



## STRATEGY FOR IMPROVING THE EFFECTIVENESS OF MANAGEMENT VOCATIONAL SCHOOL-BASED ENTERPRISE IN INDONESIA

 Arie Wibowo  
Khurniawan<sup>1+</sup>

 Illah Sailah<sup>2</sup>

 Pudji Muljono<sup>3</sup>

 Bambang  
Indriyanto<sup>4</sup>

 M.Syamsul Maarif<sup>5</sup>

<sup>1,2,5,6</sup> Bogor Agricultural University, Indonesia.

<sup>1</sup>Email: [arie\\_wibowo@apps.ipb.ac.id](mailto:arie_wibowo@apps.ipb.ac.id) Tel: +6281211360350

<sup>2</sup>Email: [illahsailah@apps.ipb.ac.id](mailto:illahsailah@apps.ipb.ac.id) Tel: +62811167836

<sup>3</sup>Email: [pudjim@apps.ipb.ac.id](mailto:pudjim@apps.ipb.ac.id) Tel: +6281316176464

<sup>4</sup>Email: [syamsul4958@gmail.com](mailto:syamsul4958@gmail.com) Tel: +6289697750647

<sup>5</sup> Universitas Muhammadiyah Prof. DR. HAMKA, Indonesia.

<sup>6</sup>Email: [bambang.indriyanto14@gmail.com](mailto:bambang.indriyanto14@gmail.com) Tel: +6282124355382



(+ Corresponding author)

### ABSTRACT

#### Article History

Received: 21 September 2020

Revised: 23 October 2020

Accepted: 4 December 2020

Published: 29 December 2020

#### Keywords

AHP

Effectiveness of school

ISM

PLS-SEM

SG

TQM

Vocational school-based  
enterprise.

Indonesian government is focusing on improving the quality and effectiveness of Vocational High Schools. One of many efforts conducted is transforming vocational schools into vocational school-based enterprises. This study aims to analyze the factors influencing the effectiveness of vocational school-based enterprise management through the implementation of School Governance and Total Quality Management. This study used quantitative and qualitative approaches and PLS-SEM analysis, AHP, and ISM techniques. Questionnaires were distributed to 231 respondents from students, teachers, principals and committees in 25 vocational school-based enterprises in East Java and DKI Jakarta. The results of PLS SEM analysis demonstrated valid, consistent and good modeling. Furthermore, TQM showed a significant and positive effect on SG with  $R^2$  of 80.2 percent. Consequently, SG and TQM also had a positive and significant effect on improving the effectiveness of vocational school-based enterprise management with  $R^2$  of 92.2 percent. In addition, the strategy reveals an increase in the effectiveness of vocational school-based enterprise based on AHP by increasing the implementation of SG through adding criteria for strong and firm leadership in the human resources in vocational school-based enterprise. Meanwhile, based on ISM result, by increasing TQM as the key factor has the greatest driving force before improving SG. It is recommended to devise a strategy that could help to increase the effectiveness of managing vocational school-based enterprises.

**Contribution/Originality:** This study is one of very few studies which have investigated the factors influencing the effectiveness of vocational school-based enterprise management through the implementation of School Governance and Total Quality Management based on quantitative and qualitative approach.

### 1. INTRODUCTION

In the current times, all countries around the world are competing to reduce barriers to access to vocational skills and education by providing the expansion of equitable and guaranteed quality access to vocational education. This is driven by a global development agreement with the agenda for the Sustainable Development Goals (SDG) which requires that by 2030, the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship should substantially increase. The community should also acquire knowledge, skills and competencies that are relevant for a decent work and life, and consistent

with the aim of vocational education tailored to the needs of the labor market and which contributes to the strength of the national economy (Thompson, 1973).

In Indonesia, vocational education policies are summarized in the National Medium-Term Development Plan 2020-2024 stating that the development of vocational education aims to create jobs and provide manpower relevant to the needs of the Business and Industrial World. The policy directions and strategies for vocational education include (1) Increasing the role and cooperation of industry / private sector in vocational education and training; (2) Reform of the provision of vocational education and training; (3) Increasing the quality and competencies of vocational educators / instructors; (4) Strengthening the vocational competency certification system; and (5) Improving vocational education and training governance. The efforts made by the Ministry of Education and Culture are implemented by making vocational programs as priority. The conditions to be achieved as stated in regulations of the Ministry of Education and Culture Number 22 of 2020 are (1) increasing the number of vocational education and training graduates who obtain jobs and become entrepreneurs within one year after graduation; (2) increasing industrial standard vocational education.

On the other hand, improving the quality of vocational education, especially at the vocational school level is also supported by the existence of Presidential Instruction Number 9 of 2016 concerning Vocational Revitalization in the context of improving the quality and competitiveness of Indonesian Human Resources and Presidential Regulation Number 18 of 2020 concerning RPJMN 2020-2024. These two mandates are realized by improving the quality of vocational high schools by increasing industrial standard vocational education and by providing arrangements for financial management flexibility in the production unit / teaching factory / in the form of a Regional Public Service Agency or known as school-based enterprise.

Vocational education quality improvement programs with industrial standards face some of the toughest problems in this time. First, there is a gap in the achievement of the quality targets stipulated in Constitution Number 20 of 2003 concerning the national education system, in which the National Government and Regional Governments are obliged to provide services and facilities, and ensure the implementation of quality education for every citizen without discrimination. However, in reality the number of vocational schools that have a good quality index is only 12% of the total number of 13,929 schools. This number is the lowest compared to other levels of education. If it is related to the unemployment rate of vocational schools graduates for the last three years, the vocational schools education level shows the highest percentage of open unemployment above other levels of education, namely 9.27 percent, 8.92 percent, and 8.63 percent respectively. Similar results are also shown by the school accreditation scores that have been issued by the National Accreditation Board, which show that 27.53 percent vocational schools in Indonesia are in good rank (Accreditation B) and only 21.89 percent of vocational schools are given very good ratings (Accreditation A). This is hinting at a school management problem of integrated quality management or Total Quality Management (TQM).

Second, decentralized school management has provided varied qualities of vocational education between regions due to differences in the ability to utilize educational resources effectively (Kadir & Ayasha, 2016). However, in reality, the management of secondary education is still centralized in local governments in accordance with Constitution Number 23 of 2014 concerning local government. Third, there is a gap in the effectiveness of vocational school management. According to Lezotte (1992) school effectiveness can be viewed through student academic achievement. This is evident by the average score of the 2018/2019 national exam of vocational school which is only 46.7 with the lowest score in the Math exam with an average of 35.26, while the national average target was 60. Fourth, there is no evaluation model for the effectiveness of vocational school-based enterprise management policies, whereas the school-based enterprise trial has been conducted since 2017 in 20 public schools in East Java and 5 public schools in DKI Jakarta.

The urgency of this research lies in the perspective of education management improvement strategies, where the effectiveness of school management implies that schools must be able to provide quality services to their

students by carrying out their function as the best place to learn at a certain time (Scheerens, 2000). The effectiveness of school management in educational institutions implies that schools are able to provide quality services to their students by carrying out their function as the best place to learn at a certain time (Scheerens, 2000). Quality service is a key issue for the entire education sector in the coming decades (Sallis, 2010). By including the effectiveness of school management as a dependent variable, the research focuses on TQM and SG as a prerequisite for ensuring the effectiveness of school management in vocational school-based enterprise.

The paper's primary contribution is to find the factors influencing the effectiveness of the management of vocational school-based enterprise as the dependent variable based on the application of SG and TQM as independent variables. Inductively, the implementation of SG and TQM are considered as a problem solver of quality and transformation of authority at vocational school-based enterprise so that the effectiveness of vocational school-based enterprise management can be achieved maximally. Hopefully, through this research, a strategy to increase the effectiveness of managing vocational school-based entrepreneurs is obtained. This research is carried out by designing and developing strategic model plan to increase the effectiveness of vocational school-based enterprise.

## **2. LITERATURE REVIEW**

### *2.1. School Governance (SG)*

Governance refers to the new, emerging institutions for collective action that have evolved from traditional forms of government, including negotiated interaction between a range of actors and institutions (Hanberger, 2016). Meanwhile, school governance contains a basic definition, namely schools that have the right to autonomy in implementing school management, especially in managing human, financial and material resources in schools (Grauwe, 2005). SG is a school management model that gives schools considerable autonomy, especially school principals, to make decisions on significant issues related to school administration within a framework that includes decisions about curriculum and learning management; recruitment and management of educational personnel; and school financial management (Arar & Abu-Romi, 2016).

In the implementation of SG, schools have "full authority and responsibility" to independently determine educational programs (curricula) and various school local policies in accordance with the vision, mission, and educational goals to be achieved by the school (Caldwell, 2005). Based on the vision, mission and educational goals, the school establishes various programs and activities to achieve goals by utilizing various potentials that are available and can be explored in schools and the community around the school. Five principles are often adopted so that decision makers can apply a good SG, namely: transparency, accountability, responsibility, independence and equality (Quyên, 2014). In addition, three other principles are added, namely participation, predictability and dynamism.

### *2.2. Total Quality Management (TQM)*

One of the keys to the success of an organization in achieving its goals is by implementing management. Management science's attention to improving the quality of a product has increased rapidly in two decades. Its development started in the industrial world and is considered successful in increasing efficiency and sales of industrial products. This success penetrates every activity that uses management to improve the performance of a business organization or company. The form of management that seeks to improve and maintain the quality or quality of the industry is called total quality management (TQM). TQM can be defined as a general management philosophy and a set of tools that allow institutional improvement to be ensured by customer satisfaction with the services they have received (Cardoso, Rosa, Videira, & Amaral, 2019). In the context of education, TQM is related to continuous improvement that can provide a set of practical tools for every educational institution in meeting the needs, wants and expectations of customers, now and in the future (Sallis, 2010).

TQM provides useful insights to principals, teachers, students, and other school stakeholders to know their respective roles and to generate customer (student) satisfaction. In other words, TQM paves the way for generating student-oriented insights (Donlagic & Fazlic, 2015). In this study, the core values of TQM are based on focus on customers, participation of all parties, focus on processes, continuous improvement and decisions based on facts (Kanji, Malek, & Tambi, 1999).

### 2.3. Effective School

An effective school is a school that is well managed and used to convince all students, regardless of differences in race, sex or socioeconomic status, to learn all curriculum subject matter that is very important in the school (Taylor, 1990). An effective school is related to the capacity of the school to carry out its functions optimally, both from economic functions, socio-human functions, political functions, cultural functions and educational functions (Fielden, 2008).

The effectiveness of school management in educational institutions implies that schools are able to carry out their function as the best place to learn by providing quality services for their targeted students within a certain period of time (Scheerens, 2000). The effectiveness of school management for building achievement is important not only for students but for all components within its scope. The term school management effectiveness in this study refers to (Hoy, Jardine, & Wood, 2005; Scheerens, 2000) strong leadership, emphasis on the acquisition of basic skills (curriculum), school climate, high expectations of student achievement, and continuous evaluation. To add novelty to this research, budget management flexibility is also included as a principle of school management effectiveness.

### 2.4. Conceptual Framework

Based on theoretical studies and previous research, a conceptual model was made as shown in Figure 1 with a few hypotheses, namely:

*H1: The implementation of TQM affects vocational school-based enterprise.*

*H2: The implementation of SG affects the effectiveness of the management of vocational school-based enterprise.*

*H3: The application of TQM has an effect on increasing the effectiveness of the management of vocational school-based enterprise.*

*H4: The application of TQM has an effect on increasing the effectiveness of vocational school-based enterprise management through SG as an intervening variable.*

## 3. METHODOLOGY

### 3.1. Research Design

This study was designed using a quantitative approach and a systems approach. The quantitative approach was carried out using SEM PLS to test the hypotheses. Meanwhile, the systems approach was carried out through the Soft System Methodology based systems approach with Analytic Hierarchy Process (AHP) and Interpretive structural modeling (ISM) techniques. This research was conducted in the provinces of East Java and DKI Jakarta.

### 3.2. Respondents and Sampling Procedure

This study uses primary data as the data source. The population of this study comprised all vocational schools with BLUD status in Indonesia. The sample used was 231 respondents consisting of principals, teachers, committees, and students from 25 vocational school-based enterprises. Sampling was done by using purposive random sampling technique where the sample respondents comprised students, teachers, principals and committees who understand and know about the implementation of TQM, SG, and the effectiveness of a vocational school-based enterprise. In addition, this study also used FGD data and distributed questionnaires to seven experts,

namely: the director of vocational school in Ministry of Education and Cultural, vocational school-based enterprise practitioners, industry practitioners, officials of Ministry of Home Affairs, and Education Offices of the East Java and DKI Jakarta.

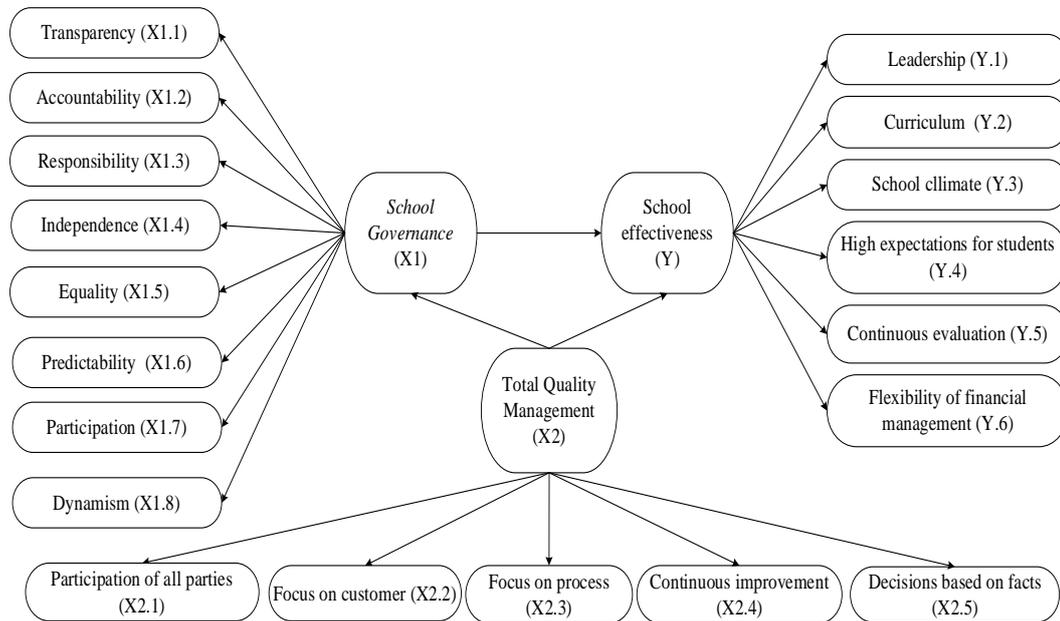


Figure-1. Path Diagram.

### 3.3. Data Analysis

The PLS-SEM was used to conduct data analysis to determine factors that influenced the effectiveness of the management of vocational school-based enterprise as the dependent variable and TQM and SG as independent variables. A strategy and a model to increase the effectiveness of the management of vocational school-based enterprise were carried out using Analytic Hierarchy Process (AHP) and Interpretive structural modeling (ISM) analysis.

## 4. RESULTS

### 4.1. Descriptive Statistics Analysis

The respondents' demographic characteristics are shown in Table 1. Most respondents in the study belonged to the teaching profession (127 people, 55%). Respondents whose status was students came at second place with 82 (35.5%). Meanwhile, respondents in principal's position were 16 (6.9%) and the committees were 6 (2.6%). In addition, this study involved almost equal proportion of male and female respondents. A total of 116 respondents or 50.2% were male while 115 respondents were female.

Furthermore, the respondents were dominated by the age of  $\leq 20$  years in the student group (35.5%) who belonged to East Java (182 respondents or 78.8%) followed by 27.7% respondents of  $> 50$  years old from the school principal and committee groups. Finally, 26.8% of the respondents came from 41-50 age group, the majority of whom came from the teacher group.

### 4.2. Evaluation of Measurement and Structural Models

The results of the overall model test using the SMART-PLS 3 indicate a match between the data and the model. As described in Figure 2. The loading factor value for each construct, which ranges from 0.817 to 0.955 (loading factor  $\geq 0.5$ ) means that convergent validity is fulfilled or all statements that compile indicators on the SG, TQM and school effectiveness variables are valid. The cross loading value between the indicator and the construct is greater than the cross loading value of the indicator with other constructs and the Average Variance Extracted

(AVE) value for all indicators and latent variables ranges from 0.619 to 0.882 ( $AVE \geq 0.5$ ) indicating that the discriminant validity of the model is met. Composite Reliability (CR) is in the range 0.879 to 0.974 ( $CR \geq 0.7$ ) and the Cronbach's Alpha (CA) value is in the range 0.741 - 0.977 ( $CA \geq 0.6$ ) which means that the constituent indicators and latent variables are reliable and have consistency in measuring latent variables each.

Table-1. Demographic characteristics of respondents.

Category	Characteristics	Number (n)	Percentage
Profession	Student	82	35.5%
	Teacher	127	55.0%
	Headmaster	16	6.9%
	Committee	6	2.6%
Gender	Man	116	50.2%
	Women	115	49.8%
Age	≤ 20 years old	82	35.5%
	21-30 years old	3	0.9%
	31-40 years old	21	9.1%
	41-50 years old	62	26.8%
	>50 years old	64	27.7%

Meanwhile, the results of the structural model evaluation show that the endogenous latent variable has a high  $R^2$  value so that the structural model built is good. The  $R^2$  value that is owned by the latent variable SG is 0.802. This means that 80.2 percent of the diversity of the latent school governance variables can be explained by the total quality management variable. On the other hand, the  $R^2$  value for the latent variable of school effectiveness is 0.922, meaning that 92.2 percent of the diversity of school effectiveness can be explained by the latent variable SG and the latent variable TQM. To validate the model calculated from the total value of  $R^2$ , the Predictive Relevance ( $Q^2$ ) value is obtained of 0.9845. This means that 98.45 percent of the diversity of endogenous latent variables is explained by the exogenous latent variables proposed in the model. Meanwhile, the GoF value is 0.6487, which means that the goodness of the structural model and measurement model is 64.87 percent and indicates that the model formed is very good and has a high ability to explain empirical data.

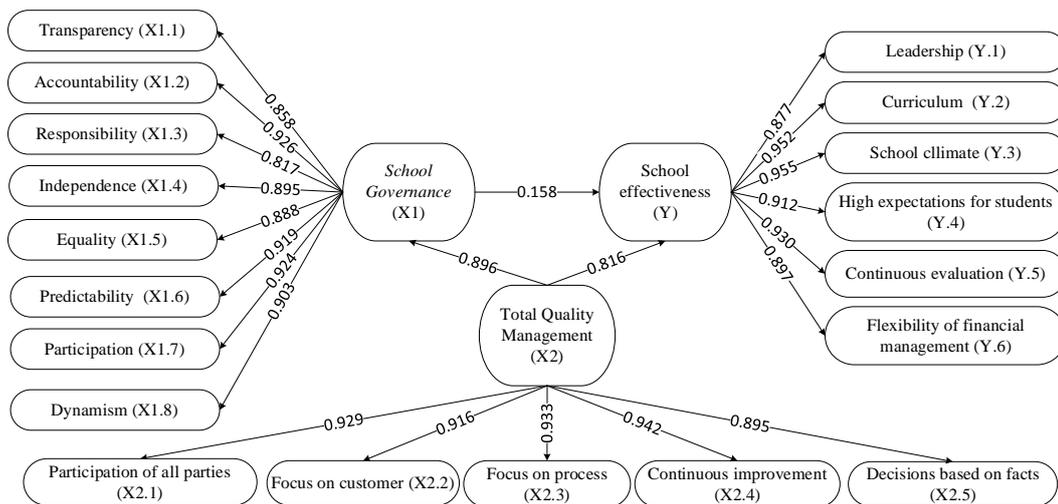


Figure-2. Strategy Model for improving the effectiveness of school management.

#### 4.3. Effects of TQM on SG

The value of the TQM path coefficient on SG is 0.896, suggesting that the TQM variable has a positive effect on SG. A positive coefficient value indicates that the greater is the implementation of TQM in vocational school-based enterprise, the better is the governance that is carried out by the school, and vice versa. Meanwhile, the p value is 0.000 ( $p < 0.005$ ) and the t-statistic is 25.478 ( $t\text{-statistic} > 1.96$ ). This indicates that the proposed hypothesis

provides significant results (accepts the H1: The implementation of TQM affects vocational school-based enterprise), which means that there is a significant effect of TQM on SG. The results of this conclusion are in line with the research of [Liantos and Pamatmat \(2016\)](#) which states that TQM practices, especially those related to leadership that focuses on stakeholders, continuous improvement, data-based decision making, professional learning and focus on systems have a relationship with school leadership.

#### *4.4. Effects of SG on School Effectiveness*

The value of the path coefficient of SG on school effectiveness is 0.158, suggesting that the SG variable has a positive effect on the effectiveness of vocational school-based enterprise. A positive coefficient value indicates that the greater is the implementation of SG in vocational school-based enterprise, the better is the effectiveness at the school, and vice versa. Meanwhile the t-statistic value was 2.144 (t-statistic > 1.96) and the p value was 0.033 (p < 0.005). This indicates that the proposed hypothesis gives significant results (accepts the H2: The implementation of SG affects the effectiveness of the management of vocational school-based enterprise), which means that the latent variable SG has a significant effect on the latent variable of school effectiveness. The results of these conclusions are in line with research conducted by [Volansky and Friedman \(2003\)](#) which states that schools that implement the SG component will significantly improve the learning and teaching process and provide significant improvements, both improving education and learning achievement as well as increased school effectiveness. According to [Odden and Wohlstetter \(1995\)](#), the reason SG can increase school effectiveness is because schools that have implemented SG can effectively improve school performance because they have authority over budget, personnel, and curriculum.

#### *4.5. Effects of TQM on School Effectiveness*

The value of the path coefficient of TQM on school effectiveness is 0.816, implying that the TQM latent variable has a positive effect on the latent variable of school effectiveness. The positive coefficient value explains that the better the implementation of TQM in vocational school-based enterprise, the better the effectiveness at the school, and vice versa. Meanwhile, the t-statistic value was 11,345 (t-statistic > 1.96) and the p-value was 0.000 (p < 0.005). This means that the proposed hypothesis gives significant results (accepts the H3: The application of TQM has an effect on increasing the effectiveness of the management of vocational school-based enterprise) which indicates that TQM has a positive and significant effect on the latent variable of school effectiveness. The results of this conclusion are in line with research conducted by [Shahmohammadi \(2018\)](#) stating that TQM and each of its dimensions affect the effectiveness of schools and educational institutions need to adopt the TQM philosophy in order to create school effectiveness which is shown through better performance ([Hasan, Islam, Shams, & Gupta, 2018](#)). In the field of education, quality management practices are able to fully contribute to improving the quality of education and improving educational organizations.

#### *4.6. Effects of TQM on School Effectiveness through the Implementation of SG*

The value of the path coefficient of TQM on school effectiveness is 0.816, inferring that the TQM latent variable has a positive effect on the latent variable of school effectiveness. The positive coefficient value explains that the better the implementation of TQM in vocational school-based enterprise, the better the school governance implementation in the school, and the better effectiveness at the school, and vice versa. Meanwhile, the t-statistic value was 11,345 (t-statistic > 1.96) and the p-value was 0.000 (p < 0.005). This means that the proposed hypothesis gives significant results (accepts the H4: The application of TQM has an effect on increasing the effectiveness of vocational school-based enterprise management through SG as an intervening variable) which indicates that TQM has a positive and significant effect on the latent variable of school effectiveness. The results of this conclusion are in line with research conducted by [Sadikoglu and Olcay \(2014\)](#) and [Hasan et al. \(2018\)](#) which states that educational

institutions need to adopt the TQM philosophy in order to create school effectiveness which is shown through better performance. In the field of education, quality management practices are able to fully contribute to improving the quality of education and improving educational organizations.

4.7. Strategy to Improve the Effectiveness In Vocational School-Based Enterprise

This study used the Analytic Hierarchy Process (AHP) approach to determine the proper strategy to increase the effectiveness of vocational school management. In this analysis, seven experts were involved including the Director of vocational school, the Head of the Vocational School for DKI Jakarta Province, the Head of the Vocational School for East Java Province, Representatives of the Ministry of Home Affairs, institutional practitioners, vocational school care NGOs and Industry practitioners. Based on expert judgment, processing was carried out using Expert Choice V11 software. The AHP approach starts from determining the objectives, criteria, attributes and alternatives offered.

Figure 3 shows the general framework of AHP which consists of four levels. The first level shows the focus or ultimate goal, namely increasing the effectiveness of the management of vocational school-based enterprise. At the second level, the hierarchical structure shows the criteria used to measure effectiveness in the management of school-based enterprise which are adopted from management principles, namely Human Resources (Man), finance (Money), methods / procedures / mechanisms (Method), and media as well as learning material (Material). The next level contains attributes that are indicators of the formation of school management effectiveness variables, namely leadership, expectations of student achievement, continuous improvement, budget management flexibility, curricula and school climate.

At the last level, strategies or alternatives that can be chosen are explained to increase effectiveness in the management of vocational school-based enterprise. This alternative is based on the development of hypotheses in the previous SEM analysis. As for the alternatives proposed, namely increasing the application of SG, increasing the application of TQM, and increasing both SG and TQM. In the end, the results of this analysis will be used as a basis in determining which strategies need to be carried out first in order to improve the effectiveness of vocational school-based enterprise management.

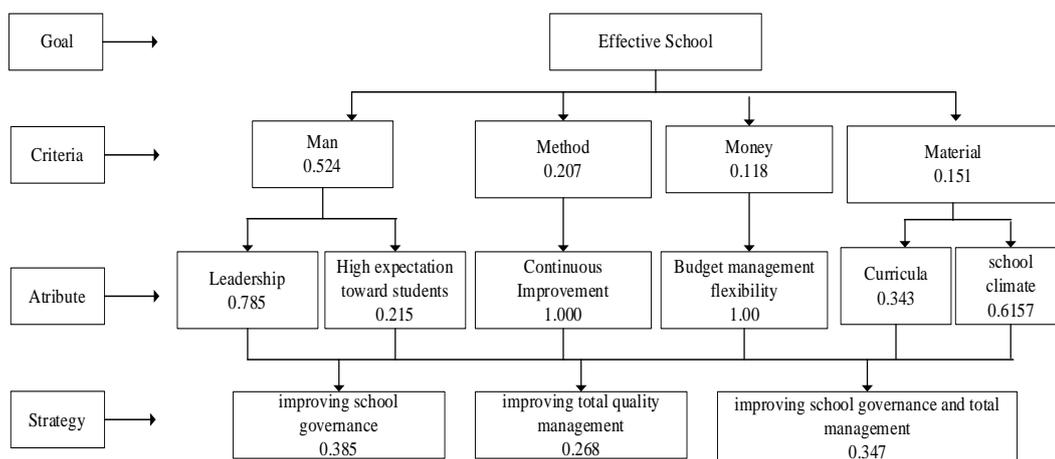


Figure-3. Result of analytical hierarchy process.

A strategy to increase the effectiveness of vocational school management is compiled by combining priorities in each hierarchy. In the first hierarchy, namely the hierarchy of criteria, the priority criterion is Man (human resources) criterion. Then in the second hierarchy, namely the attribute hierarchy, the priority is leadership to the Man criterion. School leadership has worldwide been recognized as a key factor in the improvement of schools (Sebastian & Allensworth, 2012) and in the efficiency of school organization, in relation to school success and

students' achievement (Tzeni, Ioannis, Athanasios, & Amalia, 2019). In the last hierarchy, namely the alternative hierarchy, the priority is the increase in SG. The combination of criteria and attributes that become priority in each hierarchy will create a strategy to increase the effectiveness of vocational school-based enterprise management. The strategy to increase the effectiveness of vocational school-based enterprise is by increasing the implementation of school governance in schools by increasing the criteria for strong and firm leadership in the human resources in vocational school-based enterprise.

#### 4.8. Model of Strategic Plan for Management Effectiveness In Vocational School-Based Enterprise

After discussing the strategy for increasing the effectiveness of management at vocational school-based enterprise, then this research will be enriched with the formulation of strategies using ISM techniques. This analysis was used to see the contextual relationship between elements and hierarchies for the elements that make up the strategy by fixing the variables at the bottom level. Variables that are at the bottom level are independent and have the nature of driving power or a strong influence on the variables above (middle level and top level). Then the variables at the bottom level will be combined with a strategy that has been designed using AHP. The four elements of the ISM (Interpretive Structural Modeling) consist of criteria, attributes, alternatives as described in Table 2.

Table-2. ISM Elements and Sub-elements.

Element	Sub-element	Priority
Criteria	<i>Man</i>	1
	<i>Money</i>	3
	<i>Method</i>	2
	<i>Materia</i>	4
Attribute ( <i>Man</i> )	Leadership	1
	High expectation toward students	2
Attribute ( <i>Material</i> )	Curricula	2
	School climate	1
Alternative	Improving SG	3
	Improving TQM	1
	Improving SG and TQM	2

Table 2 shows that the element that has a high driving power in the modeling of the strategic plan to increase the effectiveness of vocational school-based enterprise management is the criterion of Man. The criteria for Man are included in the independent sector meaning that this criterion has a strong driving power in increasing the effectiveness of vocational school-based enterprise management and the level of dependence on other criteria elements is also low. The Man criterion is considered to have a strong influence on the other criteria, namely Method, Money and Material.

The ISM attribute modeling consists of two series, namely modeling to determine the order of the Man criteria and the order of the Material criteria. The need of strong leadership is necessary so that the effectiveness of vocational school-based enterprise management can be achieved. The leadership is not affected by other attributes and is a key factor that can drive improvement expectations of student achievement. Meanwhile, for the material criteria, experts stated that it is need to improve the school climate so that the effectiveness of vocational school-based enterprise management can be achieved before focusing on the curriculum. The factor of improving the school climate is an attribute that is not affected by other attributes and is the main step in increasing the effectiveness of the management of vocational school-based enterprise.

Alternative modeling in ISM shows that alternatives having high driving power in modeling strategic plans to increase the effectiveness of vocational school-based enterprise management are alternatives of increasing TQM. This alternative is independent sector that has a strong driving force in increasing the effectiveness of vocational

school-based enterprise management. Increasing TQM is the key in modeling strategic plans to increase the effectiveness of vocational school-based enterprise management and will have a positive impact in increasing the implementation both SG and TQM. This means that alternative SG and TQM which is at the middle bottom level can only be achieved if there is an increase in the alternative TQM.

## 5. DISCUSSION

Absed on SEM analysis, it is concluded that The TQM variable had a positive effect on SG. It Indicates that the greater is the implementation of TQM in vocational school-based enterprise, the better is the governance that is carried out by the school, and vice versa. The relationship between TQM and SG reveals that the role of the principal is very important in terms of improving school quality. The role of the principal in implementing SG has an effect on staff development, physical development, and student development. In practice, implementing TQM that is carried out to meet customer expectations requires strong leadership in education governance accompanied by discipline of teachers, administrative staff, and students.

The SG variable has a positive effect on the effectiveness of vocational school-based enterprise indicating that the greater is the implementation of SG in vocational school-based enterprise, the better is the effectiveness at the school, and vice versa. The significant test results mean that school governance practices are implemented consistently. The implementation focuses on the implementation of the transparency aspect, the accountability aspect, the independence aspect, the equality aspect, the predictability aspect, the participation aspect, the dynamism aspect. All these aspects have a significant effect on school effectiveness.

Furthermore, the TQM latent variable has a positive effect on the latent variable of school effectiveness explaining that the better the implementation of TQM in vocational school-based enterprise, the better the effectiveness at the school, and vice versa. The significant test results mean that the TQM is applied consistently in school. The management practices are carried out by focusing on the implementation of participation aspects of all parties, aspects of customer focus, aspects of process focus, aspects of focus on continuous improvement, and aspects of decisions based on facts. The overall implementation had a significant effect on school effectiveness. In addition, the TQM latent variable has a positive effect on the latent variable of school effectiveness through the SG implementation meaning that the better the implementation of TQM in vocational school-based enterprise, the better the school governance implementation in the school, that will effect effectiveness at the school in a good way. The positive coefficient value explains that the better the implementation of TQM in SMK-BLUD, the better the effect of SG on school effectiveness.

Based on the results of the analysis, the managerial implications that can be used for stakeholders in vocational school-based enterprise in increasing the effectiveness of school management in their respective schools are as follows:

1. Increasing management effectiveness at SMK-BLUD can be achieved maximally through several efforts. First, schools should start internal and systematic improvement. Schools need to improve the school governance, especially in strengthening aspects of transparency, accountability, responsibility, independence, equality, predictability, participation and dynamism as well as aspects of strengthening management in schools. This can be done through increasing aspects of customer focus, aspects of process focus, aspects of participation of all parties, aspects of continuous improvement, and aspects of making decisions based on facts consistently. Second, local governments need to establish an ecosystem that facilitates schools. This aims to make schools more intensive and massive in improving school governance.
2. The strategic plan model for increasing the effectiveness of school management must be preceded by reforming and improving the quality of human resources (man) in the school environment. Then school needs to fix the methods / procedures / mechanisms (method) applied in schools. After that, school should improve the financial dimension (money) and the learning material dimension (material) continuously.

3. Improving human resources (man) in the school environment can be done by fostering strong and assertive leadership through providing leadership training, both to school principals and to teachers in the school environment. Then, school improved the quality of the method / procedure / mechanism (method) through the implementation of continuous evaluation. At a later stage, an increase in budget management flexibility can be made by increasing the financial dimension (money). Then, it can be continued with improving the quality of the dimensions of learning material (material) that prioritizes climate and school curriculum.
4. In the end, the sequence of alternatives that can be taken in the strategic plan model for improving the effectiveness of school management; (a) focus on improving the dimensions of the TQM strategy, (b) increasing the application of alternative dimensions of the TQM strategy and (c) increasing the SG strategy dimension both jointly and separately.

## 6. CONCLUSION

The study concludes that the application of TQM has a significant positive effect on increasing SG and on the application of SG; while TQM has a positive and significant effect on the effectiveness of vocational school-based enterprise management; and the application of TQM also has a positive and significant effect on the effectiveness of vocational school-based enterprise management through the application of school governance (SG) as an intervening variable.

The strategy that can be taken by vocational school-based enterprise so that the effectiveness of school management can be implemented optimally is by increasing the implementation of SG in schools by increasing the criteria for strong and firm leadership in the human resources in vocational school-based enterprise. Modeling the strategic plan to increase the effectiveness of vocational school-based enterprise management can be accomplished by first focusing on increasing TQM as the key factor that has the biggest driving force before focusing on improving SG.

## 7. LIMITATION AND FUTURE STUDIES

This study has not captured the management conditions and management effectiveness in private vocational school-based enterprise and has not considered the regional political dimensions of the implementation of the strategy model created. Therefore, further research can be carried out by analyzing whether there are differences in the effectiveness of school management, for vocational school-based enterprise or ordinary vocational schools by considering the political dimensions that occur in the regions.

**Funding:** This study received no specific financial support.

**Competing Interests:** The authors declare that they have no competing interests.

**Acknowledgement:** All authors contributed equally to the conception and design of the study.

## REFERENCES

- Arar, K., & Abu-Romi, A. (2016). School-based management: Arab education system in Israel. *Journal of Educational Administration, 54*(2), 191–208.
- Caldwell, B. J. (2005). *School-based management, education policy series. The International institute of Educational Planning and the International Academy of Education*. Paris: UNESCO.
- Cardoso, S., Rosa, M. J., Videira, P., & Amaral, A. (2019). Internal quality assurance: A new culture or added bureaucracy? *Assessment & Evaluation in Higher Education, 44*(2), 249–262.
- Donlagic, S., & Fazlic, S. (2015). Quality assessment in higher education using the SERVQUALQ model. *Management: Journal of Contemporary Management Issues, 20*(1), 39–57.
- Fielden, J. (2008). *Global trends in university governance (Education Working Paper Series No. 9)*. Washington, DC: World Bank.

- Grauwe, D. A. (2005). Improving the quality of education through school-based management: Learning from international experiences. *International Review of Education*, 51(4), 269-287.
- Hanberger, A. (2016). Evaluation in local school governance: A framework for analysis. *Education Inquiry*, 7(3), 29914. Available at: <https://doi.org/10.3402/edui.v7.29914>.
- Hasan, K., Islam, M. S., Shams, A., & Gupta, H. (2018). Total quality management (TQM): Implementation in primary education system of Bangladesh. *International Journal of Research in Industrial Engineering*, 7(3), 370-380.
- Hoy, C., Jardine, C., & Wood, M. (2005). *Improving quality in education*. London: Falmer Press.
- Kadir, S. N., & Ayasha, B. B. (2016). *Technical and vocational education and training in Indonesia: Challenges and opportunities for the future*. Singapore: National University of Singapore.
- Kanji, G. K., Malek, A., & Tambi, B. A. (1999). Total quality management in UK higher education institutions. *Total Quality Management*, 10(1), 129-153. Available at: <https://doi.org/10.1080/0954412998126>.
- Lezotte, L. (1992). *Creating the total quality effective school*. Washington DC: Effective Schools Products Ltd.
- Liantos, M., & Pamatmat, F. (2016). Total quality management and school-based management practices of school principals: their implications to school leadership and improvement. *International Research Journal of Social Sciences*, 5(8), 1-7.
- Odden, E., & Wohlstetter, P. (1995). Making school-based management right. *Educational Leadership*, 52(5), 32-37.
- Quyên, Đ. T. N. (2014). Developing university governance indicators and their weighting system using a modified Delphi method. *Procedia-Social and Behavioral Sciences*, 141, 828-833. Available at: <https://doi.org/10.1016/j.sbspro.2014.05.144>.
- Sadikoglu, E., & Olcay, H. (2014). The effects of total quality management practices on performance and the reasons of and the barriers to TQM practices in Turkey (pp. 1-17): Hindawi Publishing Corporation.
- Sallis, E. (2010). *Integrated quality management for education (Translated by Ahmad Ali Riyadi)*. Yogyakarta: Ircisod.
- Scheerens, J. (2000). *Improving school effectiveness: Fundamentals of educational planning*. Paris: UNESCO.
- Sebastian, J., & Allensworth, E. (2012). The influence of principal leadership on classroom instruction and student learning: A study of mediated pathways to learning. *Educational Administration Quarterly*, 48(4), 626-663. Available at: <https://doi.org/10.1177/0013161x11436273>.
- Shahmohammadi, N. (2018). The impact of total quality management on the effectiveness of educational programs of Karaj First grade high schools. *Engineering, Technology & Applied Science Research*, 8(1), 2433-2437.
- Taylor, B. (1990). *Case studies in effective schools research*. Kendal: Hunt Publishing Company.
- Thompson, J. (1973). *Foundations of vocational education*. New Jersey: Prentice-Hall Inc.
- Tzeni, D., Ioannis, A., Athanasios, L., & Amalia, S. (2019). Effective school leadership according to the perceptions of principals and physical education teachers. *Journal of Physical Education and Sport*, 19(3), 936-944.
- Volansky, A., & Friedman, I. (2003). *School-based management: An international perspective*. London: Routledge.

*Views and opinions expressed in this article are the views and opinions of the author(s), International Journal of Education and Practice shall not be responsible or answerable for any loss, damage or liability etc. caused in relation to/arising out of the use of the content.*