

The Effect of Observing Entrepreneurial Role Models on Critical Thinking Skills in Entrepreneurship Learning

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Abstract: The effect of observing entrepreneurial role models on critical thinking skills in entrepreneurship learning. **Objectives:** This research analyzes a PBL model by observing an entrepreneurial role model's effect on the critical thinking skills in entrepreneurship learning at Vocational High School. **Methods:** This study uses quasi-experimental research with a quantitative approach. The total population in this study was 463 students, and a sample of 60 students was obtained using a simple random sampling technique which was divided into two groups. This study uses an instrument essay questions tests in the form of pre-test and post-test. t-test analysis was conducted to test the hypothesis with a significance level of 5%. **Findings:** The results of the paired sample t-test obtained sig (2 tailed) $0.000 < 0.05$. Thus rejecting H_0 and accepting H_a . **Conclusion:** Observing an entrepreneurial role model significantly affects the critical thinking skills in entrepreneurship learning at Vocational High School.

Keywords: entrepreneurial role model, critical thinking skills, entrepreneurship learning.

Abstrak: Pengaruh pelibatan role model kewirausahaan terhadap keterampilan berpikir kritis pada pembelajaran kewirausahaan. **Tujuan:** Tujuan penelitian ini adalah menganalisis pengaruh model pembelajaran berbasis masalah dengan mengamati role model kewirausahaan terhadap keterampilan berpikir kritis dalam pembelajaran kewirausahaan di SMK. **Metode:** Penelitian ini menggunakan jenis penelitian eksperimen semu dengan pendekatan kuantitatif. Jumlah populasi dalam penelitian ini adalah 463 siswa dan sampel sebanyak 60 siswa diperoleh dengan menggunakan teknik simple random sampling yang dibagi menjadi dua kelompok. Penelitian ini menggunakan instrumen tes soal essay berupa pre-test dan post-test. Analisis uji-t dilakukan untuk menguji hipotesis dengan taraf signifikansi 5%. **Temuan:** Hasil uji t sampel berpasangan diperoleh sig (2 tailed) $0,000 < 0,05$. Dengan demikian menolak H_0 dan menerima H_a . **Kesimpulan:** Mengamati role model kewirausahaan berpengaruh signifikan terhadap keterampilan berpikir kritis dalam pembelajaran kewirausahaan di SMK.

Kata kunci: role model kewirausahaan, keterampilan berpikir kritis, pembelajaran kewirausahaan.

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■ INTRODUCTION

The complexity of studying entrepreneurship learning requires efforts and support from various parties, including schools as formal cultural institutions, to achieve entrepreneurship education goals (Peschl, Deng, & Larson, 2021). Entrepreneurship learning constructs four aspects of competencies, namely Opportunities and ideas, knowledge, resources, and particular actions (López-Núñez, Rubio-Valdehita, Armuña, & Pérez-Urria, 2022). Teachers must use the relevant entrepreneurship learning model to relate learning activities to the goals. Based on preliminary observations regarding the innovative learning process at Vocational High School 1 of Pariaman. One of the topics of entrepreneurship learning is entrepreneurial attitudes and behaviors, which still lack understanding of student development (Janata & Sudira, 2022). Learning entrepreneurial attitudes and behavior still uses the conventional teacher-centered model. The learning process must be student-centered under 21st-century learning with a varied, innovative learning process and can improve critical thinking skills (Sudira, 2017; Trilling & Fadel, 2009).

The teacher-centered learning model is ineffective in improving students' critical thinking skills. Students tend to be passive and do not clearly understand the studied topic. Teachers must use 21st-century learning models such as PBL (problem-based learning) by observing the entrepreneurial role models in teaching the topic of entrepreneurial attitudes and behavior. Learning entrepreneurial attitudes and behavior should lead to a further understanding of how students learn from others, in particular how students learn through observation of a person's interaction with social and are known as a role models (Nowiński & Haddoud, 2019; Zozimo, Jack, & Hamilton, 2017). The Covid-19 pandemic has increased the intensity of students'

internet use (Jayani, 2021). So that students can connect with many people, such as artists, rich people, entrepreneurs, etc., who could be role models directly or indirectly through social media or other platforms.

The results of previous studies showed that observing entrepreneurial role models such as parents, guest speakers, successful people, and other entrepreneurs increased entrepreneurial intentions and self-efficacy and led students to acquire business-related practices. (Abbasiachavari & Moritz, 2021; Karimi, Biemans, Lans, Chizari, & Mulder, 2014; Murari & Pathak, 2022). Using entrepreneurial role models can be an opportunity to elaborate on PBL models to improve students' critical thinking skills. Critical thinking skills are essential for problem solving, investigation, and discovery (Thompson, 2011). Critical thinking Observes one's mind evaluating ideas and concepts and comparing and seeing from various points of view. Critical thinking skills guide students to have proper reasoning in solving problems (Treffinger, Isaksen, & Dorval, 2003). The essence of critical thinking skills is to consolidate students in solving problems brought in by a learning process. So, the role of the school is to equip students with teaching and practicing knowledge to have advanced critical thinking skills (Ennis, 2018).

Deep knowledge leads to thinking critically and formulating a reasoned stance and point of view. Critical thinking requires students to be thorough, purposeful, and deliberate, focus on the problem, and challenge claims and arguments (McKendree, Small, Stenning, & Conlon, 2002). Therefore, in achieving success in shaping competitive abilities in the 21st-century, learning processes are needed to develop students' critical thinking. One of them observes the entrepreneurial role models in entrepreneurship learning. The report shows that before or after starting a company, more than half of active entrepreneurs

have good role models. (Amofah & Saladrigues, 2022). These findings suggest that role models are important in entrepreneurship learning to achieve the required competencies. From the description of the problems described above, it is necessary to solve problems to improve students' critical thinking skills in entrepreneurship learning through the elaboration PBL model by observing the entrepreneurial role models

Previous research has shown that a PBL model and observing an entrepreneurial role model could positively affect entrepreneurship learning in terms of entrepreneurial interest and behavior (Abbasianchavari & Moritz, 2021; Amofah & Saladrigues, 2022). Research shows that PBL can improve students' critical thinking skills (Masek & Yamin, 2011). This study aims to analyze the influence of elaborating the PBL model by observing entrepreneurial role models on critical thinking skills in entrepreneurial learning, especially on entrepreneurial attitudes and behavior topics. The data was collected to see the effect of the observed entrepreneurial role model using pre-test and post-test scores. The group consists of the control and experimental group. The researcher hopes this research can be used as a reference for further research regarding the influence of the observed entrepreneurial role model on the continuity of students' critical thinking skills in learning innovative entrepreneurship education.

■ METHODS

The population in this research were all class XI students at SMK 01 Pariaman, totaling 463 students, which were divided into fifteen classes. The sample in this study was taken from the population using a simple random sampling technique because the population is considered homogeneous (Sugiyono, 2019). The sampling is based on the theory if the population is more than 100 people, only 10-15% or 20-25% or

more samples can be taken (Arikunto, 2010). This research was taken 13% of the total population. The sample amounted to 13% x 463 students = 60 students.

This research will be conducted using a quantitative approach using a quasi-experimental design to measure the difference in the effect of treatment given to a certain group on other groups under controlled conditions (Sugiyono, 2019). The research design involved two groups: the experimental and the control groups. The two sample groups were given a pre-test, treatment, and post-test to determine the effect of the treatment given. This research began by giving pre-test questions to the two classes to determine the basic skills of students' critical thinking. Then, students from the two classes were given different treatments. The learning used an elaboration PBL model by observing entrepreneurial role models in the experimental group. In contrast, the control group used a conventional learning model without observing entrepreneurial role models. Then, the final stage was to provide post-test questions to both classes to determine the final results of students' critical thinking skills.

This study used an instrument with test questions in the form of essays. In making the questions for the tests in this research, the researcher used the topic of entrepreneurial attitude and behavior. The questions on the pre-test and post-test sheets are prepared based on indicators adopted from Finken and Ennis (1993). Questions on the pre-test and post-test were made as an instrument in this research, each consisting of 10 essay questions. The instrument validation was conducted by asking for expert opinion, namely content validation, and used a statistical test with the product-moment coefficient formula from Karl Pearson. The level of consistency of the questions can be known through the reliability test using Cronbach's Alpha.

An expert stated the instrument pre-test and post-test as high validity. Then the results of the validation of the question items, the significance value of the product-moment correlation coefficient is all less than the number 0.05 at the 5% significance level, so all the questions in the

test are declared valid. The reliability test results obtained a reliability coefficient of 0.732 with high criteria. The instrument is declared valid and reliable used to collect data. The following is a grid of instruments used to measure critical thinking skills, as shown in Table 1 below.

Table 1. Research instrument grid

21st-century skills	Indicators	Item	References
Critical Thinking Skills	Focus	2	(Finken & Ennis, 1993)
	Supporting Reason and Reasoning	2	
	Organization	2	
	Convention	2	
	Integration	2	

This study used descriptive statistics and inferential statistics data techniques. Descriptive statistics used N-Gain analysis to describe the effectiveness of using the PBL model by observing the role model in the experimental group and then comparing it with the effectiveness of the control

group using the conventional learning model. N-Gain analysis was carried out on the pre-test and post-test scores on each indicator of critical thinking skills in the control group and the experimental group. The category Interpretation of N-Gain Scores is arranged in Table 2 below.

Table 2. Category interpretation of N-Gain scores effectiveness

Percentage (%)	Interpretation	References
< 40	Ineffective	(Hake, 1999)
40 - 55	Less effective	
56 - 75	Effective enough	
> 76	Effective	

Inferential statistics consist of prerequisite analysis and hypothesis testing. The prerequisite test includes the normality test (Kolmogorov-Smirnov test) and homogeneity test (Levene test). The hypothesis is tested using a t-test, namely the Paired Sample T-test through the SPSS 26 for Windows program. Paired Sample t-test analysis was used to test the hypothesis in this study. The hypothesis in this study consists of Hypothesis Null (H0): “There is no significant effect of observing the entrepreneurial role model on critical thinking skills in entrepreneurship learning at SMKN 1 Pariaman”. While the alternative hypothesis (Ha): “There is a significant

effect of observing the entrepreneurial role model on critical thinking skills in entrepreneurship learning at SMKN 1 Pariaman”.

■ **RESULTS AND DISCUSSION**

The research in this study begins by following the PBL syntax adopted by Delisle, 1997. The different point in this experiment is that the problem presented is not a case study of a problem. Instead, the problem presented in learning is observing entrepreneurial role models. The learning process of the PBL model by observing role models’ is arranged as in table 3.

Table 3. Implementation of pbl by observing role model

No.	Problem-Based Learning Syntax	Role Model Observed	Learning Process
1.	Connecting with the problem		<ul style="list-style-type: none"> - Define inspiring role models - Directing learning to the problems that the role model will observe
2.	Setting up the structure		<ul style="list-style-type: none"> - The teacher explains the subject matter of entrepreneurial attitudes and behavior
3.	Visiting and revisiting the problem		<ul style="list-style-type: none"> - Planning the work process in the form of an essay or portfolio - Observing the complete profile of the role model from the family, education, and work environment - Observing the entrepreneurial attitudes and behavior contained in the role model
4.	Producing a product or performance	<ul style="list-style-type: none"> - Social context (home, education, work) - Entrepreneurial attitude and behavior 	<ul style="list-style-type: none"> - Analyzing concrete evidence that supports entrepreneurial attitudes and behaviors that exist in the role model - Develop essays or portfolios using the application canva, word, or handwriting as a homework
5.	Evaluating performance and the problem		<ul style="list-style-type: none"> - Presenting essays or portfolios in the next week - Respond to the presentation shown - Conduct evaluation

Learning begins by asking students to determine a role model that inspires them. Students are directed to observe the role model. The teaching continued with the teacher explaining the subject matter about the attitudes and behavior of entrepreneurs. After that, the students made observations that included the profiles of entrepreneurs that they used as inspiring role models. Observations were made regarding the role model's family environment, education, and work (Zozimo et al., 2017). It aims to make students understand the importance of the environment for entrepreneurs (Toutain et al., 2017). One of the observations made by students who chose Sandiaga Uno as

their role model. Make observations via the internet. Student 1 stated:

The role model that inspires me is Sandiaga Uno; he was born to a father who works in a Caltex company and a mother who is an education expert. This shows that a quality family supports one's success.... He also graduated from Wichita State University, United States, with summa cum laude honors. Education is the foundation for the success of an entrepreneur.... Not only that, but he also has colleagues who support him to be able to build his own business like the company he has now... (Student 1)

Highlights the importance of these observations for critical thinking skills. Other

students write down their observations from a different point of view. Student 2 chooses his parents as entrepreneurs who inspire him. Student 2 stated:

My father is a boss at a tire repair shop named Arpan Siregar. He is a child who was abandoned by his father when he was eight years old. Her mother worked as a farmer and gave her life advice never to give up... My father did not graduate from elementary school. And his friends are only village people who also don't go to school. But throughout his life, my father was a true learner who studied with the people he met to gain knowledge and experience to open his tire repair shop and employ two employees... It doesn't matter what your education is and wherever you are. As long as you want to learn and gain experience. You can be whatever you want... (Student 2)

Students also make observations related to entrepreneurial attitudes and behaviors, such as the ability to see opportunities, the desire to be independent, the ability to solve problems, etc. The entrepreneurial attitudes and behaviors are complemented by concrete evidence based on the role model's experience. Understanding the attitudes and behavior of entrepreneurs in role models can help students understand the subject matter factually and not only as a theory (Nowiński & Haddoud, 2019). Continuing the results of observations made by student 1 and student 2, it is stated as follows:

Desire to be independent... Sandiaga Uno has a desire to be independent based on evidence that when the company he worked for went bankrupt, he and his friends decided to start their own company in the financial sector, namely PT Saratoga Advisor... (Student 1)

The ability to see opportunities... Previously, my father, Arpan Siregar, opened a tire repair shop in the district of VII Koto, where many competitors exist. While on his way home, he saw that there was a strategic location, and there was no tire repair shop around the Patamuan sub-district. Then he decided to invite us to move to Patamuan district and set up a tire repair shop there. This tire repair shop has become the best repair shop in the Patamuan district.. (Student 2)

Furthermore, students presented their inspiring role models written in an essay or portfolio in front of the class. They gave opportunities for their friends to criticize the role models related to entrepreneurial attitudes and behavior to trigger students' active learning and develop critical thinking skills. Observing entrepreneurial role models helps students understand concepts more quickly, improve critical thinking skills and increase entrepreneurial interest and motivation (Abbasiachavari & Moritz, 2021; Fellnhofner, 2017; Rahman, Day, & John, 2014). In the last stage, students in the experimental and control groups were given a post-test to measure the critical thinking skills of each group after being given treatment.

Based on the results of the analysis of the N-Gain Score. In the control group, all indicators of critical thinking skills have a value of less than 56%, with less effective criteria. While in the experimental group, the analysis results show that the focus, convention, and integration indicators have a value of less than 75%, with the criteria being quite effective. Then indicators supporting reason and reasoning and organization have a value of more than 75% with effective criteria. The summary of the results of the N-Gain Score analysis of the control and experimental groups is shown in the diagram below.

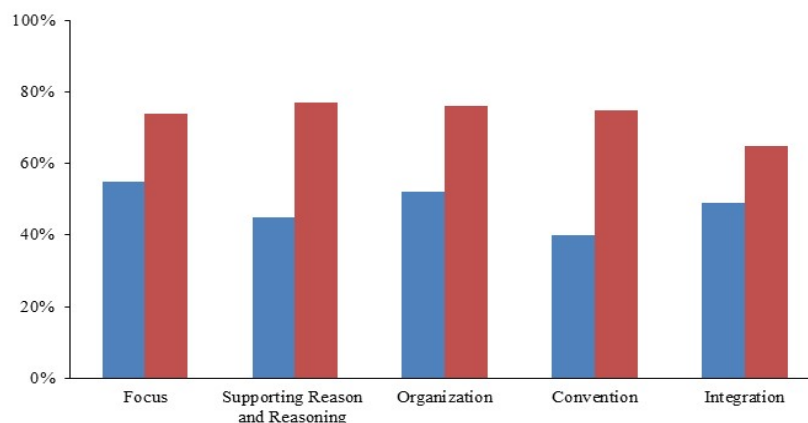


Figure 1. The results of the analysis N-Gain scores

The results of the experimental group after being given treatment showed that students who used a PBL model by observing the entrepreneurial role models could better understand the learning topic. The entrepreneurial role models have made it easier for students to learn entrepreneurial attitudes and behavior. In contrast, the control group uses a conventional learning model. In detail, students in the control group tend to be passive and do not understand the material well, so the learning process needs to be optimized by using learning models that can improve 21st-century skills such as critical

thinking (Ennis, 2018; Peschl et al., 2021).

The results of the prerequisite analysis test used the *Kolmogorov-Smirnov* test to measure normality in the control group (pre-test and post-test) and the experimental group (pre-test and post-test) with the calculation results using SPSS 26 for the windows program. The data distribution in this study had a significance value greater than 0.05 (>0.05), so it was concluded that this study was normally distributed, meaning that this data had met the analysis requirements. The following are the normality test results in table 4.

Table 4. The normality test result

Group	Sig.	Description
Control Group (Pre-test)	0.237	Normal
Experimental Group (Pre-test)	0.146	Normal
Control Group (Post-test)	0.200	Normal
Experimental Group (Post-test)	0.193	Normal

The homogeneity test was conducted using *Levene's* test in the pre-test and post-test groups. Data analysis was carried out through the SPSS 26 for the windows program. The results showed that the research data had a homogeneous

variance based on a significance value greater than 5% (> 0.05). The homogeneity test result is presented in table 4. Thus, the data had met the criteria to be analyzed in hypothesis testing.

Table 4. The homogeneity test result

Group	Sig.	Description
Pre-test	0.437	Homogen
Post-test	0.393	Homogen

After knowing the data is normally distributed, the variance is homogeneous. Then the paired sample t-test was carried out on the pre-test and post-test scores of the experimental group. The results of data analysis show that the value of sig (2 tailed) is 0.000. The value of sig (2 tailed) is less than 0.05 (< 0.05). Then the null hypothesis (H_0) is rejected, and the alternative hypothesis (H_a) is accepted. So it can be concluded that there is a significant effect of the application PBL Model by observing the entrepreneurial role models on critical thinking skills in entrepreneurship learning at Vocational High School 1 of Pariaman.

The learning model implementation aims to assist students in learning and understanding learning topics (Tan, 2003). Therefore, using various models and strategies, the learning model must be varied as attractively as possible. One of the innovative learning models that can be used is the PBL model by observing entrepreneurial role models. The entrepreneurial role models in learning can generate and regulate higher-order thinking concepts (Raymond, Profetto-McGrath, Myrick, & Streat, 2018). Observing entrepreneurial role models can help teachers and students learn, especially in the affective domain, which demands to understand and applying attitudes, values, and morals. Observing entrepreneurial role models can support students in remembering, assessing, and learning from past observations, understanding the present, and triggering new observations from role models to shape future expectations and motivations (Abbasianchavari & Moritz, 2021). Observing role models can increase entrepreneurial intentions and behavior, so the application of entrepreneurial role models in entrepreneurship learning can help encourage entrepreneurial activities and improve critical thinking skills in the learning process (Abbasianchavari & Moritz,

2021; Behar-Horenstein & Niu, 2011; Rahman et al., 2014).

The need for an educational curriculum in the 21st-century is oriented toward creative, creating a product, innovative, and effective generation with the knowledge integration, skills, and attitudes in life (Siburian, Corebima, Ibrohim, & Saptasari, 2019). Critical thinking skills are important for problem solving, investigation, and discovery. Critical thinking observes students' minds in evaluating ideas and concepts and comparing and seeing from various points of view (Thompson, 2011). Critical thinking skills guide students to have proper reasoning in solving problems. It is necessary to optimize critical thinking skills to overcome complex problems from time to time because critical thinking will help students have proper reasoning in the learning process. Of course, this must be facilitated by teachers in schools. The teacher's job is to be responsible for seeing everything in the classroom and helping the students' self-development process. In developing critical thinking, students can become the next generation of quality in the future. The highest educational achievement of educational institutions is to improve the quality of education to produce professional learners (Janata & Sudira, 2022; Mutohhari, Sudira, & Nurtanto, 2021).

The findings of this study support previous research that showed that the PBL model helps students be more active in the learning process in the classroom (Masek & Yamin, 2011; Munawaroh, Setyani, Susilowati, & Rukminingsih, 2022). Using conventional teacher-centered learning models has proven less effective in improving students' critical thinking skills. This study also supports previous research that observes the entrepreneurial role models in entrepreneurship learning can trigger students' activeness and increase entrepreneurial interest

and motivation (Abbasianchavari & Moritz, 2021; Gibson, 2004; Nowiński & Haddoud, 2019; Rahman et al., 2014). This study proves that using a PBL model by observing entrepreneurial role models can improve students' critical thinking skills in entrepreneurship learning.

From the discussion described, a common thread can be drawn that students' critical thinking skills can be improved by applying a PBL model by observing the role model of entrepreneurship in entrepreneurship learning. Observing the entrepreneurial role models in learning makes it easier for students to evaluate ideas and concepts and compare and see from various points of view (Abbasianchavari & Moritz, 2021; Fellnhofner, 2017; Murari & Pathak, 2022). In addition, students can review role models and have the proper reasoning in solving problems based on what the role models have gone through to improve critical thinking skills so that the final learning outcomes can be better.

■ CONCLUSIONS

The results of this study indicate that the percentage value of the N-Gain score of the experimental group is higher than the control group. The experimental group's N-Gain score criteria show that using the PBL model with the observation of the role model effectively improves the indicators of Supporting reason and reasoning and organization. And quite effective in increasing the indicators of focus, convention, and integration in critical thinking skills. Furthermore, the paired sample t-test analysis shows that the value of sig (2 tailed) is $0.000 < 0.05$, so H_0 is rejected and H_a is accepted. The conclusion is that there is a significant effect of applying the PBL Model by observing the role model improve students' critical thinking skills in entrepreneurship learning.

The study results provide recommendations for teachers and stakeholders to use role model observations in learning, especially in

entrepreneurship learning, to improve critical thinking skills under the demands of skills in the 21st-century. This research is limited to eleventh-grade students at Vocational High School 01 of Pariaman, focusing on the effectiveness of critical thinking skills in entrepreneurial learning. So further research is needed to review other effects of observing role models.

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