

Effects of Entrepreneurship Learning and Subjective Norms on Biology Students' Entrepreneurial Attitudes and Interests

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Abstract: This study aims to determine the effect of entrepreneurship learning and subjective norms on students' entrepreneurial attitudes and interests. This study is a descriptive exploratory study with 33 biology education students as subjects. The research instrument used was a closed questionnaire with degraded answers according to the Likert scale and had been validated by experts. Analysis of research data used is descriptive statistics and inferential statistics with multiple linear regression test at a significance level of 5%. The results of the study show that (1) biology students' perceptions of entrepreneurship learning, subjective norms, attitudes and entrepreneurial interests are in the Good category; (2) there is an effect of entrepreneurship learning and subjective norms on student entrepreneurial attitudes with a significance value of $0.000 < 0.05$; (3) there is an effect of entrepreneurship learning and subjective norms on student entrepreneurial interest with a significance value of $0.000 < 0.05$; (4) entrepreneurship learning and subjective norms influence student entrepreneurial attitudes by 50.1% and the rest are influenced by variables or other factors; (5) entrepreneurship learning and subjective norms affect student entrepreneurial interest by 42.7% and the rest is influenced by variables or other factors.

Keywords: Attitudes; Entrepreneurship learning; Interests; Subjective norms.

Introduction

Entrepreneurship is the behavior of an individual who uses their abilities, skills, creativity and innovation (Paramita, 2017; Wulandari et al., 2014) in taking advantage of existing opportunities and taking risks (Ahmad, 2019) to produce something new and different from that existed before (Suryana, 2013; Kasmir, 2011). Entrepreneurship has a strategic role in developing skilled, independent, and competitive human resources (Normawati & Margono, 2016). According to Wahyuni & Hidayati (2017) that the development of competitive human resources requires an educational development policy that is oriented towards life skills such as entrepreneurial skills (Afwan et al., 2022). This policy is very important and relevant to 21st century skills known as 4C skills (Critical Thinking, Creativity, Collaboration and Communication) (Afwan et al., 2020; Maulidah, 2019; Setiawan, 2017).

The development of entrepreneurial skills must be carried out systematically and consistently (Muliadi et al., 2022; Muliadi & Mirawati, 2020), bearing in mind the important role of entrepreneurship in the life and economic development of the Indonesian nation (Wardhani et al., 2018; Paramita, 2017). Economic growth can only be increased by trying to produce entrepreneurs who are able to innovate and have global competitiveness (Afwan et al., 2022). According to Darwanto's research results (2012) concluded that entrepreneurship has an important role, namely (1) increasing the number of entrepreneurs in Indonesia; (2) opening new jobs so as to reduce unemployment in Indonesia; (3) increasing national economic growth and people's income. Thus, in the long term it can stabilize the economy as a result of the growth of new businesses in various fields (Slamet et al., 2014). Therefore, it is necessary to strengthen entrepreneurial knowledge and skills through education to form individual human

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beings who have independent, creative, innovative characters and high motivation to succeed (Diandra, 2019; Nurjamiah et al., 2020).

Higher education is a higher education level that has a strategic role in developing entrepreneurial skills in a structured and systematic way (Muliadi et al., 2021; Wardhani et al., 2018). Human resources who have entrepreneurial skills are expected to be able to open new jobs (*job creators*) (Indriyatni et al., 2014), so as to reduce the unemployment rate which is still quite high. This was confirmed by data from the Central Statistics Agency (BPS) in February 2022 which noted that the Open Unemployment Rate (TPT) was 5.83% of the total working age population in Indonesia and as many as 14% were university graduates (BPS, 2022). The BPS data confirms that university graduates in Indonesia are still contributing to the unemployment rate (Muliadi, Mirawati & Prayogi, 2021) and it can be said that higher education institutions are not well organized (Wardhani et al., 2018). This is emphasized by Muliadi & Mirawati (2020) that higher education institutions should not only produce graduates in quantity, but the most important aspect is the quality of these graduates and their contribution to community life (Muliadi, 2020b).

Universities are expected to produce graduates who are innovative, competitive, independent, and ready to compete in various aspects of life (Primandaru, 2017; Darmawan & Warmika, 2016; Fatimah, 2013). According to Muliadi et al. (2021), every university graduate must be able to become an agent of change in people's lives. This is to answer the people's expectations, whereby having a higher education will get a coveted job and improve their standard of living (Wardhani et al., 2018). Nevertheless, the availability of jobs is limited, while the increase in the workforce means that highly educated workers are not 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 (*job seekers*). Thus, college graduates should have life skills so they can become *job creators* by empowering the resources around them, not just as *job seekers* (Muliadi & Mirawati, 2020; Muliadi et al., 2020). According to Wahyuni & 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).

Entrepreneurial skills are important for university graduates (Subagio et al., 2021), because entrepreneurship can be an alternative to reducing unemployment problems and job availability (Munawar & Supriatna, 2018; Muliadi et al., 2021). According to Listyawati (2017) entrepreneurship has a significant

contribution to the economic progress of a nation, where developed countries require an average of 7% of the population to become entrepreneurs (Asy'ari et al., 2022; Mirawati et al., 2016). This is because entrepreneurs can help create jobs through the development of companies, industries and businesses (Munawar & Supriatna, 2018). According to Dewi (2016), developing entrepreneurship and creating businesses is a concrete solution to solving the problem of poverty and unemployment.

The Indonesian government has launched the National Entrepreneurship Movement since February 2011 to encourage people, especially the younger generation, to be active in entrepreneurship (Setyawan, 2016; Mirawati et al., 2016). One form of implementation is by adding entrepreneurship courses to the tertiary curriculum (Muliadi et al., 2020), so that graduates can be creative, innovative, and able to pursue entrepreneurship (Primandaru, 2017; Darmawan et al., 2013). Entrepreneurship is currently a compulsory subject in the Hamzanwadi University Biology Study Program curriculum, to facilitate the development of student life skills in the field of entrepreneurship. 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). The results of previous research conducted by Asri et al. (2021) show that Hamzanwadi University biology students have an attitude and interest in entrepreneurship which is in the good category.

Entrepreneurial learning can facilitate biology students to have entrepreneurial knowledge, skills, attitudes, and interests (Supeni & Efendi, 2017; Setyawan, 2016). Entrepreneurial learning has been recognized as one of the important factors that help students to understand and cultivate entrepreneurial attitudes (Gorman et al., 1997, Kourilsky & Walstad, 1998). According to Muliadi (2020a) the knowledge gained in entrepreneurship learning will influence students' attitudes and interests to pursue entrepreneurship (Muliadi, 2019; Hattab (2014). Wardhani, Riani & Susilaningsih (2018) confirms that entrepreneurship learning can foster student interest in entrepreneurship in order to be able to face global competition. Another opinion was conveyed by Suryana (2011) that entrepreneurship is not just an innate talent or a matter of mere field experience, but can be learned and taught. Thus, those who become entrepreneurs are individuals who know their potential and learn to develop their own potential to seize opportunities and organize their businesses in realizing their goals (Dewi, 2016).

The importance of the role of entrepreneurial skills, it is necessary to prepare early on by cultivating an entrepreneurial spirit in every individual in the world of

education and the surrounding environment (Paramita, 2017; Muliadi & Mirawati, 2020; Muliadi, 2020c). Entrepreneurship is neither magic nor mystery, nor is it inborn, but can be learned by anyone and through various relevant sources (Barnawi & Arifin, 2016). According to Muliadi et al. (2021) that student knowledge about entrepreneurship obtained through learning on campus can be strengthened by input and support from people around them who are experienced in entrepreneurship or known as subjective norms. According to Theory of Planned Behavior (TPB) that subjective norms are one of the factors that influence self-efficacy, attitudes, and students' interest in entrepreneurship, where students have confidence in fulfilling directions or suggestions from people around them to participate in entrepreneurial activities (Listyawati, 2017; Wijaya, 2008).

Indrawati, Herkulana, & Syharud (2017) emphasized that what is meant by subjective norms is when students can receive directions or input from people around them regarding entrepreneurship, so they can be motivated and confident to run their business well. Meanwhile, according to Santi et al. (2017) that subjective norms are individual beliefs about the surrounding environment and motivate these individuals to follow these norms. Subjective norms can affect a person's self-confidence (*self-efficacy*) for entrepreneurship from the external side in the form of support and motivation from the surrounding environment such as family, friends, lecturers, and successful entrepreneurs (Subagio et al., 2021; Santi et al., 2017). Hamzanwadi University biology students make it possible to get strengthened in the field of entrepreneurship beyond the entrepreneurship learning process through various student activities and experience interacting with lecturers and friends (Muliadi et al., 2021). Thus, it is necessary to have a mapping to explore the perceptions of biology students about the effects of entrepreneurship learning and subjective norms on entrepreneurial attitudes and interests.

Method

This study is an exploratory descriptive study (Muliadi & Mirawati, 2020; Muliadi et al., 2021), to describe students' perceptions of the effects of entrepreneurship learning and subjective norms on the attitudes and interests of entrepreneurship in biology students. The respondents of this study consisted of 33 biology education students at Hamzanwadi University. Respondents were obtained using a *convenience sampling technique* because it considered the accessibility of respondents in filling out online questionnaires (Fink, 2011). The research instrument was in the form of a

closed questionnaire with degraded answers according to the Likert scale (Muliadi et al., 2021) and utilizing the media *google form* (Adha, et al., 2020). The questionnaire was prepared based on indicators of perceptions about entrepreneurship learning, subjective norms, entrepreneurial attitudes, and student entrepreneurial interests developed by Muliadi et al. (2021). The questionnaire is compiled into 14 statements 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 about entrepreneurship learning, subjective norms, entrepreneurial attitudes, and student entrepreneurial interests. Student perception data is interpreted in the form of categories with the criteria as described in the following table. Student perception data is interpreted in the form of categories with the criteria as described in the following Table 1 below (Muliadi & Mirawati, 2020).

Table 1. Conversion criteria of prospective science teacher perception average scores

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 statistics are used to determine the effect of entrepreneurship learning and subjective norms on students' entrepreneurial attitudes and interests. The analysis technique used is multiple linear regression at a significance level of 5% ($\alpha = 0.05$) and previously performed classical assumption tests, namely tests of normality, linearity and multicollinearity. Interpreting the results of multiple linear regression analysis, the formulation of statistical hypotheses is determined, namely $H_0: \mu_1 = \mu_2$ (no effect of entrepreneurship learning and subjective norms on student entrepreneurial attitudes and interests) and $H_1: \mu_1 \neq \mu_2$ (there is an effect of entrepreneurship learning and subjective norms on attitudes and student entrepreneurial interests). If the results of the analysis are significant or *the p-value* of the regression test is less than 0.05, then H_0 is rejected and H_1 is accepted or vice versa.

Result and Discussion

Description of data on perceptions of biology students in entrepreneurship learning, subjective norms, entrepreneurial attitudes, and student entrepreneurial interests are presented in Table 2 below.

Table 2. Data on attitudes, subjective norms, and entrepreneurial

Variabel	N	Σ Skor	\bar{p}	Category
Entrepreneurial learning	33	103	3.12	Good
Subjective norms	33	99.6	3.02	Good
Attitude	33	107.8	3.27	Good
Interest	33	104	3.15	Good

The description of the measurement data in the table above shows that the perceptions of biology education students about entrepreneurship learning have an average of 3.12 in the Good category, a subjective norm of 3.02 in the Good category, entrepreneurial attitudes of 3.27 in the Good category, and entrepreneurial interest of 3.15 in the Good category. The description of the data is emphasized in the Figure 1.

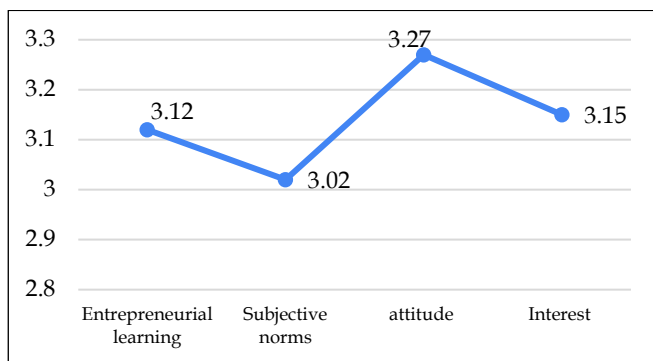


Figure 1. Average score of perceptions of biology students

Inferential statistical analysis with multiple linear regression tests was used to determine the effect of entrepreneurship learning (X_1) and subjective norms (X_2) on attitudes (Y_1) and entrepreneurial interest (Y_2) of students, who are more First, the classic assumption test was carried out, namely the normality, linearity, and multicollinearity tests. The results of the classical assumption test are presented in Tables 3 and 4.

Table 3. Results of the normality test

Variable	Kolmogorov-Smirnov's test score	Sig.
X_1	1.628	0,010
X_2	1.126	0,158
X_3	0,957	0,319
X_4	1.503	0,022

The results of the normality analysis showed that the data on student perceptions about whereas subjective norms ($0,158 > 0,05$) and entrepreneurial attitudes ($0,319 > 0,05$) were normally distributed. Whereas student perceptions about entrepreneurship learning ($0,010 < 0,05$) and entrepreneurial interests ($0,022 < 0,05$) were not normally distributed.

Table 4. Result of linearity and multicollinearity test

Linearity			Multicollinearity		
Variable	F	Sig.	Variable	Tolerance	VIF
$X_1 - Y_1$	2.199	0,096	$X_1 - X_2$	0.788	1.270
$X_2 - Y_1$	1.343	0.280			
$X_1 - Y_2$	1.490	0.233			
$X_2 - Y_2$	2.125	0.105			

The results of the classical assumption analysis show that (1) there is a linear relationship between entrepreneurship learning variables and entrepreneurial attitudes ($0.096 > 0.05$) and entrepreneurial interest ($0.280 > 0.05$); (2) there is a linear relationship between subjective norm variables and entrepreneurial attitudes ($0.233 > 0.05$) and entrepreneurial interest ($0.105 > 0.05$); (3) there are no symptoms of multicollinearity between independent variables with a VIF (*Variance Inflation Factor*) value of 1.270 which is less than 10 (< 10).

Multiple linear regression analysis was used to determine the effect of entrepreneurship learning (X_1) and subjective norms (X_2) on attitudes (Y_1) and entrepreneurial interest (Y_2) students. The results of the analysis are presented in a row in Tables 5 and 6 below.

Table 5. Simultaneous regression test results (*F-test*)

Variable	F	Sig.
$X_1 + X_2 - Y_1$	15.041	0.000
$X_1 + X_2 - Y_2$	11.194	0.000

The results of the simultaneous regression test (*F-test*) show that (1) there is an effect of entrepreneurship learning and subjective norms on student entrepreneurial attitudes with an F value of 15.041 and a significance value of 0.000 is smaller than the alpha testing value of 0.05 (< 0.05); (2) there is an effect of entrepreneurship learning and subjective norms on student entrepreneurial interest with an F value of 11.194 and a significance value of 0.000 which is less than the alpha testing value of 0.05 (< 0.05).

Table 6. Test results for the coefficient of determination

Variable	R	R Square	Adjusted R Square
$X_1 + X_2 - Y_1$	0.708	0.501	0.467
$X_1 + X_2 - Y_2$	0.654	0.427	0.389

The test results for the coefficient of determination show that (1) the value of R Square is 0.501 which means that entrepreneurship learning and subjective norms influence student entrepreneurial attitudes by 50.1% and the rest are influenced by variables or other factors; (2) the R Square value is 0.427 which means that entrepreneurship learning and subjective norms affect student entrepreneurial interest by 42.7% and the rest is influenced by variables or other factors.

The results of this study indicate that there is an influence of entrepreneurship learning and subjective norms simultaneously on the attitudes and interests of entrepreneurship students of biology. The results of this study support the results of previous research, namely the results of the research by Muliadi et al. (2021) that there is an effect of entrepreneurship education and subjective norms on student self-efficacy; the results of research by Mirawati & Subagio (2022) that there is an effect of entrepreneurship education by moderating self-efficacy on student entrepreneurial attitudes; the results of research by Muliadi & Mirawati (2020) that there is an effect of attitudes and subjective norms simultaneously on *entrepreneurial* student; the results of research by Indrawati et al. (2017) that there is an influence of attitudes and subjective norms on students' interest in entrepreneurship; the results of research by Kritiadi et al. (2016) that behavioral attitudes, subjective norms, self-efficacy influence directly or indirectly through motivation as mediation of female students' entrepreneurial interest.

The positive impact of entrepreneurship learning and subjective norms on student entrepreneurial attitudes and interests proves the *self-efficacy* (belief) of biology students to pursue entrepreneurship. The confidence of biology students certainly begins with sufficient knowledge about entrepreneurship (Muliadi et al., 2021). Thus, good knowledge of entrepreneurship has fostered biology students' interest and confidence in the field of entrepreneurship. Biology students acknowledged in their research questionnaire answers that entrepreneurial knowledge was obtained from the entrepreneurship learning process held on campus. This is in accordance with the opinion of Suryana (2011) that entrepreneurship is not just an innate talent or a matter of mere field experience, but can be learned and taught. The same opinion was conveyed by Wardhani, Riani & Susilaningsih (2018) that learning entrepreneurship can foster student interest in entrepreneurship. Entrepreneurial learning can facilitate biology students to have entrepreneurial knowledge, skills, attitudes, and interests (Supeni & Efendi, 2017; Setyawan, 2016).

Entrepreneurial learning has been recognized as one of the important factors that help biology students to understand and cultivate entrepreneurial attitudes (Kourilsky & Walstad, 1998). According to Muliadi (2020) the knowledge gained in entrepreneurship learning will influence students' attitudes and interests to pursue entrepreneurship (Muliadi, 2019; Hattab (2014). According to Fatimah (2013), entrepreneurship competencies can be developed through entrepreneurship learning activities, so that students can become individuals. creative, innovative, willing to take risks, not dependent, optimistic, and diligent (Muliadi & Mirawati, 2020). Entrepreneurial learning can move

intrinsic factors in students to become entrepreneurs, so that an entrepreneurial attitude can be formed (Dewi, 2016). According to the research results of Santi, Hamzah & Rahmawati (2017) that there is a positive influence of entrepreneurship learning on entrepreneurial beliefs and intentions. This is confirmed by Wilson (2007) that *self-efficacy* and entrepreneurial attitudes are planned decisions, so they can be developed through learning entrepreneurship.

The results of this study are that subjective norms have an important role in fostering entrepreneurial attitudes and interests of biology students. This is in accordance with the Theory of Planned Behavior (TPB) developed by Adzen (1991) that "*the theory of planned behavior can be used to predict employment status choice intention*". This theory explains that subjective norms and self-efficacy are variables that precede intention/interest (Santoso & Handoyo, 2019). This means that the experience of people around in entrepreneurship such as lecturers, other students, and successful entrepreneurs can motivate and influence student entrepreneurial attitudes and interests. This is in accordance with the results of research by Astuti & Martdianty (2012) explaining that subjective norms have a strong influence between self-efficacy and behavior attitudes. Research by Santi et al. (2017) also confirms that subjective norms have a positive and significant effect on student entrepreneurship beliefs and intentions. Santi et al. (2017) explained that subjective norms can affect a person's self-confidence (*self-efficacy*) for entrepreneurship from the external side in the form of support and motivation from the surrounding environment such as family, friends, lecturers, and successful entrepreneurs (Listyawati, 2017; Wijaya, 2008).

The results of this study are in line with Bandura's opinion (*in* Mustofa, 2014) that belief and interest in entrepreneurship is influenced by master *experience and vicarious experience*. The direct experience of biology students in mastering entrepreneurship is the most influential factor in strengthening entrepreneurial beliefs (Muliadi et al., 2021; Pamungkas, 2017). This means that direct experience in interactive learning activities and practice in entrepreneurship education is effective in developing students' confidence and interest in entrepreneurship. Furthermore, vicarious experience is student experience obtained from other people who exemplify successful entrepreneurship will increase confidence and interest in entrepreneurship (Pamungkas, 2017). This means that the experience of people around entrepreneurship (subjective norms) in increasing students' confidence and interest in entrepreneurship. Thus, the experience of biology students obtained through entrepreneurship learning and subjective norms will strengthen self-efficacy,

attitudes, and entrepreneurial interests (Widayoko, 2016).

Conclusion

Based on the results of the study, it can be concluded that (1) biology education students have perceptions in the Good category regarding entrepreneurial learning, subjective norms, attitudes and entrepreneurial interests; (2) there is an effect of entrepreneurship learning and subjective norms on student entrepreneurial attitudes with a significance value of $0.000 < 0.05$; (3) there is an effect of entrepreneurship learning and subjective norms on student entrepreneurial interest with a significance value of $0.000 < 0.05$; (4) entrepreneurship learning and subjective norms influence student entrepreneurial attitudes by 50.1% and the rest are influenced by variables or other factors; (5) entrepreneurship learning and subjective norms affect student entrepreneurial interest by 42.7% and the rest is influenced by variables or other factors.

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