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**iMProvement**

Jurnal Ilmiah Untuk Peningkatan Mutu Pendidikan

e-ISSN: 2597-8543

Journal Homepage: <http://journal.unj.ac.id/unj/index.php/improvement>

Journal Email: [improvement@unj.ac.id](mailto:improvement@unj.ac.id)

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**WHAT MAKES AN EFFECTIVE VOCATIONAL HIGH SCHOOL  
ENTREPRENEURIAL LEADERSHIP? EXPERIENCE FROM INDONESIA**

**Agustin Hanivia Cindy<sup>1</sup>**

[agustincindy@unesa.ac.id](mailto:agustincindy@unesa.ac.id)

<sup>1</sup>Fakultas Ilmu Pendidikan, Universitas Negeri Surabaya

**Husaini Usman<sup>2</sup>**

[husainiusman@gmail.com](mailto:husainiusman@gmail.com)

<sup>2</sup>Fakultas Keguruan dan Ilmu Pendidikan, Universitas Widya Gama Mahakam Samarinda

**Sugiyono<sup>3</sup>**

[sugiyono@uny.ac.id](mailto:sugiyono@uny.ac.id)

<sup>3</sup>Fakultas Ilmu Pendidikan dan Psikologi, Universitas Negeri Yogyakarta

**ABSTRAK**

Pemerintah mendorong Sekolah Menengah Kejuruan (SMK) melakukan transformasi organisasi menjadi SMK Badan Layanan Umum Daerah (SMK-BLUD). Melalui BLUD, SMK yang memiliki produk unggulan dapat mengelola keuangan dan proses produksi dengan lebih fleksibel tanpa melanggar peraturan, sehingga efektivitas kepemimpinan kewirausahaan dapat tercapai. Penelitian ini bertujuan untuk menganalisis faktor-faktor yang mempengaruhi efektivitas kepemimpinan kewirausahaan di sekolah menengah kejuruan dengan menggunakan analisis PLS-SEM. Data diperoleh dengan menyebarkan kuesioner kepada 180 responden yang meliputi guru, kepala sekolah, dan anggota komite di 23 SMK-BLUD di Jawa Timur dan Daerah Istimewa Yogyakarta. Diketahui variabel regulasi, dukungan guru, kapasitas diri, dan infrastruktur mempunyai pengaruh positif dan signifikan terhadap kualitas kepemimpinan wirausaha. Selain itu, keberadaan kemitraan pada masing-masing sekolah secara tidak langsung mempunyai pengaruh positif dan signifikan terhadap kualitas kepemimpinan kewirausahaan. Hasil model ini menunjukkan nilai relevansi prediktif (Q<sup>2</sup>) sebesar 0,96 artinya model ini mempunyai relevansi prediktif yang baik.

**Kata kunci:** kepemimpinan kewirausahaan, pendidikan vokasi, learning factory, industri 4.0

**ABSTRACT**

*The government encourages Vocational High Schools (SMK) to transform their organizations into Vocational Schools of the Regional Public Service Agency (SMK-BLUD). Through BLUD, vocational schools that have superior products can manage finances and production processes*

*more flexibly without violating regulations, so that the effectiveness of entrepreneurial leadership can be achieved. This study aims to analyze the factors that affect the effectiveness of entrepreneurial leadership in vocational high schools using PLS-SEM analysis. The data was obtained by distributing questionnaires to 180 respondents including teachers, principals, and committee members in 23 SMK-BLUD in East Java and the Special Region of Yogyakarta. It is known that regulatory variables, teacher support, self-capacity, and infrastructure have a positive and significant influence on the quality of entrepreneurial leadership. In addition, the existence of partnerships in each school indirectly has a positive and significant influence on the quality of entrepreneurial leadership. The results of this model show a predictive relevance value (Q<sup>2</sup>) of 0.96, which means that this model has good predictive relevance.*

**Keywords:** entrepreneurial leadership, vocational education, learning factory, industry 4.0

## INTRODUCTION

Principals as learning leaders in schools are required to continue to improve the effectiveness of their performance, so as to improve the quality of education and achieve school and educational goals (Kawuryan et al., 2021; Lusiantoro et al., 2022; Wahjusaputri & Bunyamin, 2022). According to Usman (2018) as the number one person in school, the principal has a strategic function. The principal as a learning leader at the school level has the main task of managing the implementation of educational and learning activities in schools (Kadir & Aziz, 2016; Supriyadi, 2021; Setiawan *et al.*, 2020). Operationally, the main duties of the school principal include exploring and utilizing all school resources in an integrated manner in order to achieve school goals effectively and efficiently. According to Leavitt (2005) managers or leaders, in one way or another, must influence other people to do what the manager wants them to do.

Dufur & Barkey (2005) states that the success of school improvements depends on professional improvement efforts in schools. At the same time, there is also the term collaborative leadership so that educational goals and political goals are achieved (Silva, 2018; Aman *et al.*, 2020; Buchi *et al.*, 2019; Lusk, 2010). As a leader, the principal is one of the determining factors that can encourage schools to realize their vision, mission, goals and objectives through various planned programs (Ghaffarzadeh, 2015; Hariri *et al.*, 2014; James *et al.*, 2008). The role of the school principal is responsible for coordinating educational activities, school administration, training of education personnel and infrastructure utilization and maintenance (Bogdanoviy *et al.*, 2014; Mtebe, 2015; Akmalayah *et al.*, 2020; Yuliana *et al.*, 2019).

A school is said to be effective when its processes produce positive observable (not always measurable) results in a population of students consistently over a period of time (Alobiedat, 2011; Reynolds, 1994). In an effective school, all students not only have high learning abilities, but also have ordinary intellectual abilities that can develop themselves as far as possible when compared to the initial conditions when they just entered school (Sulfemi & Mayasari, 2019). An effective school is reflected in five characteristics, namely the principal who has strong leadership, the teacher's high expectations for students, the existence of order and discipline, the focus on student-centered activities, and the supervision of work (Hallinger & Heck, 2011)

Based on the Good Quality Index for Schools in Indonesia issued by the Ministry of

Education and Culture, the SMK education level has the lowest good quality index compared to other levels of education, namely only 12 percent of SMKs have a good quality index. The development of areas of expertise in vocational education and training institutions is also considered not to be in line with industry needs and has not responded to market needs. This can be seen from the high number of SMK graduates who have not worked or been absorbed in the industrial world as published by BPS from February 2017 to 2020 (BPS, 2021). This can be seen from the high unemployment rate for SMK graduates over the last three years, the SMK education level has the highest percentage of open unemployment above other levels of education, namely 9.27 percent, 8.92 percent, and 8.63 percent, respectively. The same thing is shown by the school accreditation scores issued by the National Accreditation Board which shows that SMKs spread across Indonesia are in a good rating (Accreditation B) with a percentage of 27.53 percent and only 21.89 percent of SMKs with very good ratings (accreditation A). The number of good quality SMKs is quite small, absorption is low and there are only a few qualified SMKs. This shows that there is a need for a specific strategy through deductive research at the school level as a center of excellence to increase the effectiveness of vocational entrepreneurial leadership.

In addition to quality issues, education in Indonesia is also faced with the transformation of the delegation of authority to the regions to manage community interests based on community aspirations as explained in Law Number 23 of 2014 concerning Regional Government. In addition, the provincial government as the person in charge of SMK education is also encouraged to change the status of the State SMK to the form of a Regional Public Service Agency (BLUD) as stated in Minister of Home Affairs Regulation Number 79 of 2018 concerning Regional Public Service Agencies. In the operational implementation of the BLUD System, schools have the prerogative in implementing effective business practices by streamlining existing budgets, developing all their potential in accordance with the school's field of expertise, as well as being a way for students to continue working.

Overcoming these problems, it is necessary to apply entrepreneurial leadership optimally in schools. The principal as a reformer agent in developing his school through entrepreneurial leadership by organizing a group of people to achieve common goals with proactive behavior, optimizing risks, innovating to take advantage of opportunities, taking personal responsibility and managing change in a dynamic environment for the benefit of the school organization. The principal has a very important task in encouraging teachers to carry out the learning process in order to foster creative abilities, innovative power, problem solving abilities, critical thinking and have an entrepreneurial spirit for students as a product of an education system (Lans & Mulder, 2009).

Vocational High School leadership is required to have skills in the field of entrepreneurship, when a leader uses entrepreneurial principles in influencing his subordinates to do something with predetermined goals, both goals related to business organizations, non-profit organizations and educational organizations. In addition, one of the keys to creative and innovative entrepreneurial attitudes and life will be much needed in various fields of life, including in the field of management and leadership where currently the rate of change is occurring very quickly in various fields of life, so that entrepreneurial leadership is needed (Arifin & Gunawan, 2020). The main characteristics of entrepreneurial leadership qualities are the ability to provide communication, a clear vision to achieve the ultimate goal, provide

support, self-confidence, share in successful cases, create a pleasant atmosphere in the organization, honesty, perseverance and desire to learn (Fernald *et al.*, 2005; Kuratko, 2007; Renko, 2017).

Existing research related to entrepreneurial leadership explores how deep the implementation of entrepreneurial leadership in schools is (Ghazali *et al.*, 2020; Arifin & Gunawan, 2020; Bagheri & Harrison, 2020; Renk *et al.*, 2019; Britchenko *et al.*, 2018; Pashiardis & Brauckmann, 2018; Miller, 2018; Hallinger & Snidvongs, 2008). Further analysis of the influence of entrepreneurial leadership is still limited to the influence of entrepreneurial leadership on education management (Saikiewicz & Pashiardis, 2020), teacher-student relationship (Leffler, 2019), school governance (Scott & Webber, 2013). No previous research has discussed in detail related to school management, especially in Vocational High Schools, it has never been proposed before. Previous research usually only discusses the implementation of entrepreneurial leadership on improving school performance as in Pashiardis & Brauckmann (2011) as well as Bagheri & Pihie (2013) it is still rare to discuss the supporting factors for the effectiveness of vocational entrepreneurial leadership. In this case, the principal must be able to manage the school properly and professionally without pressure from other related parties and in accordance with applicable laws and regulations. Some of the indicators used in measuring school independence include clear delegation of tasks, autonomy in carrying out activities, and the principal supporting school activities.

When viewed from the method approach used, research that usually only focuses on research uses a quantitative approach in the form of basic statistical analysis, as is done (Ghazali *et al.*, 2020; Arifin & Gunawan, 2020; Bagheri & Harrison, 2020; Renko *et al.*, 2019) and qualitative analysis as done by Pashiardis & Brauckmann (2018), Miller (2018), Leitch & Volery (2017) and Bagheri & Pihie (2013). Research on the supporting factors for the effectiveness of vocational entrepreneurial leadership did not exist before and added to the use of a quantitative approach in the form of SEM PLS.

This study aims to analyze the factors that are thought to influence the effectiveness of entrepreneurial leadership in Vocational High Schools using SEM PLS. The quality of entrepreneurial leadership as the dependent variable and the effectiveness of entrepreneurial leadership which includes regulation, teacher support, self-capacity, infrastructure and sustainable partnerships as independent variables. Besides that, this study also includes the partnership variable as an intervening variable to see whether there is an indirect effect between regulation, teacher support, self-capacity and infrastructure on the quality of entrepreneurial leadership. The hope is that through research, strategies for increasing effectiveness in entrepreneurial leadership will be obtained.

## RESEARCH METHODS

This research employed a quantitative approach using Structural Equation Modeling (SEM). The SEM statistical technique was introduced by Wright, a biometrician who developed path analysis methods to examine genetic theory in biology (Teo & Knine, 2009). According to Santoso (2018), SEM is a multivariate analysis technique that combines factor analysis and linear regression analysis with the aim of examining the relationship between variables in a model. This method was developed from the regression method, ANOVA and correlation techniques by enabling the analysis of hypothetical interconnections between latent

constructs (Kline, 1991). SEM can describe the direct and indirect effects of the observed variables based on the hypothesis (Stage et al., 2004). SEM development is aimed at explaining complex relationships between variables and enabling measurements and structural models between latent variables (a group of exogenous variables). SEM as a multivariate analysis is able to carry out simultaneous testing on complex research models and is able to carry out analysis of variables that cannot be calculated directly (Hair Jr et al., 2016).

There are two types of SEM, namely covariance-based SEM and variant-based SEM (SEM-PLS). Variant-based SEM or known as Structural Equation Modeling-Partial Least Square (SEM-PLS) (Wold, 1975). SEM-PLS is an analysis based on variance that can perform measurement and structural model testing simultaneously (Hair Jr et al., 2016). SEM PLS is used in research that is exploratory in nature, meaning that SEM aims to develop theory and produce predictions and explanations of latent variables. SEM can also maximize the variance of endogenous latent variables that are influenced by exogenous latent variables. In general, in the SEM-PLS method, there are two forms of measurement models, namely reflective and formative. According to Bollen & Lennox (1991), constructs for reflective or formative models are selected based on the priority of the reciprocal linkages between indicators and latent variables. In reflective relationships, indicators are a reflection of their latent variables while changes in latent variables caused by changes in formative relationship indicators are described by formative indicator models. Testing the relationship between these variables can occur between indicators and their constructs or relationships between constructs. According to Ghazali & Latan (2015), PLS is an approach to parameter estimation as an alternative to the covariance-based SEM approach to variance-based. The analysis in this study uses the SEM-PLS approach which is carried out in two stages.

### **Measurement Test**

The model at this stage was carried out to test the construct validity and reliability of each indicator. This study used a questionnaire to collect research data. To determine the level of validity and reliability of the questionnaire, the researchers used the Smart PLS 3.0 software. The validity testing procedure is convergent validity, namely by correlating the item score (component score) with the construct score which then produces the Loading Factor value. The Loading Factor value is said to be high if the component or indicator correlates more than 0.7 with the construct you want to measure. However, for research at the early stages of development, a loading factor of 0.5 to 0.6 is considered sufficient (Chin, 1998; Ghazali & Fuad, 2008).

Reliability states the extent to which results or measurements can be trusted or relied on and provide measurement results that tend to be consistent after repeated measurements. To measure the level of reliability of variables used Cronbach Alpha and Composite Reliability coefficients. The measurement variable is said to be reliable if it has an Alpha coefficient value greater than 0.6 (Malhotra & Dash, 2016).

### **Model Structural Test**

The aim at this stage is to determine whether there is influence between variables between the constructs measured using the t-test approach of the PLS model itself. In addition, the structural model test is used to see the relationship between the measured constructs which is

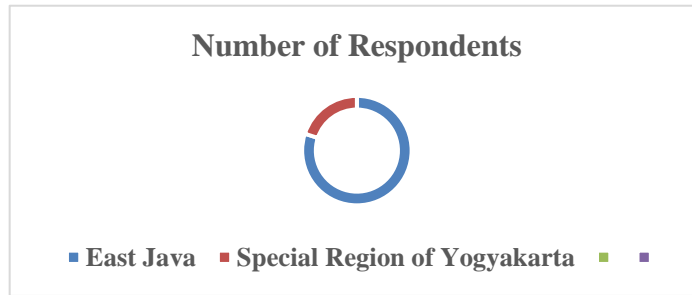
the t-test of the Partial Least Square itself. The structural model can be measured by looking at the estimated coefficient value of the model which shows how much influence the variables in the model have. Then the next step is the estimation of the path coefficient which is the estimated value for the path relationships in the structural model obtained by the stripping procedure with a value that is considered significant. If the T-statistic value is greater than 1.96 (5% significance level) or greater than 1.65 (significance level 10%) for each path connection.

The PLS approach is a powerful statistical analysis method because it is not based on many assumptions (Wold, 1975). The data used in the analysis does not have to be normally distributed multivariate and the number of respondents does not have to be large. PLS can be used to confirm existing theories and to explain whether there is influence between latent variables. PLS can also analyze at the same time constructs that are formed with reflective indicators or formative indicators where things like this cannot be carried out in Covariance Based SEM. This is because there will be an unidentified model in the Covariance Based SEM modeling (Ghazali & Latan, 2015). In this study, six hypotheses were proposed, namely (1) H<sub>1</sub>: there is a positive and significant influence of teacher support on the quality of entrepreneurial leadership; (2) H<sub>2</sub>: there is a positive and significant effect of self-capacity on the quality of entrepreneurial leadership; (3) H<sub>3</sub>: there is a positive and significant influence of infrastructure on the quality of entrepreneurial leadership; (4) H<sub>4</sub>: there is a positive and significant effect of regulation on the quality of entrepreneurial leadership; (5) H<sub>5</sub>: there is a positive and significant influence of teacher support on the quality of entrepreneurial leadership through partnerships; (6) H<sub>6</sub>: there is a positive and significant effect of self-capacity on the quality of entrepreneurial leadership through partnerships; (7) H<sub>7</sub>: there is a positive and significant influence of infrastructure on the quality of entrepreneurial leadership through partnerships; (8) H<sub>8</sub>: there is a positive and significant effect of regulation on the quality of entrepreneurial leadership through partnerships.

## **RESULTS AND DISCUSSION**

### ***Results***

The total number of respondents in this study were 180 people from the provinces of East Java and the Special Region of Yogyakarta. Sampling was carried out in the two provinces, because these two provinces have SMK-BLUD. Most of the respondents came from the province of East Java, namely as many as 144 people, while only 36 respondents came from the Special Region of Yogyakarta. The large proportion of respondents coming from East Java is in line with the large number of SMK-BLUDs in the province. There are four times more SMK-BLUDs in East Java than SMKs with BLUD status in the Special Region of Yogyakarta. A total of 20 SMK-BLUDs are located in East Java province, while 3 other SMK-BLUDs are located in the Special Region of Yogyakarta.



**Figure 1. Graph of Number of Respondents**

**Table 1. Average Comparison Results Based on Respondents' Locations**

Variable	Location of Respondents	N	Mean	Std.Dev	p-value
Regulation	Special Region of Yogyakarta	36	3.3981	0.51529	0.085
	East Java	144	3.5301	0.49144	0.040
Teacher Support	Special Region of Yogyakarta	36	3.4074	0.38306	0.063
	East Java	144	3.3889	0.50943	0.042
Self-Capacity	Special Region of Yogyakarta	36	3.5093	0.44711	0.074
	East Java	144	3.4468	0.44103	0.036
Infrastructure	Special Region of Yogyakarta	36	3.5648	0.42776	0.071
	East Java	144	3.5278	0.48038	0.040
Partnership	Special Region of Yogyakarta	36	3.5185	0.45387	0.075
	East Java	144	3.4769	0.41654	0.034
Entrepreneurial Leadership Quality	Special Region of Yogyakarta	36	3.7130	0.41521	0.069
	East Java	144	3.6667	0.38825	0.032

**Note: \*= significant at 5% level**

Table 1 shows the results of the independent t-test on each variable based on the location of the respondents. In the Regulatory variable, Teacher Support, Self-Capacity, Infrastructure,

Partnership, and Quality of Entrepreneurial Leadership has a p-value > 0.05. This means that these variables do not provide a significant difference between respondents who come from Vocational Schools in the Special Region of Yogyakarta and East Java Provinces, and have the same entrepreneurial leadership qualities significantly at a significance level of 5%.

### Validity and Reliability Test

In Figure 2 it can be seen that the Standardized loading factor value for each indicator is 0.50. This means that the indicators in the model are valid as a measuring tool for latent variables, so they can be used for modeling.

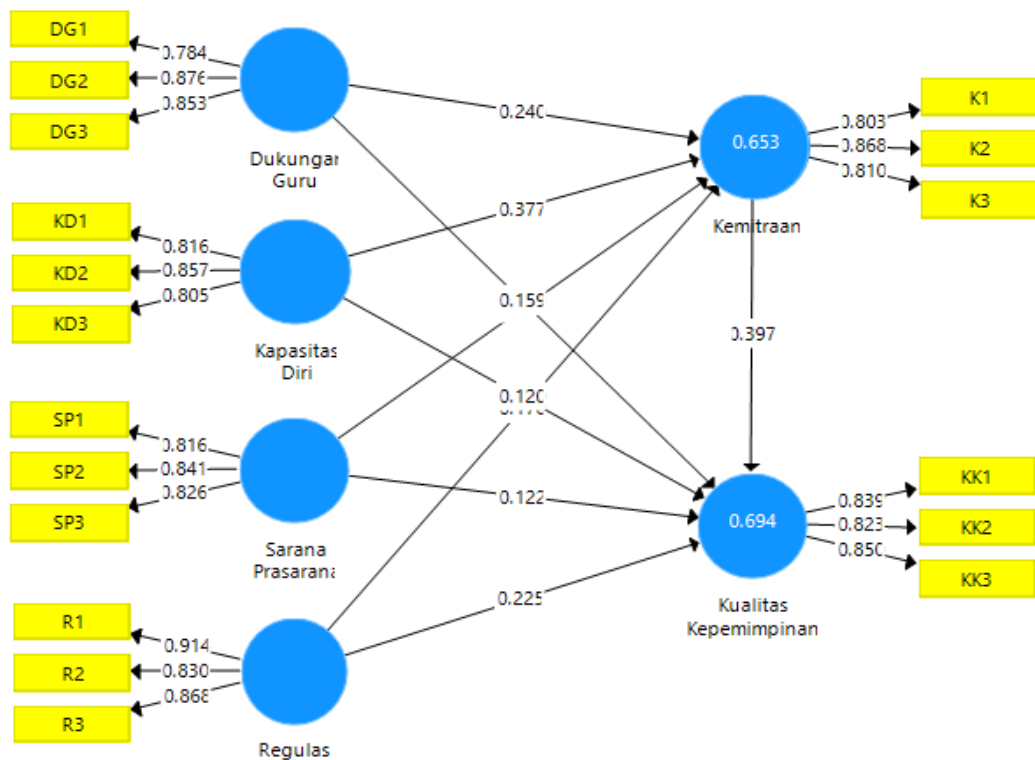


Figure 2. Structural Model with Standardized Loading Factor Values

Table 2. Cronbach's Alpha Value

Variable	Cronbach's Alpha
Regulation	0.841
Teacher Support	0.788
Self-Capacity	0.767
Infrastructure	0.770



Partnership	0.769
Entrepreneurial Leadership Quality	0.787

Based on Table 2, the Cronbach's Alpha coefficient values for all variables are  $\geq 0.60$ . So it can be concluded that all latent variables are declared reliable.

### Outer Model Evaluation

**Table 3. Composite Reliability Value**

Variable	Composite Reliability
Regulation	0.904
Teacher Support	0.876
Self Capacity	0.866
Infrastructure	0.867
Partnership	0.867
Entrepreneurial Leadership Quality	0.876

The value of all indicator blocks is greater than 0.6, so it meets the Composite Reliability assumption. Table 3 shows that the indicator blocks in each construct have high consistency.

**Table 4. Cross-Loading**

	Teacher Support	Self Capacity	Partnership	Entrepreneurial Leadership Quality	Regulation	Infrastructure
DG1	<b>0.784</b>	0.319	0.447	0.455	0.297	0.379
DG2	<b>0.876</b>	0.381	0.502	0.510	0.356	0.416
DG3	<b>0.853</b>	0.390	0.541	0.532	0.343	0.445
K1	0.422	0.622	<b>0.803</b>	0.650	0.417	0.520

K2	0.507	0.572	<b>0.868</b>	0.630	0.473	0.549
K3	0.546	0.496	<b>0.810</b>	0.647	0.488	0.517
KD1	0.357	<b>0.816</b>	0.530	0.498	0.321	0.382
KD2	0.373	<b>0.857</b>	0.636	0.526	0.396	0.446
KD3	0.347	<b>0.805</b>	0.515	0.515	0.383	0.405
KK1	0.486	0.509	0.617	<b>0.839</b>	0.521	0.455
KK2	0.509	0.555	0.690	<b>0.823</b>	0.533	0.596
KK3	0.503	0.493	0.639	<b>0.850</b>	0.507	0.510
R1	0.341	0.421	0.506	0.575	<b>0.914</b>	0.427
R2	0.343	0.368	0.503	0.544	<b>0.830</b>	0.420
R3	0.355	0.372	0.437	0.502	<b>0.868</b>	0.436
SP1	0.398	0.444	0.516	0.518	0.401	<b>0.816</b>
SP2	0.398	0.409	0.553	0.489	0.449	<b>0.841</b>
SP3	0.432	0.386	0.517	0.544	0.367	<b>0.826</b>

The discriminant validity of indicators can be seen in the cross-loading between indicators and their constructs. From Table 4 it can be seen that the highest item correlation value occurs for each variable, so it can be concluded that each variable item has good discriminant validity. This shows that the latent construct can predict indicators in its own block better than other constructs.

### Structural Model Evaluation

Based on the results of the analysis using the Smart PLS software, the values of  $R^2$  were 0.645 and 0.685. This shows that the partnership variable can be explained well by regulation, teacher support, self-capacity, and infrastructure variables of 64.5%, while 35.5% is explained by other variables outside those studied. While the variable quality of entrepreneurial leadership can be explained by regulations, teacher support, self-capacity, infrastructure and partnerships by 68.5% while 31.5% is explained by other variables outside those studied.

**Table 5. Value of  $R^2$  in the Structural Model**

Variable	R Square	R Square Adjusted
Partnership	0.653	0.645
Entrepreneurial Leadership Quality	0.694	0.685

The  $Q^2$  value is used to validate the model. If the  $Q^2$  value is greater than 0.5, it indicates that the model has good predictive relevance. The value of Predictive Relevance ( $Q^2$ ) can be written as follows:

$$Q^2 = 1 - \{(1 - R^1) (1 - R^2)\}$$

$$= 1 - \{(1 - 0.645) (1 - 0.685)\} = 0.96$$

From the calculation above, it is obtained that the value of  $Q^2 = 0.96$  is greater than 0.5, meaning that the model in this study has good predictive relevance.

### Hypothesis test

PLS does not assume that the data is normally distributed, so a resampling technique with the Bootstrapping method is used. The results of bootstrapping with bootstrap samples 500 times, it is assumed that the data is normally distributed, so that testing the parameters in the model can be done with the t test. the coefficient value of the structural model is said to be significant, if the t-count > t-table value is 1.96 (1.96 is the t-table value with db=n-1 at a 95% confidence level) or p value <  $\alpha$  (0.05).

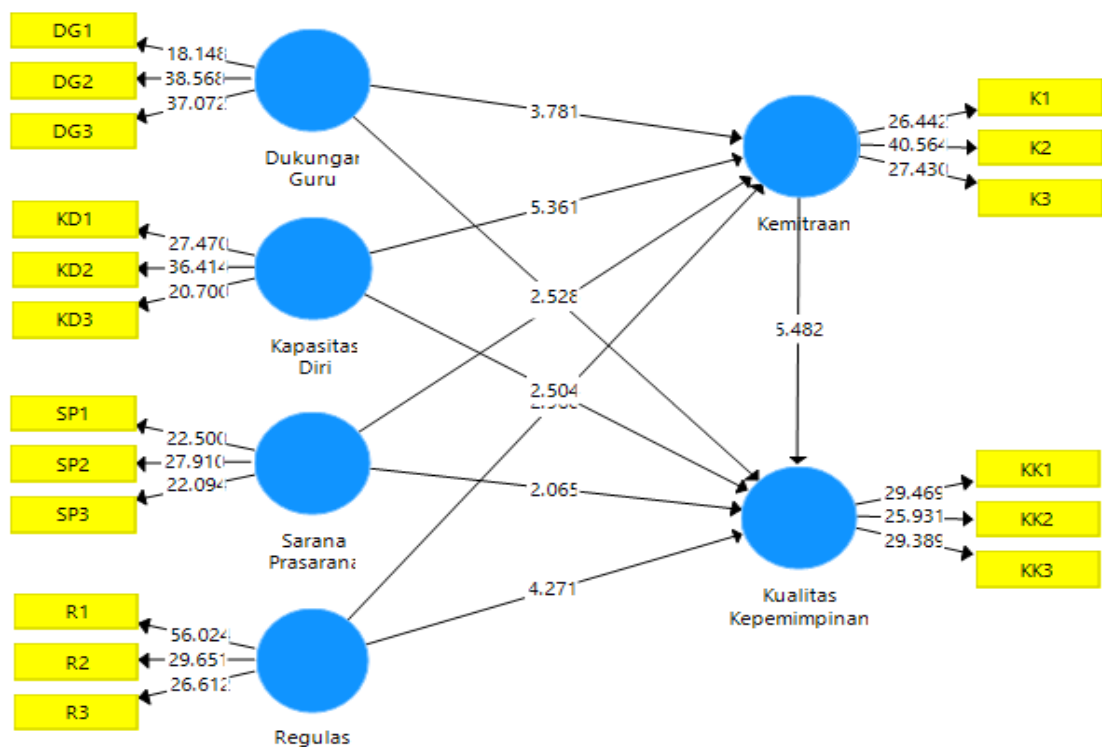


Figure 3. Bootstrapping results

Table 6. Direct Effect Results

Variable Influence	Original Sample (O)	Sample Means (M)	Standard Deviation (STDEV)	T Statistics ( O/STDEV )	P Value
Teacher Support -> Partnership	0.240	0.237	0.063	3.781	<b>0.000</b>
Teacher Support -> Entrepreneurial Leadership Qualities	0.159	0.157	0.063	2.528	<b>0.012</b>
Self Capacity -> Partnership	0.377	0.379	0.070	5.361	<b>0.000</b>
Self Capacity -> Entrepreneurial Leadership Quality	0.120	0.119	0.048	2.504	<b>0.013</b>
Partnership -> Entrepreneurial Leadership Quality	0.397	0.394	0.072	5.482	<b>0.000</b>
Regulation -> Partnership	0.170	0.172	0.057	2.968	<b>0.003</b>
Regulation -> Entrepreneurial Leadership Quality	0.225	0.232	0.053	4.271	<b>0.000</b>
Infrastructure -> Partnership	0.249	0.247	0.059	4.235	<b>0.000</b>
Infrastructure -> Entrepreneurial Leadership Quality	0.122	0.121	0.059	2.065	<b>0.039</b>

**Note: \*\*: Significant at the 5% level**

Based on Table 6 it is known that the path coefficient on the latent variable focused on teacher support for partnerships is worth 0.240 with a t-count of 3.781 and a p-value of 0.000. That is, H<sub>1</sub> is accepted which means there is a positive and significant influence between teacher support for partnerships. This indicates that the better the implementation of teacher support in the school, the better the partnership in the school, and vice versa.

The second hypothesis, namely that there is a positive and significant influence of teacher support on the quality of entrepreneurial leadership is evidenced by a coefficient value of 0.159 with a t-count of 2.528 and a p-value of 0.012 (p < 0.05). That is, H<sub>2</sub> is accepted which means that the better the implementation of teacher support in schools, the better the quality of entrepreneurial leadership will be, and vice versa.

The third hypothesis, namely that there is a positive and significant influence of self-capacity on partnerships is evidenced by a coefficient value of 0.377 with a t-count of 5.361 and a p-value of 0.000 ( $p < 0.05$ ). This means that H3 is accepted, which means that the better the self-capacity, the better the partnership in the school, and vice versa.

The fourth hypothesis, namely that there is a positive and significant influence of self-capacity on the quality of entrepreneurial leadership is evidenced by a coefficient value of 0.120 with a t-count of 2.504 and a p-value of 0.013 ( $p < 0.05$ ). This means that H4 is accepted which means that the better the self-capacity, the better the quality of entrepreneurial leadership in the school, and vice versa.

The fifth hypothesis, namely that there is a positive and significant influence of partnerships on the quality of entrepreneurial leadership is evidenced by a coefficient value of 0.397 with a t-count of 5.482 and a p-value of 0.000 ( $p < 0.05$ ). This means that H5 is accepted, which means that the better the partnership in the school, the better the quality of entrepreneurial leadership in the school, and vice versa.

The sixth hypothesis, namely that there is a positive and significant effect of regulation on partnerships is evidenced by a coefficient value of 0.170 with a t-count of 2.968 and a p-value of 0.003 ( $p < 0.05$ ). This means that H<sub>6</sub> is accepted, which means that the better the regulation, the better the partnership in the school, and vice versa.

The seventh hypothesis, namely that there is a positive and significant effect of regulation on the quality of entrepreneurial leadership is evidenced by a coefficient value of 0.225 with a t-count of 4.271 and a p-value of 0.000 ( $p < 0.05$ ). This means that H<sub>7</sub> is accepted which means that the better the regulation, the better the quality of entrepreneurial leadership in the school, and vice versa.

The eighth hypothesis, namely that there is a positive and significant influence of infrastructure on partnerships is evidenced by a coefficient value of 0.249 with a t-count of 4.235 and a p-value of 0.000 ( $p < 0.05$ ). This means that H<sub>8</sub> is accepted, which means that the better the infrastructure in schools, the better the school partnership will be, and vice versa.

The ninth hypothesis, namely that there is a positive and significant influence of infrastructure on the quality of entrepreneurial leadership is evidenced by a coefficient value of 0.122 with a t-count of 2.065 and a p-value of 0.039 ( $p < 0.05$ ). This means that H<sub>9</sub> is accepted, which means that the better the infrastructure in schools, the better the quality of the entrepreneurial leadership of the school principal, and vice versa. In addition to the direct effect, this research also has an indirect effect and total influence which is a novelty in model development. The indirect effect on this study is described in Table 7.

**Table 7. Indirect Effect Results**

Variable Influence	Original Sample (O)	Sample Means (M)	Standard Deviation (STDEV)	T Statistics ( O/STDEV )	P Values
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Teacher Support -> Entrepreneurial Leadership Quality -> Partnership	0.095	0.095	0.034	2.770	<b>0.006</b>
Self Capacity -> Entrepreneurial Leadership Quality -> Partnership	0.150	0.149	0.038	3.908	<b>0.000</b>
Regulation -> Entrepreneurial Leadership Quality -> Partnership	0.068	0.068	0.026	2.646	<b>0.008</b>
Infrastructure -> Entrepreneurial Leadership Quality -> Partnership	0.099	0.097	0.028	3.479	<b>0.001</b>

**Note: \*\*: Significant at the 5% level\***

Based on Table 7, it is found that there is a positive and significant influence of teacher support on the quality of entrepreneurial leadership through the partnership variable. This is evidenced by a p value of 0.006 ( $p < 0.05$ ). That is, H10 is accepted, which means that the better the teacher's support at school, the better the quality of the entrepreneurial leadership of the school principal, which in turn has a positive and significant influence on improving school partnerships. The result of the estimated coefficient on the indirect effect is 0.095 which is smaller than the estimated coefficient between the direct effect between teacher support on the quality of entrepreneurial leadership (0.159) which indicates that the actual relationship between teacher support for partnerships is a direct relationship.

The results of testing the tenth hypothesis show that the path coefficient on the latent variable self-capacity on the quality of entrepreneurial leadership through partnerships has a value of 0.150 with a t-count of 3.908 and a p-value of 0.000 ( $p < 0.05$ ). This explains that the self-capacity latent variable does not have a direct positive and significant effect on the partnership latent variable through the quality variable of entrepreneurial leadership. This means that the variable entrepreneurial leadership quality is not statistically proven to be an intermediary between the variables of self-capacity and partnership.

The results of testing the eleventh hypothesis show that there is a positive and significant effect on regulatory latent variables on the quality of entrepreneurial leadership through partnerships. This is evidenced by the p value of 0.008 which is greater than 0.05. This means that H11 is accepted, which means that the better the application of regulations, the better the entrepreneurial leadership quality of the school principal will ultimately have a positive and significant influence on improving partnerships. The estimated coefficient on this indirect effect is 0.068 which is smaller than the estimated coefficient on the direct effect between regulation and entrepreneurial leadership quality (0.225) indicating that the actual relationship between regulation and partnership is a direct one.

The results of testing the twelfth hypothesis indicate that there is a positive and significant effect on the latent variable of infrastructure on the quality of entrepreneurial leadership through partnerships. This is evidenced by the p value of 0.001 which is greater than 0.05. This means that H12 is accepted, which means that the better the implementation of infrastructure

in schools, the better the entrepreneurial leadership quality of the school principal will ultimately have a positive and significant influence on improving partnerships. The estimated coefficient on this indirect effect is 0.099 which is smaller than the estimated coefficient on the direct effect between facilities and infrastructure on the quality of entrepreneurial leadership (0.122) indicating that the actual relationship between infrastructure and partnerships is a direct relationship. The total effect on this study is described in Table 8.

**Table 8. Total Effects**

<b>Variable Influence</b>	<b>Original Sample (O)</b>	<b>Sample Means (M)</b>	<b>Standard Deviation (STDEV)</b>	<b>T Statistics ( O/STDEV )</b>	<b>P Values</b>
Teacher Support -> Partnership	0.240	0.237	0.063	3.781	<b>0.000</b>
Teacher Support -> Quality Entrepreneurial Leadership -> Partnership	0.254	0.251	0.062	4.075	<b>0.000</b>
Self Capacity -> Partnership	0.377	0.379	0.070	5.361	<b>0.000</b>
Self Capacity -> Entrepreneurial Leadership Quality -> Partnership	0.270	0.268	0.052	5.233	<b>0.000</b>
Partnership -> Leadership Qualities	0.397	0.394	0.072	5.482	<b>0.000</b>
Regulation -> Partnership	0.170	0.172	0.057	2.968	<b>0.003</b>
Regulation -> Entrepreneurial Leadership Quality -> Partnership	0.293	0.300	0.061	4.771	<b>0.000</b>
Infrastructure -> Partnership	0.249	0.247	0.059	4.235	<b>0.000</b>
Sarana Infrastructure -> Quality_Entrepreneurial Leadership -> Partnership	0.221	0.218	0.058	3.773	<b>0.000</b>

The effect of teacher support on partnerships is 0.240, which means that if teacher support increases by one unit, then partnerships can increase directly and indirectly through the quality of entrepreneurial leadership by 24%, which means this influence is positive. Furthermore, the effect of teacher support on partnerships through the quality of entrepreneurial leadership is 0.254, which means that if teacher support increases by one unit, partnerships can increase

directly and indirectly through the quality of entrepreneurial leadership by 25.4%, which means this influence is positive.

The effect of self-capacity on partnerships is 0.377, which means that if self-capacity increases by one unit, then partnerships can increase directly and indirectly through the quality of entrepreneurial leadership by 37.7%, which means this influence is positive. Furthermore, the effect of self-capacity on partnerships through the quality of entrepreneurial leadership is 0.270, which means that if self-capacity increases by one unit, partnerships can increase directly and indirectly through the quality of entrepreneurial leadership by 27%, which means this influence is positive.

The effect of partnerships on the quality of entrepreneurial leadership is 0.397, which means that if partnerships increase by one unit, then the quality of entrepreneurial leadership can increase directly and indirectly by 39.7%, which means this influence is positive.

The effect of regulation on partnerships is 0.170, which means that if regulation increases by one unit, then partnerships can increase directly and indirectly through the quality of entrepreneurial leadership by 17%, which means this influence is positive. Furthermore, the effect of regulation on partnerships through the quality of entrepreneurial leadership is 0.293, which means that if regulation increases by one unit, partnerships can increase directly and indirectly through the quality of entrepreneurial leadership by 29.3%, which means this influence is positive.

The influence of infrastructure on partnerships is 0.249, which means that if infrastructure facilities increase by one unit, partnerships can increase directly and indirectly through the quality of entrepreneurial leadership by 24.9%, which means this influence is positive. Furthermore, the effect of infrastructure on partnerships through the quality of entrepreneurial leadership is 0.221, which means that if infrastructure facilities increase by one unit, then partnerships can increase directly and indirectly through the quality of entrepreneurial leadership by 22.1%, which means this influence is positive.

## **Figures**

Use Arabic numerals to number all of the figures (e.g., Figure 1, Figure 2) according to their sequence in the text. The figure title and number are below. It is placed in the middle with all words start using a capital letter, except conjunctions. If it is more than one line, the title is written in a single space.



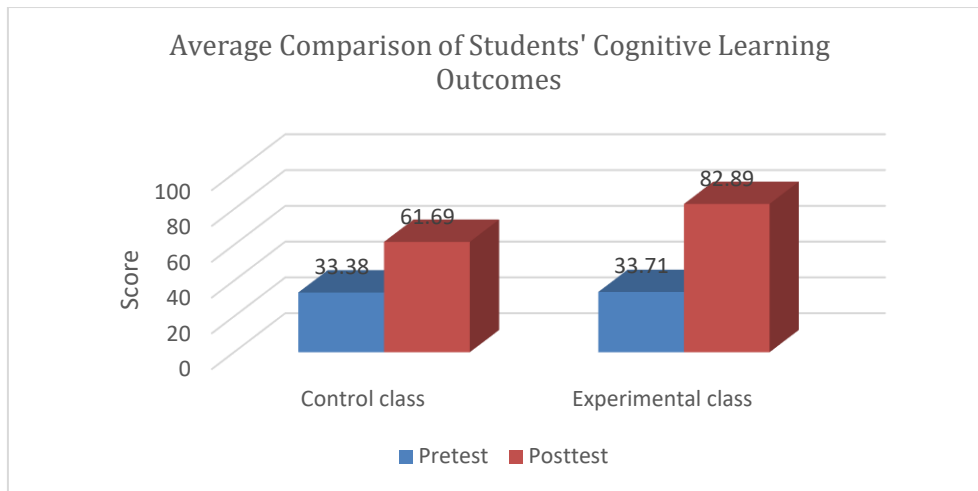


Figure 1. Pretest and Posttest Average Score Graph of Experiment and Control Classes

### Discussion

The results of hypothesis testing as presented in Table 6 can be interpreted as follows. First, the teacher support variable has a significant effect on partnership at a significance level of 5% with a positive estimation coefficient value of 0.240. It can be concluded that every increase in teacher support in each school will increase partnerships in each school. Second, the teacher support variable has a significant effect on the quality of entrepreneurial leadership at a significance level of 5% with a positive estimated coefficient value of 0.159. It can be concluded that any increase in teacher support in each school will increase the quality of the entrepreneurial leadership of the principal in each school. Third, the self-capacity variable has a significant effect on partnership at a significance level of 5% with a positive estimation coefficient value of 0.377. It can be concluded that every increase in self-capacity will increase partnerships in each school. Fourth, the self-capacity variable has a significant effect on the quality of entrepreneurial leadership at a significance level of 5% with a positive estimation coefficient value of 0.120. It can be concluded that any increase in self-capacity will improve the entrepreneurial leadership quality of the principal in each school.

Fifth, the partnership variable has a significant effect on the quality of entrepreneurial leadership at a significance level of 5% with a positive estimation coefficient value of 0.397. It can be concluded that every partnership in each school will improve the entrepreneurial leadership quality of the principal in each school. Sixth, regulatory variables have a significant effect on partnerships at a significance level of 5% with a positive estimation coefficient value of 0.170. It can be concluded that every increase in regulation will increase partnerships in each school. Seventh, regulatory variables have a significant effect on the quality of entrepreneurial leadership at a significance level of 5% with a positive estimation coefficient value of 0.225. It can be concluded that every increase in regulation will improve the quality of entrepreneurial leadership of school principals in each school.

Eighth, the infrastructure variable has a significant effect on partnerships at a significance level of 5% with a positive estimation coefficient value of 0.249. It can be concluded that every improvement in infrastructure at each school will increase partnerships at each school. Ninth, the infrastructure variable has a significant effect on the quality of entrepreneurial leadership at a significance level of 5% with a positive estimation coefficient value of 0.122. It can be

concluded that every increase in prasarama facilities in each school will increase the quality of the entrepreneurial leadership of the principal in each school.

Furthermore, the results of testing the hypothesis in Table 7 can be explained that First, the quality variable of entrepreneurial leadership also significantly mediates the relationship between teacher support for partnerships at a significance level of 5% with a positive estimated coefficient value of 0.095. The two variables of entrepreneurial leadership quality also significantly mediate the relationship between self-capacity and partnership at a significance level of 5% with a positive estimated coefficient of 0.150. Third, the variable quality of entrepreneurial leadership also significantly mediates the relationship between regulation and partnership at a significance level of 5% with a positive estimated coefficient of 0.068. Fourth, the variable quality of entrepreneurial leadership also significantly mediates the relationship between infrastructure and partnerships at a significance level of 5% with a positive estimated coefficient value of 0.099.

It can be concluded that every increase in teacher support, self-capacity, regulations and infrastructure in each school, will improve the quality of entrepreneurial leadership of school principals in SMK. The conclusion of the results in Table 6 and Table 7 are the supporting factors for the effectiveness of vocational entrepreneurial leadership, which include regulations, teacher support, self-capacity, infrastructure, partnerships and quality of entrepreneurial leadership.

Principals need to implement entrepreneurial leadership to increase school effectiveness, facilitate human resource development and school innovation processes (Najim, 2013). Entrepreneurial leadership can develop and implement new ideas that lead to change and improvement in schools (Ruskovaara *et al.*, 2011). It is appropriate that entrepreneurial leadership is applied in school organizations, to increase the success of schools in providing effective education and a conducive learning environment (Wibowo & Saptono, 2018). Entrepreneurial leadership is believed to be able to solve big problems in schools, the complexity and organizational challenges of schools such as demands to improve the quality of education in schools, changes and developments in the school environment, as well as the problem of lack of resources and funds in schools (Xaba & Malindi, 2010; Eyal & Kark, 2004).

Excellent entrepreneurial leaders concentrate on achieving positive outcomes and demonstrating commensurate excellence. Leaders believe that the people in the environment make a meaningful contribution to the goals of the organization and to develop their value for themselves and the organization. Moreover, successful entrepreneurial leaders can manage conflict management as well as crisis management in an organization (Darling, Keeffe & Olney, 2005). It is supported by Kurato *et al.*, (2005) which states that leaders consider it important to develop and support a favorable organizational culture. Culture and top leadership are the most special resources for an organization (Hitt *et al.*, 2011).

Covin & Slevin (2002) states that entrepreneurial leadership can be characterized by six imperatives, namely: protecting innovations that threaten current business models, creating opportunities, questioning dominant logic, revisiting “simple deceptive questions”, entrepreneurial flow and strategic management. Covin & Slevin (2002) believe that effective entrepreneurial leaders can create the best value is to develop an entrepreneurial strategy. In this case leaders must have an entrepreneurial mindset that helps them to develop a culture whose resources can be managed strategically (profit-seeking behavior) and not yet

entrepreneurial (opportunity-seeking behavior). The development of strong entrepreneurial leadership depends on the entrepreneurial learning possessed by the leader. Experience, social interaction and the ability to reflect after observing problems and opportunities constitute entrepreneurial learning that leads to entrepreneurial leadership (Bagheri & Pihie, 2011; Kempster & Cope, 2010).

Therefore, principals need to be educated, trained and properly prepared for the principal's new challenging role as an entrepreneurial leader. This may be of use to both school principals in increasing school innovation by increasing the knowledge and competence of school principals' entrepreneurial leadership. Thus, school principals need to realize the importance of entrepreneurial leadership in the assessment system and school development. Therefore, more efforts are needed by school principals to be more entrepreneurial in their leadership, so that they can contribute to a good assessment of schools.

## CLOSING

The study concluded that the results of the evaluation of the measurement model show that all indicators are valid and reliable in measuring each latent variable, so that it can be used to form variables that influence the effectiveness of entrepreneurial leadership Vocational Schools in the Provinces of the Special Region of Yogyakarta and East Java. Based on the results of hypothesis testing, it shows that the variables of regulation, teacher support, self-capacity, and infrastructure have a positive and significant influence on the quality of entrepreneurial leadership. In addition, the existence of partnerships in each school indirectly has a positive and significant influence on the quality of entrepreneurial leadership.

The effectiveness of vocational entrepreneurial leadership needs to be maximized by looking at the conditions in each school, so that the right strategy can be determined in determining school effectiveness. In addition to using the partnership variable as an intervening variable in increasing the effectiveness of vocational entrepreneurial leadership, it is necessary to need other intervening variables that can maximize the effectiveness of entrepreneurial leadership in managing SMK-BLUD. According to Istikomah (2019), Principal leadership is one of the supports for the success of a school to become an effective school. The achievement of educational goals is very dependent on the skills and wisdom of the principal as a leader. The application of entrepreneurial leadership in Indonesia, especially in Vocational High Schools, needs to be improved by improving organizational culture, work ethic and performance satisfaction. Therefore, in further research, intervening variables related to organizational culture, work ethic and performance satisfaction can be added to increase the effectiveness of entrepreneurial leadership in SMK.

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