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THE INFLUENCE OF TECHNOPRENEURSHIP SCIENTIFIC LEARNING, AND PRIOR KNOWLEDGE TOWARDS ABILITY TO IDENTIFY ENTREPRENEURIAL OPPORTUNITIES

Hendra Hidayat
Faculty of Teaching and Education Science, Universitas Bung Hatta, Padang, Indonesia
hendrahidayat@bunghatta.ac.id

Susi Herawati
Faculty of Teaching and Education Science, Universitas Bung Hatta, Padang, Indonesia
susi.herawati@bunghatta.ac.id

Eril Syahmaidi
Faculty of Teaching and Education Science, Universitas Bung Hatta, Padang, Indonesia
erilsyahmaidi@bunghatta.ac.id

Abna Hidayati
Faculty of Education Science,Universitas Negeri Padang, Padang, Indonesia
abnahidayati@gmail.com

Abstract

The low prior knowledge of entrepreneurship and learning that is not interesting and boring is assumed to have an impact on the ability to identify entrepreneurial opportunities in Technical and Vocational Education Students. The purpose of this research is to describe and test the influence of Technopreneurship Scientific Learning, and Prior Knowledge Towards the Ability to Identify Entrepreneurial Opportunities. This research uses quantitative methods with descriptive correlational. The population is all students who take entrepreneurship courses in Higher

Education as many as 300 people, and a sample of 150 students is selected using proportional random sampling. This research tool is a Likert scale that has been measured for validity and reliability. Data were analyzed using multiple regression. The research findings show that there is an influence of Technopreneurship Scientific Learning and Prior Knowledge together on the Ability to Identify Entrepreneurial Opportunities in Technical and Vocational Education Students.

Keywords

Entrepreneurial Opportunities, Prior Knowledge, Technopreneurship Scientific Learning, Technical and Vocational Education

1. Introduction

Economic development and the challenges of globalization are important concerns of the world, including developing countries like Indonesia. Important factors in the challenges of globalization are human resources and education that are applied, one of which factors that affect a nation's economy is Technical and Vocational Education. Technical and Vocational Education is also given skills and competencies in the field of science that can be applied in the community and entrepreneurial skills. However, graduates from Technical and Vocational Education are not all absorbed well in the labor market and even contribute to unemployment in Indonesia. Based on statistical data in February 2018, in Indonesia, there was 9.5 percent (688,660 people) of the total unemployed who were alumni of tertiary institutions, including graduates from vocational education (Center Bureau of Statistics, 2018). Of that number, the highest number of unemployed, 495,143 people, were university graduates with bachelor's degrees and also graduates of vocational schools. This data explains the still weak Technical and Vocational Education graduates in labor market competition, one of which is due to the thinking / thinking style of college graduates is to work both as private workers and as servants of the state not as entrepreneurs. In developed countries, such as the United States, 14 percent of the country's population are entrepreneurs. The low level of entrepreneurship is indicated because the interest, motivation for entrepreneurship is still low and the ability to read business opportunities is still low, and in general there is no exception for Technical and Vocational Education graduates in Indonesia.

The ability of entrepreneurship in students is also influenced by the learning process that occurs, both direct and indirect learning. The community and family environment also influences

one's entrepreneurial ability. All of these activities can provide experience and knowledge for someone, including students and graduates of Technical and Vocational Education. Prior knowledge in entrepreneurship for students and graduates of Technical and Vocational Education is very important so young entrepreneurs in schools and the community can see the business opportunities around them. Weak prior knowledge has an impact on starting a business that is also blocked and this can be seen from the character of the entrepreneur. The prior knowledge increases the likelihood of opportunity identification for two reasons: (1) prior knowledge provides an absorptive capacity that facilitates the acquisition of additional information about markets, production processes, and technologies (Cohen, and Levinthal, 1990), which triggers an entrepreneurial conjecture (Shane, 2000; 2003); and (2) people's existing stocks of information also influence their abilities to see solutions when encountering problems that need to be solved (Yu, 2001). According to (Shane, 2000), people have different stocks of prior information through their life experiences that increase the probability of identifying opportunities. Life experience can be in the form of job function, variation inexperience, and special interest (Shane, 2003; Vesper, 1996). Exposure to a diverse life and work experiences broadens individuals' range of what they perceive as feasible for an opportunity (Krueger, & Norris, 2000). Strengthening prior knowledge and students who do not have entrepreneurial knowledge is one alternative through curriculum and learning in schools and colleges. So the learning model becomes very important to consider, does the learning model to facilitate students to develop their entrepreneurial potential.

Technopreneurship Scientific Learning is an alternative to form students' entrepreneurial experiences in Technical and Vocational Education (Hidayat et al., 2019). Because the concept of entrepreneurship is a process of learning and interaction of many people to get benefits, this learning process is no exception in vocational education, starting from conducting needs and curriculum analysis (Ganefri et al., 2017), learning plans, facilitating learning with modules and other teaching materials (Yulastri, & Hidayat, 2017), with this impacting entrepreneurial competencies and student learning outcomes in vocational education. In addition, the entrepreneurship learning model is also very important, especially in vocational education, Technopreneurship Scientific Learning is one of vocational learning that can be integrated into productive learning (Hidayat et al., 2018), that students are trained to actively carry out activities to explore and produce products of skills that are owned (Kusumaningrum et al., 2016; Hidayat, & Yuliana, 2018; Hidayat, 2017; Yulastri et al., 2019; Ganefri et al., 2019; Hidayat et al., 2019). This

Technopreneurship Scientific Learning facilitates students to learn, to explore entrepreneurial potential through an analysis of community needs in the field that are linked to the Technical and Vocational Education learning process, with a production-based approach and commercial potential. So the purpose of this paper is to describe and test the influence of Technopreneurship Scientific Learning, and Prior Knowledge Towards the Ability to Identify Entrepreneurial Opportunities.

2. Research Methods

This study uses a regression method that aims to examine the effect of the contribution of two independent variables on one dependent variable. The study population was 300 students. Samples were taken using a proportional random sampling of 150 students. Data collection techniques in this study use a scale of technopreneurship scientific learning, prior knowledge, and scale of the ability to identify entrepreneurial opportunities. Data collection was carried out through administrating the instrument to respondents who were the research samples. Data analysis uses multiple regression.

3. Results and Discussion

Test requirements analysis is performed on research data as a basis for consideration for selecting and determining the types of data analysis techniques that will be used in testing research hypotheses. Hypothesis testing is done using multiple regression. Therefore, requirements analysis tests conducted on the data of this study are the normality test, linearity test, and multicollinearity test.

3.1 Normality Test

The normality test is carried out by the Kolmogorof-Smirnov method with a significance level of> 0.05 which means the sample comes from a normally distributed population.

The results of the normality test calculations for these three variables are presented in Table 1.

Table 1: *Variable Normality Test Results Y, X1, and X2*

Variables	Sig.(p)	Sig. Alpha	Information
Ability to Identify Entrepreneurial Opportunities (Y)	0.200	0.05	Normal

Technopreneurship Scientific Learning (X1)	0.076		Normal
Prior Knowledge (X2)	0.108		Normal

Based on the results of the statistical analysis in Table 1 above shows the P-value of the three large variables of significant level α = 0.05. The ability to identify entrepreneurial opportunity (Y) variable is 0.200, technopreneurship scientific learning variable (X1) is 0.076, and the prior knowledge variable (X2) of 0.108. Based on the description above, it can be concluded that the data come from normally distributed populations. This shows that one of the requirements for regression analysis has been fulfilled.

3.2 Linearity Test

Linearity tests are carried out to ensure that the distribution of each of the technopreneurship scientific learning and prior knowledge variable data tends to form a linear line with the distribution of the ability variable to identify entrepreneurial opportunities. This linearity test uses the F test with the help of the SPSS program version 20.00. The results of the linearity calculation are presented in Table 2 as follows.

Table 2: *Linearity Test Results Technopreneurship Scientific Learning (X1), Prior Knowledge (X2), on the Ability to Identify Entrepreneurial Opportunities (Y).*

Variables	F	Significance Level	Conclusion
X1 Y	10.560	0.004	Linier
X2 Y	4.675	0.039	Linier

Based on Table 2 that the linearity test results show a significant value that can be 0.004 and 0.039 smaller than the significance that has been set 0.05. That is, the data for each variable X is linear.

3.3 Multicollinearity Test

Seeing the possibility of multicollinearity, SPSS version 20.00 was used. If the value of Variance Inflation Factor (VIF) of 10 or more becomes a rule of thumb for inferring VIF is too large, so that multicollinearity is concluded. Based on calculations through SPSS can be seen in Table 3.

Table 3: *Multicollinearity Test Results between Technopreneurship Scientific Learning (X1) and Prior Knowledge (X2)*

Variables	Tolerance	VIF	Information

(Constant)			There is no multicollinearity
X1	0.967	1.034	
X2	0.967	1.034	

The calculation results in Table 3 show that the VIF value of technopreneurship scientific learning is 1,034 and the VIF value of technopreneurship scientific learning is 1,034. Thus, the two VIFs are smaller than 10. That is, there is no multicollinearity between the technopreneurship scientific learning and prior knowledge.

3.4 Hypothesis Test

After testing the analysis requirements and it turns out that all scores of each research variable meet the requirements for further statistical testing, then hypothesis testing is carried out. In this research, there are three research hypotheses, which are as follows.

Technopreneurship Scientific Learning (X1) and prior knowledge (X2) together contribute significantly to the ability to identify entrepreneurial opportunities (Y). The following are the results of testing the three research hypotheses that have been proposed above. Hypothesis: technopreneurship scientific learning (X1) and prior knowledge (X2) jointly contribute significantly to the ability to identify entrepreneurial opportunities (Y). The results of the regression analysis of Technopreneurship Scientific Learning (X1) and prior knowledge (X2) together with the ability to identify entrepreneurial opportunities (Y) can be seen in the following tables.

Table 4: *Analysis of Multiple Regression Technopreneurship Scientific Learning (X1) and Prior Knowledge (X2) on the ability to identify Entrepreneurial Opportunities (Y)*

Variables	R	Rsquare
X1, X2 ke Y	0.520	0.270

Based on Table 4, the multiple regression coefficient R of 0.520, the R Square coefficient of 0.270, meaning that 27% of the ability to identify entrepreneurial opportunities can be explained by technopreneurship scientific learning and prior knowledge, the rest comes from other variables as in the identification of previous problems.

Table 5: *Analysis of the Regression Significance Test*

Variables	Fcount	Ftable	Sig.
X1 X2 Y	6.846	4.08	0.003

Based on Table 5 above, obtained Fcount value of 6,846> from Ftable 4.08 with a significant level of 0.003 <from 0.05 which indicates that the regression coefficients obtained in this study have significance and significance.

Table 6: *Analysis of Multiple Regression Coefficients Variable Technopreneurship Scientific Learning (X1) and Prior Knowledge (X2) on the Variable Ability to Identify Entrepreneurial Opportunities (Y)*

Variables	Unstandardized Coefficients	T	Sig.
	B		
(Constant)	6.677	2.427	0.0372
X1	0.670	2.874	0.007
X2	0.766	3.768	0.045

Based on Table 6 above, there is a contribution of technopreneurship scientific learning and prior knowledge to the ability to identify entrepreneurial opportunities when analyzed together with multiple regression. Furthermore, the results of testing the hypothesis of the ability to identify entrepreneurial opportunities based on the technopreneurship scientific learning and prior knowledge variables in the following table.

Table 7: *Variant Analysis (Anava) Ability to Identify Entrepreneurship Opportunities Based on Technopreneurship Scientific Learning and Prior Knowledge Variables*

Source of Variance	SS	dk	MS	Fcount	Sig.	Inf.
Technopreneurship Scientific Learning and Prior Knowledge	458.305	1	458.305	4.009	0.047	Significant

Notes:

SS = Sum Squares MS = Mean Squares

dk = Degrees of Freedom Inf. = Information

From Table 7, it can be understood that the variables of the ability to identify entrepreneurial opportunities are in the category of technopreneurship scientific learning and prior knowledge, the calculated Fcount value is 4,009, while Sig. at degrees of freedom (dk) 1 and alpha (α) 0.05 is 0.047, then, according to the hypothesis testing criteria through analysis of variance (ANAVA), Sig. smaller than 0.05 which means that there are significant differences in the ability to identify entrepreneurial opportunities based on technopreneurship scientific learning and prior knowledge.

3.5 The Influence of Technopreneurship Scientific Learning, and Prior Knowledge together on Ability to Identify Entrepreneurial Opportunities in Technical and Vocational Education Students

Technopreneurship Scientific Learning is learning that facilitates the development of student entrepreneurial abilities apart from competency in the field of science can also develop well because learning is in line with the curriculum and oriented to commercial potential and market needs. The technopreneurship scientific learning phase consists of (Hidayat et al., 2018), 1) finding problems, analyzing needs and learning analysis; 2) applying a cooperative scientific approach to technopreneurship; 3) design a technopreneurship scientific business plan; 4) product manufacture (prototype of goods or services); 5) evaluating work.

In this phase or stage of technopreneurship scientific learning requires students to try to find problems and product-based solutions that have commercial potential, in this process the prior knowledge of entrepreneurship is needed. Students will also design business plans and carry out production processes, if the prior knowledge of entrepreneurship is weak and learning does not facilitate the exploration of student entrepreneurial potential, students will not be able to identify business opportunities.

In the phase of finding a problem, the analysis of needs and analysis of learning is done seriously and is very useful to get important information what is needed by the community, what is the problem of the community and solutions that will be produced in line with scientific competence and ongoing learning. So that entrepreneurial learning that facilitates to be able to explore the potential of student entrepreneurship and early entrepreneurial knowledge is very important and influential in students' ability to identify entrepreneurial opportunities, and also helps shape students' understanding of entrepreneurship (Amodu, & Aka, 2017; Sumbul, & Faisal, 2018).

4. Conclusions

Based on the findings and discussion of the results of the study, the following conclusions can be made:

Technopreneurship scientific learning and prior knowledge together contribute significantly to the ability to identify entrepreneurial opportunities. That is, technopreneurship scientific learning and prior knowledge have the significance of to the ability to identify entrepreneurial opportunities.

That is, the level of ability to identify entrepreneurial opportunities is not only influenced by one variable, but is influenced jointly by technopreneurship scientific learning and prior knowledge.

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