

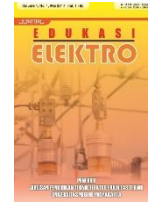


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The Influence of Leadership Spirit and Creativity on Technopreneur-Based Entrepreneurial Interest in Vocational Education

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Abstract— The lack of interest in technopreneur-based entrepreneurship raises concerns about students' readiness to face the demands of an ever-changing and dynamic job market. Therefore, this research aims to understand the factors that influence interest in technopreneur-based entrepreneurship, especially students in Vocational Education related to leadership and creativity. The research method used was a survey followed by data collection through questionnaires distributed to Vocational Education students, followed by multiple regression analysis using the T test and F test to test the three proposed hypotheses. The research results show that the spirit of leadership and creativity significantly influences the entrepreneurial interest of technopreneur-based Vocational Education students. These two variables together explain most of the variation in entrepreneurial interest, with 91.4% of the variation explained by the combination of the two factors. These findings highlight the importance of developing leadership qualities and stimulating student creativity to foster interest and success in technopreneur-based entrepreneurship.

Keywords: leadership, creativity, entrepreneurship, technopreneur.

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1 Introduction

Vocational Education, which plays a crucial role as the main platform for the younger generation to face the dynamic changes of the Fourth Industrial Revolution, encounters significant challenges in embracing and effectively implementing crucial aspects such as leadership, creativity, and technopreneur-based entrepreneurship interest within the educational practice context. This complexity not only depicts the existence of these concepts as inseparable parts of the curriculum but also highlights the fact that the implementation of leadership and creativity by students has not yet reached an optimal level, while the interest in technopreneur-based entrepreneurship in Vocational Education remains minimal. The phenomenon of educated unemployment in Indonesia indicates that despite holding bachelor's degrees, many university graduates still struggle to secure employment [1]. Alongside this, labor force data indicates that industries in Indonesia exhibit a relatively high absorption rate, resulting in a high volume of movement within the sector. The solution to alleviate this problem is the interest in entrepreneurship among young people [2]. Entrepreneurship has emerged as one of the most efficient strategies to overcome barriers to independent intellectual

growth, whether by starting a business or by developing new ideas that can enhance economic welfare for oneself and others [3]. The current phenomenon of many students lacking motivation to have an interest in entrepreneurship after graduation and becoming graduates will have a negative impact that will increase total unemployment [4]. Indonesia itself is a country with a shortage of entrepreneurs, and improvements are needed in this area to boost the economy and welfare.

The low realization of leadership qualities by students becomes a focal point of attention, where the concept of leadership, although integrated into the curriculum, often stalls at the theoretical level [5]. Leadership is a management principle that emphasizes critical thinking and strategic planning in daily life to operate a specific business. [6]. Despite having a solid understanding of the concept of leadership, students face difficulties in applying it in practical situations. The implementation of leadership qualities, still trapped in theory, creates a dynamic where students, despite having solid knowledge, still struggle to translate leadership concepts into real actions that can motivate and guide fellow students towards more concrete entrepreneurial steps.

Similar challenges are also evident in the context of student creativity. Although innovative ideas often arise, this creativity tends to stall at the conceptual stage and faces obstacles in practical implementation [7]. Creativity is the ability to generate ideas and concepts while dealing with a problem to find business opportunities [8]. When a person has the ability to create new innovations, ideas, or realized works, it is said to possess creativity. Creativity is defined as the capacity to generate new ideas and recognize new paths while crafting persuasive arguments and addressing issues from various angles [9]. Creativity in entrepreneurship is a unique aspect, which is why entrepreneurs are always encouraged to be creative. The gap between students' creative potential and their ability to apply these ideas in real-world situations becomes clear, indicating barriers that need to be overcome in bridging the gap between creativity concepts and real-world implementation.

The low interest in technopreneur-based entrepreneurship in Vocational Education is another crucial issue. Students are less motivated to explore the entrepreneurial world, especially in the technology context. The interest in entrepreneurship is someone's desire to launch their initiatives independently [10]. However, a study asserts that the spirit of collective endeavor surpasses the desire to launch a business itself. Factors such as uncertainty, lack of support, and a minimal understanding of technopreneur-based entrepreneurial opportunities are major impediments [11]. This minimal interest not only disadvantages individual students but also creates a detrimental dynamic for progress and innovation in Vocational Education.

This research, as a responsive step to these challenges, aims to thoroughly investigate the concrete impact of students' leadership and creativity on technopreneur-based entrepreneurship interest in Vocational Education. The research focus on the implementation of leadership, creativity, and their interaction is expected to provide a more holistic and comprehensive understanding. Therefore, this research will involve data and opinions from various experts who have provided in-depth insights into these concepts. Through this approach, it is hoped that this research can produce profound and applicable findings, providing a foundation for the development of more effective learning strategies in Vocational Education. The goal is to shape students not only as individuals with theoretical knowledge but also capable of implementing that knowledge in real and innovative contexts, in line with the demands of the Fourth Industrial Revolution.

In response to the complexities and challenges encountered in the context of Vocational Education, this research is initiated with the primary aim of deeply exploring the impact of students' leadership and creativity on their interest in technopreneur entrepreneurship. The research objectives encompass several aspects that need to be thoroughly understood to provide a solid foundation for the development of more effective learning strategies in the Vocational Education environment. Firstly, this study aims to gain a deeper understanding of how students' leadership qualities are reflected in the context of entrepreneurial practices. This includes analyzing various dimensions of leadership, such as the ability to inspire, manage teams, make decisions, and adapt to change. Secondly, the research also seeks to explore the role of student creativity in the context of technopreneur entrepreneurship, including how creativity manifests in generating innovative ideas, designing creative solutions to problems, and implementing these ideas in real-world situations. Additionally, the

study will investigate the interaction between leadership and creativity in shaping students' entrepreneurial interest, including how leadership and creativity abilities reinforce each other in the entrepreneurial context, and how strengthening both aspects can lead to higher entrepreneurial interest. By comprehensively addressing these questions, this research aims to provide a deep understanding of the factors influencing students' entrepreneurial interest in Vocational Education and to provide a strong foundation for the development of more effective learning strategies.

2 Methods

This research adopts a non-experimental research approach using the quantitative ex-post facto method. The non-experimental research approach is chosen because it is more observational in nature and does not involve treatment or manipulation of variables by the researcher [12]. In this context, the research aims to understand the relationship between variables that have occurred, without direct intervention from the researcher [13]. The quantitative ex-post facto method is chosen to explore the cause-effect relationships between the independent and dependent variables that have occurred [14]. This approach allows researchers to collect data from respondents and then analyze the relationships between these variables after certain events or conditions have occurred. Thus, this research does not involve researcher intervention in natural conditions or observed events.

The initial step in this research is data collection through quantitative instruments such as questionnaires or surveys. These instruments will be designed to measure the main variables, namely leadership spirit, creativity, and interest in technopreneurship-based entrepreneurship among Vocational Education students. The questionnaire will be distributed to a representative sample of Vocational Education students. The collected data will be statistically analyzed using quantitative techniques, including regression analysis to identify cause-effect relationships between independent and dependent variables. This data analysis will provide an in-depth understanding of the extent to which variables such as leadership spirit and creativity contribute to students' interest in technopreneurship-based entrepreneurship in Vocational Education. Additionally, this research involves a comprehensive literature review to build a strong theoretical foundation. References from various previous studies, leadership theories, creativity, and entrepreneurship, as well as findings relevant to the research context, will be used to enrich the explanation and analysis.

The quantitative ex-post facto approach is chosen to collect numerically measurable data related to the variables under investigation [15]. This research involves collecting data from 16 Vocational Education students as respondents. The main instrument used is a questionnaire designed to measure the variables under investigation, namely leadership spirit, creativity, and interest in technopreneurship-based entrepreneurship. Data collection conducted by the researcher using a questionnaire was carried out among vocational education students with approximately 30 questions rated on a scale from 1 (lowest) to 5 (highest). The questionnaire has been tested for its validity and reliability before being used in the research. My research paradigm can be seen in Figure 1.

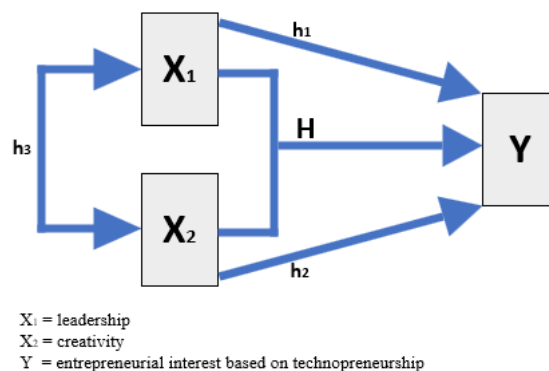


Fig. 1. Research methodology

The collected data is then analyzed using statistical techniques, particularly multiple regression analysis using T-tests and F-tests, to explore the cause-effect relationships between these variables. The analysis steps include hypothesis testing to examine the significance of the relationship between independent variables (leadership spirit and creativity) and the dependent variable (interest in technopreneurship-based entrepreneurship). Regression analysis is also used to measure the contribution of each independent variable to the dependent variable [16].

The results of this research are then presented in detail in the form of a research report. The research report includes the results of data analysis, interpretation of findings, and conclusions drawn from the research. Additionally, the research report includes recommendations for policy development and more effective educational programs based on research findings. By using a combination of non-experimental methods and the quantitative ex-post facto approach, this research is expected to make a significant contribution to understanding the influence of leadership spirit and creativity on interest in technopreneurship-based entrepreneurship in Vocational Education. Thus, this research is expected to provide a clearer insight into the factors influencing students' entrepreneurial interest and help in the formulation of policies and development of more effective educational programs in Vocational Education.

3 Result and Discussion

This multiple regression test employs T-tests and F-tests, where there will be three hypotheses to be tested based on the results. Hypothesis Formulation:

- a. H1 = There is an influence of leadership spirit (X1) on technopreneur-based entrepreneurial interest (Y).
- b. H2 = There is an influence of creativity (X2) on technopreneur-based entrepreneurial interest (Y).
- c. H3 = There is a significant influence of leadership spirit (X1) and creativity (X2) on technopreneur-based entrepreneurial interest (Y).
- d. Confidence level 95%, $\alpha = 0.05$

3.1. Basis for Decision Making

a. T-Test

If the significance value (sig) < 0.05 , or the calculated T-value $>$ the T-table value, then there is an influence of variable X on variable Y. If the significance value (sig) > 0.05 , or the calculated T-value $<$ the T-table value, then there is no influence of variable X on variable Y.

$$T - \text{table} = T (\alpha/2; n - k - 1) \quad (1)$$

$$T (0.025; 13) = 2.160 \quad (2)$$

b. F-Test

If the significance value (sig) < 0.05 , or the calculated F-value $>$ the F-table value, then there is a simultaneous influence of variable X on variable Y. If the significance value (sig) > 0.05 , or the calculated F-value $<$ the F-table value, then there is no simultaneous influence of variable X on variable Y.

$$F - \text{table} = F (k; n - k) \quad (1)$$

$$F (2; 14) = 3.74 \quad (2)$$

3.2. Testing hypotheses H1 and H2 using T-tests

a. Testing the first hypothesis (H1)

Table 1. The partial T-test result of X1 on Y

Model		Unstandarized Coefficient		t	Sig.
		B	Std.Error		
1	(Constant)	1.507	3.131	.481	.638
	Leadership Spirit (X1)	.518	.158	.485	3.275

Based on Table 1, it is known that the significance value (sig.) for the influence of X1 on Y is $0.006 < 0.05$ and the calculated t-value is $3.275 > t\text{-table } 2.160$, thus it can be concluded that H1 is accepted, meaning that there is a very significant influence of X1 on Y.

b. Testing the second hypothesis (H2)

Table 2. The partial T-test result of X2 on Y

Model		Unstandarized Coefficient		t	Sig.
		B	Std.Error		
1	(Constant)	1.507	3.131	.481	.638
	Creativity (X2)	.560	.162	.513	3.464

Based on Table 2, it is known that the significance value (sig.) for the influence of X2 on Y is $0.004 < 0.05$ and the calculated t-value is $3.464 > t\text{-table } 2.160$, thus it can be concluded that H2 is accepted, meaning that there is a very significant influence of X2 on Y. The results can be seen in Figure 2.

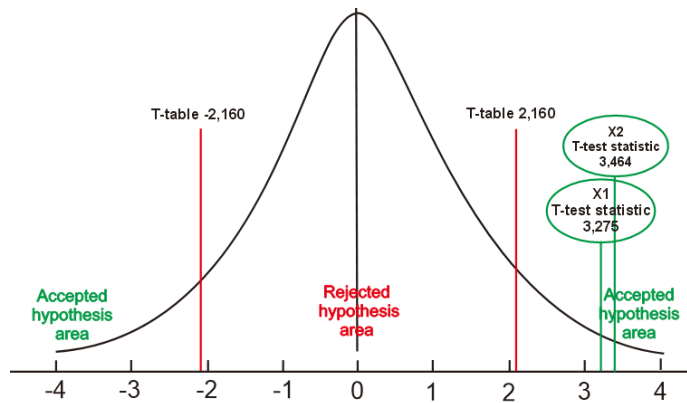


Fig. 2. The curve of the T-test results for X1 and X2.

3.3. Testing hypothesis H3 using the F-test.

a. Testing the third hypothesis (H3)

Table 3. The result of the simultaneous F-test of X1 and X2 on Y

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	720.311	2	360.156	69.234	.000 ^b
	Residual	67.626	13	5.202		
	Total	787.938	15			

Based on Table 3, it is known that the significance value (sig.) for the simultaneous influence of X1 and X2 on Y is $0.000 < 0.05$ and the calculated F-value is $69.234 > F\text{-table } 3.74$, thus it can be

concluded that H3 is strongly accepted, meaning that there is a very significant influence of both X1 and X2 simultaneously on Y. The results can be seen in Figure 3.

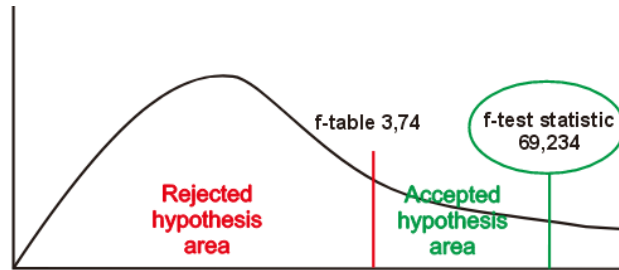


Fig. 3. The curve of the F-test results.

3.4. Coefficient of Determination

Table 4. The coefficient of determination test result

Model	R	R Square	Adjust R Square	Std. Error of the Estimate
1	.956 ^a	.914	.901	2.281

Based on Table 4, it can be observed that the value of R-squared is 0.914, indicating that the combined influence of variables X1 and X2 on variable Y is 91.4%. The results of multiple regression testing using the t-test and F-test were conducted to examine the three hypotheses proposed in this study, and the results were surprisingly remarkable. The first, second, and third hypotheses, stating that each variable, namely, leadership (X1) and creativity (X2), significantly influence entrepreneurial interest, were highly acceptable. From the data analysis, it is evident that both independent variables, namely, leadership and creativity, significantly influence technopreneur interest in the Vocational Education environment. This is reflected in the high average scores of respondent answers for the leadership variable, indicating that students with strong leadership tendencies are more inclined to become technopreneurs. Meanwhile, the creativity variable also shows high average scores, indicating that students with high levels of creativity have a greater interest in entrepreneurship.

Indicators of leadership and creativity play a crucial role in fostering technopreneur interest among students. The ability to take initiative is a key characteristic of leadership, where students with leadership qualities can proactively initiate and lead new projects. Additionally, the ability to lead teams effectively is also a supportive factor, where students who can lead teams well can motivate team members to achieve common goals. The ability to overcome obstacles is also an important aspect, where students with leadership qualities can overcome various obstacles that may arise in the entrepreneurial process. On the other hand, creativity also plays a key role in fostering entrepreneurial interest. Creative students can generate innovative ideas that inspire their businesses and find creative solutions to overcome various challenges. Moreover, the ability to think out-of-the-box is also an important attribute of creativity, where students who can think beyond conventional boundaries can find unique business opportunities that others may not have considered [17]. Thus, understanding and developing these indicators can strengthen students' interest and success in entrepreneurship.

These findings affirm that both leadership and creativity are important factors influencing students' entrepreneurial interest based on technopreneurship in Vocational Education. Therefore, in this context, educational institutions are advised to take strategic steps to enhance technopreneur interest among students. These steps include leadership training and character development, providing opportunities for creativity and innovation through activities such as business competitions and business incubation programs, and providing role models of technopreneurs who can inspire and

motivate students. This is in line with previous research indicating that leadership spirit and creativity are key factors in technopreneur success [18]. Leadership spirit enables students to take initiative, lead teams, and overcome obstacles in entrepreneurship. The ability to lead and motivate others is an important asset in building and developing businesses. Creativity allows students to generate innovative ideas and find creative solutions in entrepreneurship [19]. The ability to think creatively and out-of-the-box is key to winning the competition in the digital era.

The results of this study can assist educational institutions in formulating effective policies and programs to enhance technopreneur interest among students. One key strategy is to provide comprehensive entrepreneurship education and training. This includes supporting the development of entrepreneurship skills needed, such as business management, marketing, and leadership. Additionally, it is important to provide easier access to funding for young aspiring entrepreneurs. Thus, they can develop their ideas into real businesses. Besides these strategies, educational institutions can also play a role in creating a conducive entrepreneurial ecosystem [20]. This involves building networks and communities that support the exchange of ideas and support among young entrepreneurs. Through collaboration and experience sharing, students can feel more motivated and encouraged to start their businesses. Interestingly, this report also notes several factors that have driven technopreneurship in developing countries. Affordable internet access and the availability of technological infrastructure are two key factors that have significantly boosted technology-based entrepreneurship growth. Additionally, government policies supporting technopreneurship and a culture that values innovation and risk-taking have also played a crucial role in building a dynamic and sustainable entrepreneurial ecosystem [21]. Thus, the results of this study can serve as a foundation for educational institutions to develop more effective policies and programs to support the development of technopreneur interest in Vocational Education. This is expected to help students become more prepared and motivated to face the challenges and opportunities in the ever-changing era of Industry 4.0.

4 Conclusions

These results underscore the significant impact of leadership on technopreneur interest, with strong support for the concurrent influence of both leadership and creativity. The high coefficient of determination (R-square) of 91.4% emphasizes that the combined effects of leadership and creativity explain a substantial portion of the variation in technopreneur interest. This highlights the pivotal role of creativity in nurturing entrepreneurial interest among students, alongside the potential influence of leadership quality. Consequently, it is recommended that educational institutions adopt strategic measures such as leadership development programs, opportunities for fostering creativity and innovation, and exposure to successful technopreneurs to cultivate these attributes among students. Thus, educational institutions can better prepare students to thrive in the dynamic landscape of Industry 4.0.

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