



EVALUATION OF THE CENTER OF EXCELLENCE SMK PROGRAM IN IMPROVING THE ABSORPTION OF GRADUATES IN THE WORLD OF WORK AND INDUSTRY

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Abstract

The SMK Center of Excellence (SMK PK) program is a government initiative to improve the quality of vocational education to be more aligned with the needs of the world of work and industry. This study aims to evaluate the effectiveness of the SMK PK program in improving graduate absorption. The approach used in this research is mixed methods with a sequential exploratory design, which integrates qualitative and quantitative analysis. The evaluation was conducted using the CIPPO (Context, Input, Process, Product, Outcomes) and Kirkpatrick models to analyze the policy, resources, implementation, and impact of the program on graduates and industry. However, in this discussion, the analysis is focused on the Kirkpatrick model with a quantitative approach using multiple linear regression. The research sample was selected using purposive sampling technique, while the quantitative data analysis aims to measure the influence of the main factors in the success of this program. The results show that the availability of resources has a positive and significant influence on the quality of graduates, while the quality of teaching shows a significant negative influence. This indicates that improving the availability of resources, such as facilities and teaching materials, contributes more to improving the quality of graduates than the quality of teaching, which in the context of this study shows a negative relationship. In addition, the mediating variable does not have a significant role in bridging the relationship between teaching quality and resource availability to graduate quality.

Keywords: *Evaluation, Vocational Center of Excellence, World of Work, Industry*

INTRODUCTION

Vocational education has a strategic role in preparing a competent workforce that is ready to compete in the industrial world. Vocational High Schools (SMK) as vocational education institutions are expected to be able to produce graduates who have skills in accordance with the needs of the labor market (Suharsaputra, 2020). However, the main challenge faced by SMK is the low absorption of graduates in the world of work, which is caused by the gap between the competencies taught at school and industry needs (Setiawan & Nugroho, 2021). Therefore, a special program is needed that can increase the relevance of vocational education to the demands of the world of work.

One of the government's initiatives in addressing this challenge is through the SMK Centers of Excellence (PK) program, which aims to improve the quality of vocational education to be more aligned with industry needs (Ministry of Education and Culture, 2021). The program is designed to provide competency-based training, strengthen cooperation with business and industry (DUDI), and improve the quality of teaching staff and learning facilities (Hidayat, 2022). With this program, it is expected that SMK graduates have more relevant skills and can be well absorbed in the world of work.

Evaluation of the effectiveness of the SMK Centers of Excellence program is important to measure the extent to which the program is successful in increasing the absorption of graduates. A frequently used evaluation model in assessing the effectiveness of vocational training and education is the Kirkpatrick model, which includes four levels, namely reaction, learning, behavior, and outcomes (Kirkpatrick & Kirkpatrick, 2016). Using this evaluation approach, this study will analyze the impact of the program on improving students' skills, changes in learning methods, and the extent to which graduates can enter the workforce.

In addition, this study also aims to identify factors that support and hinder the implementation of the SMK Center of Excellence program. Some aspects that will be studied include the availability of facilities and infrastructure, industry involvement in the learning process, and the effectiveness of the applied curriculum (Rahmawati et al., 2023). The results of this evaluation are expected to provide recommendations for the government, schools, and industries in developing more effective strategies to improve the competitiveness of SMK graduates.

Although various studies have highlighted the high unemployment rate among SMK graduates and the importance of adjusting the curriculum to industry needs (Muzdalifah et al., 2020; Wardhani & Nastiti, 2023), there are still gaps in research related to the effectiveness of vocational education programs in improving the competitiveness of graduates in the world of work. The tracer study conducted by the Directorate General of Vocational Education (2022) shows that only 43.44% of vocational school graduates are absorbed in the workforce, with the unemployment rate still reaching 7.59%. However, research that specifically analyzes the optimal strategy in reducing the unemployment rate of vocational schools, either through curriculum reform, increased industrial collaboration, or adaptive vocational education policies, is still limited (Jedinasrul, 2023). Therefore, this research is needed to identify concrete steps in improving the skills matching of SMK graduates with labor market demands.

Thus, this research has great significance in optimizing the implementation of the SMK Centers of Excellence program as an effort to improve the quality of vocational education. The results of this study are expected to contribute to the development of vocational education policies that are more based on industry needs and strengthen the link between the world of education and the world of work. A comprehensive evaluation of this program will provide a clearer picture of its impact on the readiness of graduates to face competition in the world of work and industry.

SMK Center of Excellence (PK)

According to the Ministry of Education and Culture (2023), SMK PK is a vocational high school development program that focuses on improving specific skill competencies to improve school quality and performance. The Directorate General of Vocational Education emphasizes that the program is not designed as

an exclusive school or "ivory tower" that competes with other schools on a superior basis (MoEC, 2019). SMK PK is a vocational high school designed to produce graduates with specific expertise in a particular field. Graduates of this program are expected to enter the world of business, industry, and work, and have the readiness to continue their education to a higher level (Muryanti et al., 2022).

SMK PK is a vocational school equipped with a Teaching Factory that will play an active role in production activities, have flexibility in financial management, and function as a learning center for other vocational schools with similar fields of expertise. Thus, this school can produce graduates who have the character of Pancasila Students and are ready to enter the world of work, entrepreneurship, or continue their education to a higher level (Prihastomo et al., 2021).

Based on the views of experts, the researcher concludes that SMK PK is a vocational education program designed to improve the quality of graduates by aligning the curriculum and training with the needs of business, industry, and the world of work. With the support of the Teaching Factory, SMK PK acts as a learning center that is active in production, has financial flexibility, and serves as a model for other SMKs in the same field of expertise. The program aims to produce graduates who not only have technical competence, but also have the character of Pancasila Students, so that they are ready to work, become entrepreneurs, or continue their education to a higher level.

World of Business and Industry (DUDI)

Vocational education is closely related to the needs of labor and industry, designed to equip students with skills that can be directly applied in DUDI (Ningsih, 2019; Sawaliyah, 2022). With an emphasis on practice, vocational education creates a more prepared and productive workforce, minimizing adaptation time when entering the workforce. Vocational education or SMK aims to equip students with appropriate skills to enter the world of work (Effendy, 2016). However, SMK graduates are not limited to working in a particular field, but also have the option to continue to college or become entrepreneurs. They can pursue a career in industry, pursue vocational or professional education, and become educators in SMK or entrepreneurs (Sudiyono & Relisa, 2022). SMKs must be able to establish close collaboration with various stakeholders in the world of work, especially industry, as mandated in the 2013 Decree of the Minister of Manpower and Transmigration of the Republic of Indonesia No. 389. This collaboration aims to ensure that SMK graduates have skills that match the needs of industry and DUDI.

However, until now there are still various challenges that cause a mismatch between vocational education and industry needs. Based on the fishbone diagram analysis conducted by the Ministry of Education and Culture, there are several main factors that hinder the alignment, namely:

1. Teacher competence in terms of hard skills and soft skills that still need to be improved.
2. Learning methods tend to be traditional and less practice-based.
3. Limited facilities and infrastructure that support industry-based learning.
4. The curriculum is not fully aligned with industry competency standards.
5. Lack of access to information on industry needs for vocational education units.
6. Limited opportunities for SMK Centers of Excellence (SMK PK) to establish strategic partnerships.

7. Lack of career guidance that can assist students in planning their professional future.
8. Low integration of entrepreneurship in the SMK curriculum.
9. Lack of strengthening soft skills in graduates, which is a crucial aspect in the world of work.

These challenges require systemic improvements in vocational education, including improving the quality of teaching staff, developing industry-based curricula, and strengthening partnerships between vocational schools and the business world so that graduates are better prepared to face competition in the world of work (Lisdiantini et al., 2022; Ramdhani, 2024).

Combination of Evaluation Models

Program evaluation plays a crucial role in measuring the success of SMK PK implementation. The CIPPO (Context, Input, Process, Product, Outcomes) evaluation approach and the Kirkpatrick model are applied in this study to provide a thorough and in-depth understanding of the effectiveness of the program. CIPPO evaluation helps analyze various aspects of the program in four main dimensions. 1) Context focuses on identifying the needs and problems underlying program implementation as well as the relevance of objectives to stakeholder interests, 2) Input evaluates the resources, strategies, and plans used, including curriculum, facilities, staff, and budget, 3) Process assesses program implementation to ensure compliance with plans and standards through monitoring and supervision. 4) Product measures the achievements of the program, both in the short and long term, including its impact on learners and the community, 5) Outcomes evaluates long-term impacts, such as the level of absorption of SMK graduates in the workforce, competitiveness, and contribution to the local economy.

Kirkpatrick is an expert in training program evaluation in the field of human resource development (HRD) who developed the Kirkpatrick Four Level Evaluation Model (Badu, 2016). This model consists of four levels of evaluation, namely reaction (level 1) which assesses participants' response to the training, learning (level 2) which measures the increase in knowledge and skills, behavior (level 3) which evaluates the application of skills in the workplace, and results (level 4) which assesses the impact of training on the organization (Kirkpatrick, 1998).

Vocational training and productivity improvement aims to equip human resources with knowledge and skills to increase productivity, especially for prospective workers. This process is carried out through education at SMK, which acts as a vocational education institution in producing competitive human resources. To assess the effectiveness of training in HR development organized by SMK PK, the Kirkpatrick evaluation model is used. The Kirkpatrick Integration Model has four levels of evaluation including:

1. Level 1-Reaction: Student, teacher and stakeholder satisfaction with the program.
2. Level 2-Learning: Improvement in student competencies over the course of the program.
3. Level 3-Behavior: Changes in behavior or learning practices in SMK.
4. Level 4-Result: The impact of the program on graduates' performance in the workforce.

RESEARCH METHODS

The approach used in this research is mixed methods with a sequential exploratory design, which integrates qualitative and quantitative analysis. The evaluation was conducted using the CIPPO (Context, Input, Process, Product, Outcomes) and Kirkpatrick models to analyze the policy, resources, implementation, and impact of the program on graduates and industry. However, in this discussion, the analysis is focused on the Kirkpatrick model with a quantitative approach using multiple linear regression. The research sample was selected using a purposive sampling technique, while the quantitative data analysis aims to measure the influence of the main factors in the success of this program. This research is evaluative, with quantitative analysis using path analysis statistics to identify the relationship between the variables studied. The Kirkpatrick data collection technique was conducted through the distribution of questionnaires, which were then analyzed using a quantitative approach to obtain more accurate and comprehensive research results.

RESULTS AND DISCUSSION

Direct effects

							95% Confidence Interval	
			Estimate	Std. Error	z-value	p	Lower	Upper
X1	→	Y	-0.718	0.152	-4.721	< .001	-1.016	-0.420
X2	→	Y	0.575	0.178	3.240	0.001	0.227	0.923

Note. Delta method standard errors, normal theory confidence intervals, ML estimator.

The results of path analysis through Direct Effects illustrate the direct influence between teaching quality (X1) and resource availability (X2) on graduate quality (Y). Based on the estimated regression coefficient, teaching quality (X1) has a negative influence on graduate quality with a value of -0.718. This means that an increase in teaching quality is associated with a decrease in graduate quality. This relationship is statistically significant with a z-value

= -4.721 and $p < 0.001$, indicating that this finding has a high level of confidence. In addition, the 95% confidence interval ranging from -1.016 to -0.420 does not include zero, further corroborating that this negative relationship does occur in the research model.

In contrast, resource availability (X2) showed a positive influence on graduate quality with an estimated value of 0.575, meaning that the higher the resource availability, the better the graduate quality. This relationship is also statistically significant with a z-value = 3.240 and $p = 0.001$, as well as a 95% confidence interval that falls within the range of 0.227 to 0.923, which does not include zero. This suggests that the positive relationship between resource availability and graduate quality is strong and consistent. Thus, this finding indicates that adequate resource availability has a more constructive impact on

improving graduate quality than teaching quality. Therefore, further studies are needed to understand other factors that may moderate or mediate this relationship.

Indirect effects

				95% Confidence Interval						
				Estimate	Std. Error	z-value	p	Lower	Upper	
XI	→	X ₃	→	Y	0.004	0.030	0.118	0.906	-0.056	0.063
X ₂	→	X ₃	→	Y	-0.041	0.081	-0.507	0.612	-0.200	0.118

Note. Delta method standard errors, normal theory confidence intervals, ML estimator.

The results of the path analysis of Indirect Effects show that variable X₃ does not have a significant role as a mediator in the relationship between teaching quality (X₁) and resource availability (X₂) on graduate quality (Y). The indirect effect of teaching quality on graduate quality through X₃ has a coefficient estimate of 0.004, with a z value = 0.118 and p = 0.906, which is well above the significance threshold (0.05). In addition, the confidence interval (- 0.056 to 0.063) includes zero, indicating that this relationship is weak and has no meaningful impact. Similarly, the indirect effect of resource availability on graduate quality through X₃ is also insignificant. The coefficient estimate of - 0.041, with z = -0.507 and p = 0.612, indicates that this relationship does not have a strong enough impact to be considered a significant mediating effect. The confidence interval (-0.200 to 0.118) that includes zero further corroborates that this indirect effect does not contribute substantially to graduate quality. Overall, these results suggest that X₃ does not play the role of an effective mediator in this model. The indirect effects of both teaching quality and resource availability on graduate quality through X₃ are very small and not statistically significant. Therefore, it is recommended to explore other variables that may be more relevant as mediators, or reconsider the research model with a different approach to gain a better understanding of the factors that influence graduate quality.

Total effects

				95% Confidence Interval						
				Estimate	Std. Error	z-value	p	Lower	Upper	
XI	→	Y		-0.715	0.155	-4.616	< .001	-1.018	-0.411	

X2	→	Y	0.534	0.164	3.257	0.001	0.213	0.855
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Note. Delta method standard errors, normal theory confidence intervals, ML estimator.

The results of the path analysis of the total effect show the total effect of teaching quality (X1) and resource availability (X2) on graduate quality (Y). This total effect reflects the combined direct and indirect effects of each independent variable on the dependent variable. Based on the analysis, teaching quality (X1) has a negative total effect on graduate quality (Y) with a coefficient estimate of -0.715. The z value = -4.616 and $p < 0.001$ indicate that this relationship is highly statistically significant. In addition, the 95% confidence interval ranges from -1.018 to -0.411, which does not include zero, further corroborating the finding that this negative effect is consistent. This means that an increase in teaching quality is associated with a decrease in graduate quality, which may be due to other factors that have not been identified in this model. In contrast, resource availability (X2) has a total positive effect on graduate quality (Y) with a coefficient estimate of 0.534. With $z = 3.257$ and $p = 0.001$, this result indicates that this relationship is also statistically significant. The 95% confidence interval falls within the range of 0.213 to 0.855, which does not include zero, thus ensuring that this positive effect is quite strong and consistent. This indicates that the better the availability of resources, the higher the quality of graduates produced. Overall, these results suggest that teaching quality has a negative effect on graduate quality, while resource availability has a positive effect. This finding indicates the need for further evaluation of other factors that may moderate the relationship between teaching quality and graduate quality. In addition, this result also confirms the importance of resource availability in improving graduate quality.

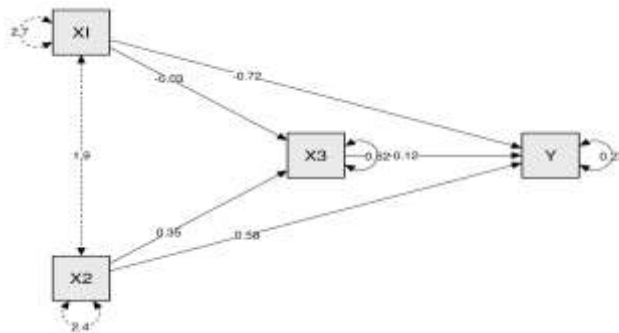
Path coefficients

							95% Confidence Interval	
			Estimate	Std. Error	z-value	p	Lower	Upper
X ₃	→	Y	-0.118	0.216	-0.549	0.583	-0.541	0.304
XI	→	Y	-0.718	0.152	-4.721	<.001	-1.016	-0.420
X ₂	→	Y	0.575	0.178	3.240	0.001	0.227	0.923
XI	→	X ₃	-0.030	0.249	-0.121	0.904	-0.519	0.458
X ₂	→	X ₃	0.348	0.264	1.317	0.188	-0.170	0.865

Note. Delta method standard errors, normal theory confidence intervals, ML estimator.

The results of the Path Coefficients analysis show the relationship between the independent variables (X_1 = Teaching Quality, X_2 = Resource Availability) and the mediating variable (X_3) on the dependent variable (Y = Graduate Quality). The path coefficient shows that X_1 has a significant negative influence on Y , with a coefficient estimate of -0.718 , $z = -4.721$, and $p <$

0.001 . The 95% confidence interval falls within the range $(-1.016$ to $-0.420)$, which does not include zero, indicating a strong negative relationship. In contrast, X_2 has a significant positive effect on Y , with a coefficient estimate of 0.575 , $z = 3.240$, and $p = 0.001$, with a confidence interval of $(0.227$ to $0.923)$ indicating a consistent positive effect. Meanwhile, the relationship between X_3 and Y is not significant, with an estimate of -0.118 , $z = -0.549$, and $p = 0.583$, indicating that X_3 is not an effective mediator in this relationship. In addition, X_1 to X_3 and X_2 to X_3 are also insignificant, with p values of 0.904 and 0.188 respectively, and confidence intervals that include zero. This indicates that X_3 does not play an important role in bridging the influence of X_1 and X_2 on Y . Therefore, the model favors X_3 over X_3 . Therefore, this model favors a direct relationship between the independent variables and graduate quality, rather than a relationship mediated by X_3 .



The results of path analysis show that teaching quality (X_1) has a negative direct effect on graduate quality (Y) with a coefficient of -0.72 . This means that in the context of this study, an increase in teaching quality correlates with a decrease in graduate quality. In contrast, the availability of resources (X_2) has a fairly strong positive influence on the quality of graduates with a coefficient of 0.58 , indicating that the better the availability of resources, the higher the quality of graduates. Meanwhile, the mediating variable (X_3) has a relatively small effect on graduate quality, with a coefficient of 0.12 , so it does not play a significant role as a mediator between X_1 and X_2 on Y . In addition, the indirect effect through X_3 also shows weak results. Teaching quality (X_1) barely contributes to X_3 , with a coefficient of -0.03 , while resource availability (X_2) has a greater relationship with X_3 (0.35), although not very strong. Thus, it can be concluded that the direct effect of X_1 and X_2 on Y is more dominant than the mediating effect through X_3 . In addition, the residual variable of 0.23 indicates that there are still other factors that affect the quality of graduates beyond the variables examined in this model.

CONCLUSION

Based on the results of the path analysis that has been carried out, it can be concluded that the availability of resources (X_2) has a positive and significant effect on the quality of graduates (Y), while the quality of teaching (X_1) actually

shows a significant negative effect on the quality of graduates. This indicates that increasing the availability of resources, such as facilities and teaching materials, contributes more to improving the quality of graduates than the teaching quality factor, which in the context of this study shows a negative relationship. In addition, the mediating variable (X₃) does not have a significant role in bridging the relationship between X₁ and X₂ to Y. The effect of X₁ on X₃ is very small, as well as the effect of X₃ on Y. Thus, it can be concluded that a more effective model in improving the quality of graduates should focus more on improving the availability of resources rather than relying on improving the quality of teaching directly. In addition, there are still other factors that have not been included in this study, as indicated by the residual values in the model.

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