

The Role of Teacher Performance in Mediating the Influence of Learning Tool Utilization and Infrastructure on Students' Entrepreneurial Competence (A Case Study of Private Vocational High Schools in Pacet Subdistrict, Mojokerto Regency)

Iwan Agus Darmawan^{1*}, Imam Mukhlis², Hadi Sumarsono³

Universitas Negeri Malang

Corresponding Author: Iwan Agus Darmawan

iwan.agus.2304158@students.um.ac.id

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ABSTRACT

This research examines the role of teacher performance in mediating the influence of learning tool utilization and infrastructure on the entrepreneurial competence of private vocational high school students in Pacet Subdistrict, Mojokerto Regency. The research findings indicate that teacher performance significantly mediates the positive influence of learning tool utilization on students' entrepreneurial competence. The utilization of learning tools and infrastructure also has a significant positive effect on teacher performance. However, an interesting finding reveals that infrastructure has a significant negative effect on students' entrepreneurial competence. This research highlights the importance of teacher performance and the utilization of learning tools in enhancing students' entrepreneurial competence, as well as the need for further investigation into the negative influence of infrastructure on this competence

INTRODUCTION

The changing paradigm of education in the digital era demands learning that is not only adaptive but also innovative, especially in the context of vocational education such as Vocational High Schools (SMK). The main focus of SMK is to equip students with practical skills and entrepreneurial attitudes so that they are ready to face the world of work and entrepreneurship. In this context, the utilization of technology-based learning tools and the availability of adequate facilities and infrastructure are important factors in supporting the achievement of students' entrepreneurial competencies. However, the role of teachers as mediators in the learning process often does not receive adequate attention. Teachers not only act as material deliverers, but also as facilitators, innovators and motivators who can change the learning environment to be more productive and relevant. Therefore, it is important to understand in depth how the combination of learning tools and infrastructure utilization can improve student entrepreneurship competencies with teacher performance as a mediating variable.

Previous studies have shown that teacher competence and the learning environment have a significant contribution to student learning outcomes. Supardi et al. (2021) found that professional competence and teacher creativity directly affect the improvement of students' entrepreneurial competence in vocational schools. Meanwhile, Singh (2023) confirmed that digital entrepreneurship training can increase students' entrepreneurial intentions through strengthening entrepreneurial competencies. Another study by Pratama and Sugiyono (2022) showed the importance of infrastructure in improving the competence of SMK graduates, but their focus was more on technical skills than entrepreneurial aspects. On the other hand, research by Rahmi et al. (2020) reinforced the importance of learning innovation through digital media in improving students' understanding of business models. However, these studies tend to analyze these factors separately and not many have integrated them into one conceptual model.

The research gap is evident in the lack of studies that simultaneously examine the role of learning tools utilization, infrastructure, and teacher performance in influencing students' entrepreneurial competencies. Moreover, the findings in this study show a negative relationship between infrastructure and students' entrepreneurial competence, which is unusual and rarely found in the previous literature, which opens up new areas of study. This finding indicates that the quality or utilization of infrastructure may not be optimal or aligned with the needs of entrepreneurship learning. In addition, this research makes an important contribution in understanding the dynamics of entrepreneurship learning that not only relies on physical facilities, but also the quality of the teaching process itself mediated by teacher performance (Revina & Pramana, 2023).

The novelty of this research lies in its holistic approach that integrates three important aspects of vocational education, namely learning tools, infrastructure, and teacher performance, and examines the direct and indirect relationships of the three to students' entrepreneurial competencies. By using the Structural Equation Modeling (SEM-PLS) approach, this research also provides methodological advantages in testing complex models simultaneously and accurately. Therefore, this research is not only academically important, but also practically relevant in providing recommendations for schools, teachers, and policy makers to develop more effective and sustainable entrepreneurship learning strategies.

The purpose of this study is to analyze the effect of the utilization of learning tools and the use of infrastructure facilities on the entrepreneurial competence of vocational students in Pacet District, Mojokerto Regency, with teacher performance as a mediating variable. The results of this study are expected to strengthen theoretical understanding while providing practical implications in the development of digital-based entrepreneurship education and teacher professionalism.

LITERATURE REVIEW

Entrepreneurship learning in vocational schools aims to shape students' attitudes, skills and knowledge to be able to create business opportunities independently and innovatively. In this context, students' entrepreneurial competence becomes one of the important indicators of the success of vocational education. These competencies include the ability to think creatively, take risks, make decisions, and design and manage businesses. Lackeus (2020) states that the development of entrepreneurial competencies requires an experiential and contextual learning approach, which allows students to be actively involved in the value creation process.

Teacher performance plays a central role in integrating entrepreneurial values into learning. Teachers who have high performance not only master the material, but are also able to create a learning environment that encourages innovation, reflection, and student initiative (Revina & Pramana, 2023). Supardi et al. (2021) emphasized that teachers' professional competence is directly proportional to the improvement of students' entrepreneurial competence. Teachers who are able to manage the class well, use varied teaching methods, and provide personalized guidance and motivation, tend to be more successful in instilling entrepreneurial values.

The utilization of learning tools, especially digital-based, is increasingly important in creating interesting and relevant learning experiences. Interactive media such as learning videos, digital quizzes and business simulations help students understand entrepreneurship concepts in a practical way. Anistyasari and Fazain (2022) found that the use of video-based learning significantly improved critical thinking and decision-making skills in the context of entrepreneurship. Similarly, Singh (2023) showed that digital-based entrepreneurship training had a positive impact on increasing entrepreneurial intentions and competencies.

Educational facilities and infrastructure-such as classrooms, business laboratories, internet networks, and technological devices-are supporting infrastructure in the learning process. However, Pratama and Sugiyono (2022) reminded that the existence of infrastructure facilities is not always in line with improving learning outcomes, if it is not supported by appropriate and strategic utilization. In some cases, existing facilities become ineffective because they are not used according to learning needs or are not optimally integrated into the curriculum.

Thus, the theory underlying this research suggests a synergistic relationship between the utilization of learning tools, infrastructure, and teacher performance in shaping students' entrepreneurial competencies. The approach that sees teachers as mediators between educational inputs and student outputs becomes very relevant in the context of vocational education that emphasizes the creation of independent, productive and innovative human resources.

METHODOLOGY

This research uses an explanatory quantitative approach, which aims to explain the causal relationship between research variables systematically and measurably through statistical data analysis. This approach is considered appropriate because it can test models of direct and indirect relationships between complex variables, as is done in this research model (Supardi et al., 2021). The research focused on XII grade students of private vocational schools in Pacet District, Mojokerto Regency who had taken entrepreneurship subjects. The sampling technique used is purposive sampling, which is the selection of respondents based on certain characteristics that are considered relevant to the research objectives, such as status as a final student and experience in participating in entrepreneurship learning (Singh, 2023). The sample size of 144 respondents was considered adequate for analysis using the Partial Least Square - Structural Equation Modeling (PLS-SEM) method.

Data collection was conducted using an instrument in the form of a closed questionnaire based on a five-point Likert scale consisting of statements regarding the variables of utilization of learning tools, infrastructure, teacher performance, and student entrepreneurial competence. Each item in the questionnaire was prepared based on theoretical indicators from literature review and previous research. The validity and reliability of the instrument were tested with the help of SmartPLS 3.0 software, using outer model analysis, which includes convergent validity test through loading factor value (≥ 0.7) and Average Variance Extracted ($AVE \geq 0.5$), and reliability test through Cronbach's Alpha and Composite Reliability value (≥ 0.7) (Hair et al., 2019; Pratama & Sugiyono, 2022).

Data analysis was conducted in two main stages. First, outer model evaluation to assess the measurement quality of latent constructs. Second, evaluate the inner model to test the structural relationship between variables, both direct and indirect relationships through the test of path coefficients, T-statistics, and P-value. A bootstrap resampling technique of 5,000 samples was used to test the significance of the relationship between variables. PLS-SEM was chosen because it is able to handle data with non-normal distributions, relatively

small sample sizes, and models with many indicators and complex relationship paths (Rahmi et al., 2020). This methodology is expected to produce valid and generalizable results in explaining the role of teacher performance as a mediator of the influence of learning tools and infrastructure on the entrepreneurial competence of vocational students.

RESULT

The loading factor value for each construct indicator shows the results of the convergent validity test for reflective indicators using the SmartPLS 3.0 tool can be seen below

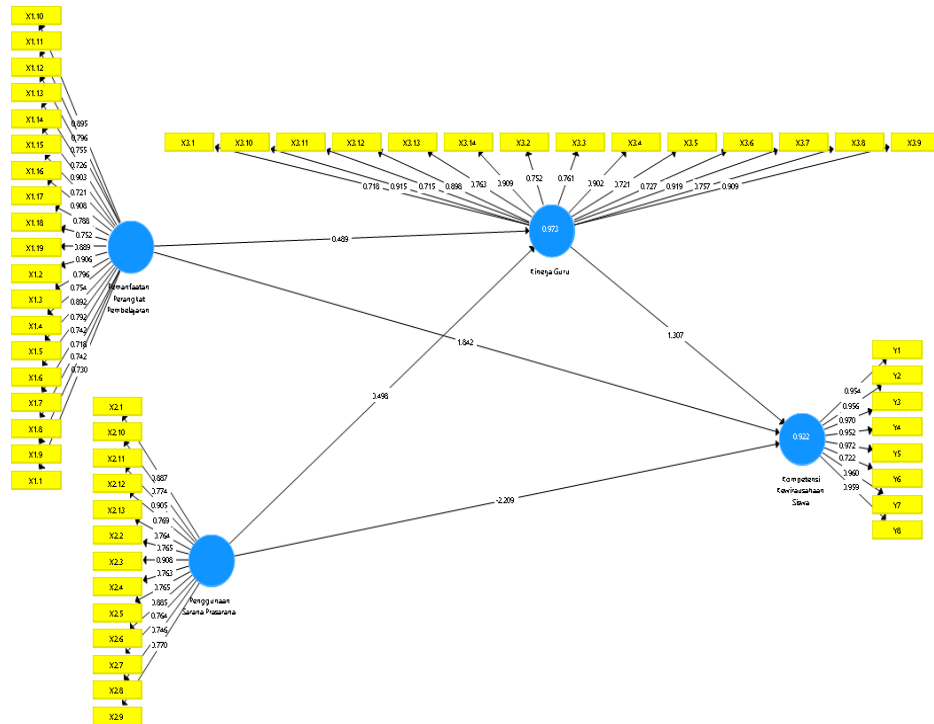


Figure 1. Analysis Result from SmartPLS 3.0 Tool

For the purposes of this research, a loading factor value > 0.70 is the standard. The idea that there should be no strong correlation between the manifest variables of different constructs is related to the discriminant validity test. Assessing discriminant validity involves examining the cross-loading values for each variable, which should be less than 0.70. Furthermore, the AVE value must be > 0.5 . Conversely, if the AVE value is < 0.5 , then convergent validity is not met. Meanwhile, the composite reliability test in PLS-SEM can be applied in two ways: (1) by looking at the Cronbach's Alpha (α) value, where for confirmatory research, the α value > 0.70 , and (2) by looking at the composite reliability (CR) value > 0.70 .

Table 1. Outer Model Estimation

Variable	Teacher Performance	Student Entrepreneurship Competency	Learning Device Utilization	Use of Infrastructure	Cronbach's Alpha rho_A	Composite Reliability	Average Variance Extracted (AVE)
X1.1			0,730		0,969	0,972	0,645
X1.10			0,895				
X1.11			0,796				
X1.12			0,755				
X1.13			0,726				
X1.14			0,903				
X1.15			0,721				
X1.16			0,908				
X1.17			0,788				
X1.18			0,752				
X1.19			0,889				
X1.2			0,906				
X1.3			0,796				
X1.4			0,754				
X1.5			0,892				
X1.6			0,792				
X1.7			0,742				
X1.8			0,718				
X1.9			0,742				
X2.1				0,887	0,955	0,960	0,652
X2.10				0,774			
X2.11				0,905			
X2.12				0,769			
X2.13				0,764			
X2.2				0,765			
X2.3				0,908			
X2.4				0,763			
X2.5				0,765			
X2.6				0,885			
X2.7				0,764			
X2.8				0,746			
X2.9				0,770			
X3.1	0,718				0,961	0,965	0,667
X3.10	0,915						

Variable	Teacher Performance	Student Entrepreneurship Competency	Learning Device Utilization	Use of Infrastructure	Cronbach's Alpha rho_A	Composite Reliability	Average Variance Extracted (AVE)
X3.11	0,715						
X3.12	0,898						
X3.13	0,763						
X3.14	0,909						
X3.2	0,752						
X3.3	0,761						
X3.4	0,902						
X3.5	0,721						
X3.6	0,727						
X3.7	0,919						
X3.8	0,757						
X3.9	0,909						
Y1		0,954			0,978	0,982	0,872
Y2		0,956					
Y3		0,970					
Y4		0,952					
Y5		0,972					
Y6		0,722					
Y7		0,960					
Y8		0,959					

Source: Processed by Researcher, 2025

Based on the outer model estimation results, the measurement quality of the variables in this study demonstrates good reliability and validity, as indicated by the values of Cronbach's Alpha, rho_A, Composite Reliability, and Average Variance Extracted (AVE). The Learning Tool Utilization variable has a Cronbach's Alpha value of 0.969 and an AVE of 0.645, while Infrastructure Use has a Cronbach's Alpha of 0.955 and an AVE of 0.652, both of which indicate high internal consistency and met convergent validity. The Teacher Performance variable also shows excellent reliability with a Cronbach's Alpha of 0.961 and an AVE of 0.667. Meanwhile, Students' Entrepreneurial Competence shows the best results with a Cronbach's Alpha of 0.978 and an AVE of 0.872. Overall, all variables in the research model meet the reliability and validity criteria, so the indicators used are trustworthy and capable of representing the latent constructs well.

Table 2. Fornell Larcker

Variable	Teacher Performance	Student Entrepreneurship Competency	Learning Device Utilization	Use of Infrastructure
Teacher Performance	0,816			
Student Entrepreneurship Competence	0,945	0,934		
Utilization of Learning Tools	0,986	0,928	0,803	
Utilization of Infrastructure	0,986	0,916	0,997	0,807

Source: Processed by Researcher, 2025

Based on the analysis using the Fornell-Larcker Criterion, the discriminant validity in this model has been met, as indicated by the square root of the Average Variance Extracted (AVE) for each construct being greater than its correlation with other constructs. Teacher Performance has a square root of AVE value of 0.816, which is higher than its correlations with other variables such as Students' Entrepreneurial Competence (0.945), Learning Tool Utilization (0.986), and Infrastructure Use (0.986). Students' Entrepreneurial Competence shows a value of 0.934, which exceeds its correlations with Learning Tool Utilization (0.928) and Infrastructure Use (0.916). Furthermore, Learning Tool Utilization has a value of 0.803, higher than its correlation with Infrastructure Use (0.997), and the last variable, Infrastructure Use, has a value of 0.807, which is also higher than the correlations between other constructs. Thus, all constructs in this model demonstrate good discriminant validity, indicating that each variable clearly measures a distinct concept without significant overlap, making the model reliable in representing the phenomenon under study.

Table 3. Direct and Indirect Effects

Variable	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
Teacher Performance -> Student Entrepreneurship Competency	1,307	1,360	0,300	4,363	0,000
Utilization of Learning Tools -> Teacher Performance	0,489	0,484	0,239	2,043	0,042
Utilization of Learning Tools -> Student Entrepreneurship Competencies	1,842	1,852	0,401	4,597	0,000
Utilization of Infrastructure -> Teacher Performance	0,498	0,503	0,241	2,069	0,039
Utilization of Infrastructure -> Student Entrepreneurship Competencies	-2,209	-2,272	0,532	4,152	0,000

Source: Processed by Researcher, 2025

Based on the path coefficients analysis, it can be concluded that there are significant relationships between several variables in this research model, both positive and negative. The path coefficients indicate the direction and strength of the relationships between variables, while the T-Statistics and P-Value are used to test the statistical significance of these relationships. Teacher Performance is proven to have a positive and significant effect on Students' Entrepreneurial Competence, with a coefficient of 1.307, a T-Statistic of 4.363, and a P-Value of 0.000. Learning Tool Utilization also has a positive effect on Teacher Performance ($\beta = 0.489$; $T = 2.043$; $P = 0.042$) and on Students' Entrepreneurial Competence ($\beta = 1.842$; $T = 4.597$; $P = 0.000$). In addition, Infrastructure Use shows a positive effect on Teacher Performance ($\beta = 0.498$; $T = 2.069$; $P = 0.039$), but surprisingly shows a negative and significant effect on Students' Entrepreneurial Competence ($\beta = -2.209$; $T = 4.152$; $P = 0.000$). These findings underscore the importance of the role of Teacher Performance and Learning Tool Utilization in enhancing students' entrepreneurial competence. Conversely, the negative influence of Infrastructure Use on this competence indicates a potential mismatch or suboptimal utilization of the available facilities. Therefore, further evaluation is needed regarding how infrastructure is used in the context of entrepreneurship learning so that it can have a positive and maximal impact

DISCUSSION

The results of this study generally indicate that the development of entrepreneurial competence of vocational students does not only depend on the availability of learning facilities and devices, but is also largely determined by the quality of teacher performance in managing the teaching and learning process. The first significant finding is that the utilization of digital-based learning tools has a direct and positive influence on teacher performance and students' entrepreneurial competence. This strengthens the argument that technological innovation in education is an important element to improve learning effectiveness. Learning tools such as learning videos, interactive quizzes, and business simulations can facilitate a more engaging, participatory, and adaptive learning process to students' diverse learning styles.

This finding is in line with research by Singh (2023), which states that digital-based entrepreneurship training is able to increase entrepreneurial intention and readiness through increased technical and non-technical competencies. Teachers who are able to utilize technology in delivering entrepreneurship materials will find it easier to build meaningful relationships with students and foster students' interest and understanding of the business world. In this context, teachers no longer act as the only source of information, but as facilitators who help students access various learning resources through technology.

Furthermore, this study found that teacher performance acts as a significant mediator between the utilization of learning tools and students' entrepreneurial competencies. This means that although learning tools can directly affect students' competencies, the effect will be much stronger if mediated by the quality of teacher performance. Teachers who have high pedagogical competence and professionalism will be able to strategically select, develop and implement learning tools to increase student engagement in entrepreneurship learning. This corroborates the findings of Supardi et al. (2021), which state that teacher creativity and competence have a major contribution to improving students' entrepreneurial attitudes, knowledge and skills. In entrepreneurship learning, teachers are required not only to convey theory, but also to be able to inspire students through case studies, mini business projects, or contextualized business simulations.

Another interesting finding is the positive effect of infrastructure on teacher performance, but it has a negative impact on students' entrepreneurial competence. This may sound paradoxical, but it opens up room for deeper analysis. In some schools, the availability of facilities such as practice rooms, business laboratories, or computer equipment does make it easier for teachers to organize and deliver materials. However, this availability does not necessarily have a direct impact on students, especially if students are not given the opportunity to access and use these facilities actively and contextually. Pratama and Sugiyono (2022) revealed that the success of infrastructure facilities in supporting learning depends on the extent to which these facilities are utilized in accordance with the practice-based curriculum approach.

In this context, it is possible that schools already have complete infrastructure facilities, but still apply a teacher-centered learning approach, so that students only become passive objects in the learning process. In contrast, in a student-centered approach, the infrastructure is used directly by students in completing project-based assignments or business simulation practices. This is in accordance with constructivism learning theory which emphasizes that students learn more effectively when they are directly involved in the process of seeking knowledge (Rahmi et al., 2020).

In addition, school management factors and teacher readiness are also key in optimizing infrastructure. Without adequate training and school management support, teachers tend not to maximize the utilization of existing facilities, and students are not given the space to innovate. As stated by Revina and Pramana (2023), education reform in Indonesia is often hampered by the lack of support for teachers' professional development and schools' low capacity to manage resources.

Thus, the discussion of these results illustrates that improving students' entrepreneurial competencies is not enough with the provision of facilities or the use of technology alone. The transformation of learning must start with teachers who are able to become agents of change in the classroom. This requires continuous training, appropriate academic supervision, and strengthening school capacity in designing learning that is integrated with technology and entrepreneurial practices.

In addition, the results also show that an integrative model that combines aspects of technology, infrastructure and human resources (in this case teachers) is highly relevant in supporting effective entrepreneurial learning. In the long run, such an approach has the potential to shape SMK graduates who are not only job-ready, but also have the spirit and skills to become job creators through entrepreneurship.

CONCLUSION AND RECOMMENDATION

The results showed that teacher performance plays an important role in mediating the effect of learning device utilization on the entrepreneurial competence of private vocational students in Pacet District. Utilization of learning tools and infrastructure is proven to significantly improve teacher performance. However, only learning tools directly and positively affect students' entrepreneurial competencies, while infrastructure facilities show a significant negative effect. This indicates that the success of entrepreneurship learning depends not only on the availability of facilities, but also on how teachers effectively utilize and manage learning tools and environments.

Based on these findings, it is recommended that schools focus more on teacher training and professional development, especially in the utilization of technology-based learning tools. School management also needs to evaluate the use of infrastructure to make it more relevant and aligned with entrepreneurship learning objectives. In addition, it is necessary to improve the leadership of school principals and create a supportive work climate so that teacher performance can be continuously improved. With these strategies, it is expected to create a learning

process that is more qualified, innovative, and able to foster superior entrepreneurial competencies in students.

Based on the results of the study, it is recommended that schools focus more on improving teacher competence through continuous training, especially in the use of technology-based learning tools in order to create an effective learning process and be relevant to student needs. In addition, it is necessary to evaluate and optimize the use of infrastructure so that the available facilities can be utilized in an appropriate manner and support the improvement of students' entrepreneurial competencies to the maximum. Support from the principal's leadership and the creation of a conducive work climate are also important factors in supporting teacher performance and learning quality.

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