with a significance value $0.988 > 0.05$.

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