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Evaluation of the Teaching Factory Class Implementation Program at the Center of Excellence Vocational School (Case Study in the Mechanical Engineering Skills Competency at SMKN 3 Metro)

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ABSTRACT

This research aimed at evaluating Teaching Factory Class program implementation in the Mechanical Engineering Skills Competency of SMKN 3 Metro. It is a Vocational School Center of Excellence, a program held by the Indonesian Ministry of Education. The evaluation was carried out by using the CIPP (Context, Input, Process, Product) model. It was intended to analyze the effectiveness of the program in preparing competent graduates according to the needs of the business and industrial world. The research was qualitative, using the case study method. Data collection was carried out through 1) in-depth interviews with school principals, the vice principal of curriculum, the vice principal of public relations, the vice principal of infrastructure, productive teachers, industrial instructors, and students; 2) observation of the Teaching Factory learning process; and 3) documentation studies. The research results show: (1) In context, this program is relevant to industrial needs and vocational education policies but still requires strengthening in the aspect of market needs analysis; (2) In terms of input, teacher qualifications and practical facilities are adequate, but optimization is needed in the use of learning facilities; (3) The learning process has adopted an industrial atmosphere, although there are still obstacles in synchronizing schedules with industry; (4) Graduate products show increased technical competence and soft skills, with a good level of job absorption in industry. Research recommendations include strengthening industry partnerships, developing teacher competencies, optimizing practice facilities, and improving the industry-based assessment system.

INTRODUCTION

Evaluation is an important stage in educational field. It plays a crucial role to ensure whether the educational process is running effectively and efficiently. Evaluation can answer whether questions regarding to educational goals have been achieved as expected or as written in the school's vision and mission or not. Apart from that, the role of the evaluation process can also provide a real picture of how the program is implemented, the quality of teaching and the performance of teaching and education staff in implementing a practice-oriented curriculum in industry and the world of work.

In vocational high schools, evaluation has a strategic role to find out how the goals of the school have been achieved in preparing graduates and looking after you, of course, so that graduates are ready to enter the world of work and have technical and managerial skills based on their expertise program. Evaluation may cover the important things such as: curriculum implementation, teaching learning strategies, excellence programs, human resources, leadership, manajerial skills, etc,

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The Teaching Factory Program (TeFa) as one of the superior programs initiated by the Indonesian Ministry of Education and Culture is considered to be capable of creating vocational high school graduates who have high competence. They are prepared as well to able to understand problems and situations that occur in the industrial world in a complex manner. This is because the learning activities in schools have been integrated with activities in standardized industrial procedures so that the competency gap in the two fields can be bridged (Wahyuni et al., 2022).

The implementation of Tefa in vocational schools is a mandate of Law Number 20 of 2003 concerning the National Education System which is further explained in Government regulation number 41 of 2015 concerning the development of Industrial Resources. The regulation states that the implementation of competency-based industrial vocational education must be equipped with a Professional Certification Institute (LSP), a factory within the school, and a Competency Testing Center (UK). Tefa, which is production that is operated with procedures and work standards to produce products that are in accordance with the conditions of the world of work and are profit-oriented (Amin, 2020).

Vocational High Schools (SMK) as vocational education institutions that have a strategic role in preparing skilled workers who are ready to enter the industrial world. According to Sudira, the main challenge of vocational education is bridging the gap between graduate competencies and industry needs. TeFa program is presented as an innovative solution to overcome these problems by integrating a production-based learning process that adopts industry standards and procedures (Sudira, 2016). As explained by Kuswantoro, TEFA allows students to learn in an environment that replicates real industrial conditions (Kuswantoro, 2014). To achieve this goal, Vocational Schools have three main targets: improving the quality of educational processes and products, increasing graduate entrepreneurship in the business world, and placing graduates in the world of industry, government and sectors (Djojonegoro & Slamet, 1998) (Darmawan, 2014).

SMKN 3 Metro, as one of the Center of Excellence Vocational Schools, has implemented the Tefa Class program in Mechanical Engineering Skills Competencies since 2019. This program is a form of implementation of Presidential Instruction Number 9 of 2016 concerning Revitalization of Vocational Schools and Minister of Education and Culture Regulation Number 34 of 2016. 2018 concerning National Vocational School/MAK Education Standards.

However, Tefa implementation requires ongoing evaluation to ensure its effectiveness in achieving learning objectives (Jäger et al., 2013). This is reinforced by Fajaryati's findings which identified various challenges in implementing TEFA, including aspects of management, resources and industrial partnerships (Fajaryati, 2012). At SMKN 3 Metro itself, based on a preliminary study conducted in October 2024, several issues were found that needed to be studied further, such as optimizing practical equipment, synchronizing the curriculum with industry needs, and a production-based assessment system. Setiani (Setiani, 2020) emphasized the importance of a comprehensive evaluation of the TEFA program to identify areas for development and improvement.

This research used the CIPP (Context, Input, Process, Product) evaluation model developed by Stufflebeam to analyze the implementation of the Teaching Factory Class program at SMKN 3 Metro. The selection of this model was based on the consideration that CIPP can provide a comprehensive understanding of program effectiveness from various dimensions, as explained by Zhang (Zhang et al., 2011). It is hoped that the results of this evaluation can provide concrete recommendations for developing the TEFA program at SMKN 3 Metro and become a reference for implementing similar programs at other schools.

METHODS

This study used approach qualitative with type study evaluative CIPP model (Context, Input, Process, Product). The selection of the CIPP model is based on the needs for evaluate the Teaching Factory Class program in comprehensive, starting from context implementation until results achieved. The research was conducted at SMKN 3 Metro, focusing on Mechanical Engineering Skills Competencies. The research implementation period was October – December 2024 (3 months). This study used a qualitative approach by using a case study method to evaluate the implementation of the Teaching Factory Class program.

According to Yin, the case study method is appropriate for exploring contemporary phenomena in real-life contexts, especially when the boundaries between phenomena and contexts are unclear (Yin, 2018). The evaluation model used is CIPP (Context, Input, Process, Product) developed by Stufflebeam (Stufflebeam, 2017), which allows for a comprehensive evaluation of educational programs. The study was conducted at SMKN 3 Metro in the Mechanical Engineering Expertise Competency during the period August-December 2023.

The research subjects were selected by purposive sampling, consisting of the principal, vice principal for curriculum, head of expertise competency, vice principal for facilities and infrastructure, vice principal for public relations and productive teachers. Data collection techniques used in-depth interviews, participatory observation, and documentation studies. As suggested by Miles, data analysis was carried out in three stages: data reduction, data presentation, and drawing conclusions. Data validity was ensured through triangulation of sources and methods, member checking, and peer debriefing (Miles et al., 2014).

RESULTS AND DISCUSSION

The results of research and discussion of the evaluation of the implementation of the Teaching Factory Class program at SMKN 3 Metro can be described in several dimensions according to the CIPP model. First, context evaluation shows that this program has a strong policy foundation through Presidential Instruction Number 9 of 2016 and Minister of Education and Culture Regulation Number 34 of 2018. It is explained that the suitability of the context with industry needs is a key factor in the success of this program. vocational education (Sudira, 2016). Market needs analysis shows the high need for skilled workers in the engineering sector, although strengthening is still needed in terms of mapping local industrial potential.

Evaluation Teaching Factory Model Planning at SMKN 3 Metro

Planning is part of the management function that plays a very large role in the process of achieving goals (Suady, 2001). Meanwhile, according to Usman, planning is the process of determining organizational (company) goals and then presenting (articulate) clearly the strategies (programs), tactics (program implementation procedures) and operations (actions) needed to achieve the company's goals as a whole (Usman, 2013).

Evaluation of the teaching factory model planning at SMKN 3 Metro is a comprehensive assessment process of the implementation of a learning system that integrates industrial concepts into the school environment. In its implementation, this teaching factory model aims to create graduates who have competencies according to the needs of the industrial world. The planning carried out includes various important aspects such as the preparation of a relevant curriculum, human resource development, preparation of facilities and infrastructure, and establishing cooperation with partner industries.

In the evaluation process, the school conducted an assessment of the readiness of the teaching factory infrastructure, which includes practical workshops, laboratories, and equipment that is adjusted to industry standards. In addition, an evaluation was also carried out on the competence of teachers and instructors who will be involved in teaching factory learning.

This is important to ensure that teachers have a good understanding of the production process and industry work standards that will be applied in learning.

The results of the interview with Mr. Sutarman as the Head of the Department of Mechanical Engineering revealed that when making a product, there are stages in its selection, namely the product must be relevant to the competencies taught in the Mechanical Engineering expertise program, so that it can support student learning and practice. Consideration of current industry needs to ensure that the products produced have selling value and relevance in the market. Ensuring that the product can be produced with available technology and resources. This includes the ability of tools, materials, and skills possessed by students. Choosing products that consider environmental and sustainable impacts can be an added value and be relevant.

The financial planning aspect is also a focus in the evaluation, where schools need to consider the sustainability of the teaching factory program through effective and efficient fund management. This includes initial capital planning, operational costs, and income projections from teaching factory production results. The evaluation also includes an assessment of the management system that will be implemented, including the organizational structure, division of tasks and responsibilities, and monitoring and controlling mechanisms for program implementation.

The results of this planning evaluation are then used as a basis for making improvements and refinements to the teaching factory model that will be implemented. The school also analyzes potential obstacles and challenges that may be faced, and prepares appropriate mitigation strategies. With this comprehensive evaluation, it is hoped that the implementation of the teaching factory model at SMKN 3 Metro can run optimally and provide maximum results in improving the quality of graduates in accordance with the demands of the industrial world.

Evaluation Organizing Teaching Factory Model at SMKN 3 Metro

Organizing comes from from the word organon in Greek meaning tools, namely the grouping process activity for reach goals and assignments to a manager (Terry & Rue, 2010). Function deep organization Language English is organizing comes from from the word organize which means create structure with integrated parts such that appearance, so that the relationship One each other bound by relationships to the whole thing (Hasibuan, 2005).

The way the organization is carried out use maximize implementation of TEFA at SMKN 3 Metro according to interview with Mrs. Mia Sumiati as the Deputy Head of Curriculum that organizing planning TeFa production involving student optimally carried out through formation structure a team that resembles industry, involvement student in taking decision, simulation Work real, and division clear tasks. With this approach, students not only gain technical skills but also work experience relevant to the industrial world. The process of organizing production planning in Tefa is carried out with a structured and participatory approach to optimally involve students. The goal is to provide real experience to students, improve their technical and non-technical competencies, and create a learning environment that resembles the industrial world.

The organization of Tefa at SMKN 3 Metro in the Mechanical Engineering department has been carried out well. This is illustrated by the organization that has been running in accordance with applicable procedures and administrative systems. The coordinator or person in charge of Tefa in the Mechanical Engineering department is protected by the principal of SMKN 3 Metro, the vice principal, the curriculum field holds the mandate as the person in charge, the designated subject acts as a mentor. The organizational structure of Tefa has been made into a decree by the principal and has been reported to the Metro City Education Office, then a report was also recorded regarding the implementation of Tefa as well as an inventory of facilities and infrastructure for practical activities and also has a report on the results of the implementation of Tefa which has been implemented. The organization of Tefa in the

Mechanical Engineering Department has basically been running well and systematically. Before the implementation of Tefa, the organization has been prepared and coordination and cooperation have been formed between the principal, the head of the department who coordinates the implementation of learning with those who will guide. Then the results of the implementation Tefa is reported to the school principal for inspection and input as evaluation material.

Evaluation Implementation Teaching Factory Model at SMKN 3 Metro

Seen from the input dimension, the results of the study revealed that 85% of productive teachers have industrial competency certification and internship experience in the industry. This is in line with Fajaryati's findings (Fajaryati, 2012) on the importance of teacher qualifications in TEFA implementation. Practice facilities have met minimum standards with an equipment and student ratio of 1:5, although 30% of the equipment requires updating to adapt to the latest industrial technology.

Process evaluation revealed that learning has adopted industry standard operating procedures, with 75% of learning time allocated for practice. However, as identified by Kuswantoro (Kuswantoro, 2014), there are obstacles in synchronizing schedules with industry and production-based assessment systems that still need improvement. Observations show that the industry work culture has been implemented in aspects of discipline, work safety, and production quality standards.

Evaluation of the implementation of the teaching factory model at SMKN 3 Metro is an in-depth study of the implementation of the industry-based learning system that has been implemented at the school. In its implementation, this evaluation analyzes various aspects ranging from the learning process, productivity of production units, to the level of student competency achievement. The implementation of this teaching factory has integrated a learning approach that combines theory and practice in real work situations, where students are directly involved in the production process that is oriented towards industry standards.

In terms of learning, the evaluation shows that the implementation of the teaching factory model has succeeded in creating a more dynamic and contextual learning atmosphere. Students gain direct experience in handling work orders, from planning, production processes, to quality control. However, several obstacles were still found, such as adjusting the learning schedule to production time, as well as the need for increased teacher competence in integrating learning aspects with production demands.

In terms of productivity, the teaching factory production unit has been able to produce products that meet industry standards and are accepted by the market. Evaluation shows an increase in production volume and product quality along with the increasing experience of students and teachers in managing production units. However, optimization is still needed in terms of production efficiency and resource management to increase the profitability of the production unit. As expressed by Mrs. Purwanti, to maintain product quality, there are steps used, namely conducting Quality Control checks by the Tefa team according to customer orders, although this QC is not only carried out at the final stage after the product is finished but has been carried out from the initial stage of checking material specifications, sizes and types of finishing or there are additional shipping costs.

In terms of cooperation with industry, the evaluation revealed that SMKN 3 Metro has succeeded in establishing good relationships with several partner companies. This can be seen from the transfer of technology, knowledge sharing, and absorption of graduates by partner industries. However, there needs to be an increase in the intensity of cooperation, especially in terms of developing new products and expanding the market for products from the teaching factory.

The evaluation also showed a positive impact on improving student competency, where graduates have skills that are more relevant to industry needs. This is reflected in the high level of graduate absorption in the workforce. However, efforts are still needed to improve students' soft skills, especially in terms of discipline, communication, and problem-solving skills that still need to be improved to meet industry expectations.

The results of this implementation evaluation are the basis for the school to make continuous improvements in the management of the teaching factory. Several recommendations for improvement include increasing human resource capacity, developing a more effective management system, and strengthening cooperation with industry. With this continuous improvement, it is hoped that the teaching factory model at SMKN 3 Metro can continue to develop and provide a more significant contribution in producing competent and work-ready graduates.

In the product dimension, data shows a significant increase in graduate competency. The competency test pass rate reached 92%, with an industry employment rate of 85%. Emphasizing that the high employment rate is an indicator of the success of the TEFA program. Graduates' soft skills, especially in terms of discipline, teamwork, and problem solving, received positive appreciation from the industry.

The discussion of the research results indicates that the Teaching Factory Class program at SMKN 3 Metro has been running effectively in preparing competent graduates. However, several aspects still need improvement, such as: updating practical equipment, strengthening industry partnerships, and improving the assessment system. This finding is in line with Teweh's recommendation on the importance of continuous evaluation for the development of the TEFA program (Setiani, 2020).

As expressed by the Deputy Head of Curriculum through an interview with Mrs. Mia Sumiati, the identification of relevant competency coverage is carried out through curriculum needs analysis, collaboration with industry partners, evaluation of student and teacher skills, and adjustments to TEFA products. With this approach, the TEFA program can run effectively, producing students who are ready to compete in the world of work.

Follow-up Evaluation of the Teaching Factory Model at SMKN 3 Metro

The follow-up evaluation of the teaching factory model at SMKN 3 Metro is a series of strategic efforts made to follow up on the findings from the results of the previous implementation evaluation. In this case, the school has prepared and implemented various improvement programs that include aspects of learning, management of production units, human resource development, and strengthening cooperation with industry. This follow-up aims to optimize the effectiveness of the teaching factory model in producing competent and work-ready graduates.

Seen from the side of learning, the school has improved the learning system by better integrating academic schedules and production activities. This is done by rearranging the learning schedule to be more flexible and adaptive to production needs. In addition, teacher competency improvement programs have also been implemented through various trainings and workshops involving industry practitioners, so that teachers can be more effective in guiding students according to industry standards.

The follow-up in the management of production units is done through the implementation of a more professional management system. The school has developed a more structured administration and financial system, made improvements in the inventory management system, and implemented stricter quality control. These efforts have shown positive results with increased production efficiency and product quality.

Meanwhile, in terms of developing cooperation with industry, the school has expanded its network by establishing new partnerships with several companies. Internship programs for

teachers and students in industry have also been intensified to improve understanding of the latest technology and work standards. In addition, industry involvement in curriculum development and student competency assessment has also been increased to ensure the relevance of learning to the needs of the workplace.

The next follow-up evaluations also showed improvements in the development of students' soft skills through various mentoring programs and character training. The school has integrated aspects such as discipline, effective communication, and problem solving into every learning activity at the teaching factory. The results are seen from the increase in graduates' work readiness which received positive appreciation from the employer industry.

The results of this follow-up evaluation are then used as consideration for the development of the teaching factory program in the future. The school has prepared a long-term development roadmap that includes plans for expanding production units, improving technology, and developing new products. With this ongoing evaluation and follow-up, it is hoped that the teaching factory model at SMKN 3 Metro can continue to develop and provide a more significant contribution to improving the quality of vocational education.

CONCLUSION AND SUGGESTION

Based on results study evaluation implementation of the Teaching Factory Class program in Competency SMKN 3 Metro's Mechanical Engineering expertise can with drawn a number of Conclusion. First, from the context dimension, this program has been aligned with vocational education policies and industry needs, but still needs strengthening in terms of market needs analysis and mapping of local industry potential. Second, in terms of input, the qualifications of productive teachers and practice facilities have met the minimum standards of Teaching Factory, although there are still some equipment that needs updating to adjust to developments in industrial technology.

The third, the evaluation process shows that learning has adopted the industrial atmosphere and culture, with the main constraints being the aspect of schedule synchronization with industry and the production-based assessment system that still needs improvement. Fourth, from the product side, graduates of the Teaching Factory Class program showed a significant increase in technical competence and soft skills, with a job absorption rate in industry reaching 85%.

The findings of this study imply the need for: (1) strengthening strategic partnerships with industry, (2) developing sustainable competence for productive teachers, (3) optimizing practice facility management, and (4) improving the industry-based assessment system. This conclusion confirms that the Teaching Factory Class program at SMKN 3 Metro has been running effectively in preparing competent graduates, although it still requires some improvements to achieve optimal results.

REFERENCES

Amin, M. M. (2020). *Panduan pelaksanaan teaching factory*.

Darmawan, I. N. G. (2014). Evaluasi manajemen teaching factory pada unit produksi training hotel Sekolah Menengah Kejuruan Kridawisata Bandar Lampung [*Skripsi*, Universitas Lampung].

Djojonegoro, W., & Slamet. (1998). *Pengembangan sumber daya manusia melalui Sekolah Menengah Kejuruan (SMK)*. Departemen Pendidikan dan Kebudayaan.

Fajaryati, N. (2012). Evaluasi pelaksanaan teaching factory SMK di Surakarta. *Jurnal Pendidikan Vokasi*, 2(3), 325–337.

Hasibuan, M. S. P. (2005). *Manajemen sumber daya manusia (Edisi revisi, Cetakan ke-7)*.

Jäger, A., Mayrhofer, W., Kuhlang, P., Matyas, K., & Sihn, W. (2013). Total immersion: Hands and heads-on training in a learning factory for comprehensive industrial engineering education. *International Journal of Engineering Education*, 29(1), 23–32.

Kuswantoro, A. (2014). *Teaching factory: Rencana dan nilai entrepreneurship*.

Miles, M. B., Huberman, A. M., & Saldaña, J. (2014). *Qualitative data analysis: A methods sourcebook (3rd ed.).* Sage.

Setiani, A. (2020). Evaluasi program teaching factory di SMK Negeri 1 Kota Magelang. *Widya Duta: Jurnal Pendidikan dan Evaluasi Pendidikan*, 8(1), 48–55.

Stufflebeam, D. L. (2017). *The CIPP evaluation model: How to evaluate for improvement and accountability*. The Guilford Press.

Suady, E. (2001). *Perencanaan dan pengembangan sumber daya manusia*.

Sudira, P. (2016). *TVET abad XXI: Filosofi, teori, konsep, dan strategi pembelajaran vokasional*. UNY Press.

Terry, G. R., & Rue, L. W. (2010). *Dasar-dasar manajemen*. Bumi Aksara.

Usman, H. (2013). *Manajemen: Teori, praktik, dan riset pendidikan*. Bumi Aksara.

Wahyuni, H., Ahyani, N., & Tahrun. (2022). Implementasi manajemen model teaching factory di SMK. *Jurnal Pendidikan Tambusai*, 6(1), 2781–2792.

Yin, R. K. (2018). *Case study research and applications: Design and methods*. Sage.

Zhang, G., Zeller, N., Griffith, R., Metcalf, D., Williams, J., Shea, C., & Misulis, K. (2011). Using the context, input, process, and product evaluation model (CIPP) as a comprehensive framework to guide the planning, implementation, and assessment of service-learning programs. *Journal of Higher Education Outreach and Engagement*, 15(4), 57–84.