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TEACHING FACTORY IMPLEMENTATION TO ENHANCE STUDENT SKILLS AT SMKS MAMBAUL ULUM BATA-BATA

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Abstract: This study examines the implementation of the teaching factory program at SMKs Mambaul Ulum Bata-Bata which begins with the planning of production facilities and the preparation of qualified educators. Collaboration with the surrounding community and alumni plays a crucial role in the procurement of raw materials and product distribution. Weekly evaluations are carried out to monitor the development of student competencies and identify obstacles in the implementation of the program. The findings show that students' involvement in the process of processing, packaging, and marketing products directly has fostered a strong entrepreneurial mentality, motivating them to become self-employed after graduation. The significance of this program is evidenced by the increase in the absorption of graduates in the world of work by up to 30% over the past three years. The results of the study indicate that the teaching factory learning model is an effective approach in preparing vocational school graduates who are competitive and ready to enter the job market and develop independent businesses.
Keywords: Teaching factory, industry, entrepreneurship, independent entrepreneur

INTRODUCTION

Vocational High School (SMK) is a level of education that has an important role in preparing students to enter the world of work. Vocational school graduates are expected to have skills and competencies that are in accordance with the demands of work and industry needs. Therefore, cooperation and input from the industry are very important in the preparation of the curriculum and learning process at vocational schools, so that the competence of vocational school graduates is in line with the real needs of the industry. This is a mandate of the law as stipulated in Law No. 20 of 2003 concerning the National Education System, article 15, which states that "Vocational education is secondary education that prepares students, especially to work in certain fields

This mismatch between vocational education outcomes and labor market demands is a persistent issue that reflects deeper systemic problems in the alignment of curriculum, pedagogy, and institutional collaboration. One of the root causes is the limited involvement of industry stakeholders in curriculum development and learning processes. In many cases, vocational school curricula are designed without active consultation or cooperation with employers. Consequently, the skills imparted in schools often do not match the practical skills required in actual work environments. As noted by OECD (2010), strong partnerships between vocational institutions and employers are essential for developing relevant training programs that equip students with both hard and soft skills.

Hard skills, such as operating machinery, understanding technical drawings, or using specific software, are often taught in vocational schools, but they may become outdated quickly due to rapid technological changes. On the other hand, soft skills such as communication,

teamwork, adaptability, and problem-solving are either underemphasized or not systematically integrated into the curriculum. Yet, these are the very skills employers increasingly prioritize in the 21st-century workplace. According to Clarke (2008), employers emphasize the importance of "work-readiness," a concept that encompasses not only technical ability but also the interpersonal and cognitive skills necessary to thrive in dynamic work environments. Moreover, the pedagogical methods used in vocational schools often remain traditional and teacher-centered, with limited emphasis on experiential learning, critical thinking, or collaborative projects. This method stands in stark contrast with the expectations in the workplace, where learning is hands-on, problem-based, and heavily reliant on collaboration and continuous learning. The lack of practical work placements or apprenticeships further exacerbates the skills gap, as students graduate without sufficient real-world exposure or understanding of industry practices.

This challenge is not unique to Indonesia; however, in the Indonesian context, it is further complicated by socio-economic disparities, unequal access to quality education, and inconsistent standards across regions. For example, vocational schools in urban areas might have better access to resources, partnerships with industries, and qualified teachers compared to those in rural or remote areas. As a result, the quality of vocational education can vary significantly, leading to disparities in employment outcomes for graduates across the country. To address this issue, the Indonesian government has implemented various policy initiatives aimed at revitalizing vocational education. One of the notable programs is the revitalization of vocational education and training (Revitalisasi SMK) launched in 2016, which seeks to improve the quality and relevance of vocational schools by enhancing teacher competencies, upgrading infrastructure, and fostering collaboration with industry. While these efforts are commendable, their implementation has encountered several bottlenecks, including limited funding, bureaucratic hurdles, and resistance to change from within educational institutions.

Furthermore, the perception of vocational education in Indonesian society remains another significant hurdle. Many parents and students still view vocational schools as a secondary option compared to academic high schools or universities. This stigma affects the motivation of students and the willingness of top-performing graduates to enroll in vocational programs. As long as vocational education is seen as a "last resort," its ability to attract talent and deliver high-quality training will remain limited. To truly bridge the gap between education and employment, there needs to be a paradigm shift in how vocational education is conceptualized, delivered, and evaluated. First, the curriculum must be reoriented toward competency-based education that is responsive to labor market needs. This means developing

frameworks that define clear learning outcomes, assessment strategies, and progression pathways that are aligned with job profiles and occupational standards.

Second, industry partnerships must be strengthened and institutionalized through mechanisms such as industry advisory boards, internship programs, and joint curriculum development. Industries should not only be recipients of graduates but active contributors to the education process. Such collaborations can ensure that students are trained using the latest technologies and methods, while also providing them with opportunities for on-the-job learning. Third, vocational schools need to invest in teacher development, particularly in upskilling instructors with current industry knowledge and pedagogical expertise. Teachers must be equipped to facilitate active learning, mentor students, and integrate technology into the classroom. Professional development programs should be continuous and supported by both government and industry partners. In addition, monitoring and evaluation systems should be enhanced to track the outcomes of vocational education programs. Data on graduate employment rates, employer satisfaction, and student feedback should inform policy decisions and curriculum revisions. This evidence-based approach can help ensure accountability and continuous improvement within the system.

The use of technology also offers promising avenues for transforming vocational education. E-learning platforms, virtual simulations, and digital certification systems can complement traditional classroom instruction and expand access to quality training, especially in underserved regions. However, the digital divide must be addressed to ensure equitable access to these innovations. Moreover, soft skills training should be deliberately embedded within vocational programs through project-based learning, extracurricular activities, and community engagement. Schools should create environments where students can practice communication, leadership, and problem-solving in meaningful contexts. Initiatives such as student-run enterprises, competitions, and service-learning projects can play a significant role in this regard.

Ultimately, closing the skills gap requires a holistic and multi-stakeholder approach. Governments, industries, educational institutions, and communities must work collaboratively to redesign vocational education systems that are inclusive, adaptable, and future-ready. By doing so, vocational school graduates will be better positioned to contribute meaningfully to the economy and society, thereby reducing unemployment and improving overall national competitiveness. The high unemployment rate among vocational graduates, as reported by BPS Jawa Timur (2023), is a stark reminder of the urgency of reform. If left unaddressed, this situation could lead to a growing segment of underemployed or disillusioned youth, with

broader implications for social stability and economic development. Therefore, strategic investments in vocational education reform are not merely educational interventions they are critical components of a national development agenda.

One of the efforts to overcome this problem is to implement the *teaching factory concept* in vocational schools. The concept *of a teaching factory* is a learning model in production- or service-based vocational schools that refers to procedures and standards that apply in the industry and is implemented as it happens in the industry. With this concept, vocational school students can get a more authentic and relevant learning experience to the world of work. SMKs Mambaul Ululm Bata-Bata Palengaan Pamekasan is one of the vocational schools that has implemented the teaching *factory concept*. This school recognizes the importance of honing students' skills in order to compete in the world of work. However, the implementation of *the teaching factory concept* in this school still faces several challenges, such as limited facilities and infrastructure, a lack of cooperation with industry, and a lack of understanding of teachers and students about the concept *of teaching factory*. This paper will explore more deeply the implementation of the *teaching factory concept* at SMK Mambaul Ululm Bata-Bata Palengaan Pamekasan, the skills forged by students, and the impact of the teaching factory program on students' abilities.

METHOD

This research adopts a descriptive qualitative approach, which focuses on collecting and analyzing data in the form of words, images, and observations rather than numerical data. The qualitative method was deliberately chosen to explore and understand the revitalization process at Mambaul Ulum Bata-Bata Vocational School comprehensively and contextually. By using this approach, the researcher aims to gain an in-depth understanding of the phenomena occurring within the school environment, particularly related to efforts and strategies for educational revitalization. According to Juniatmoko, (2019)Descriptive research is a type of research that seeks to explore and examine a particular situation or condition deeply, with the findings presented in detailed descriptions. In this study, the descriptive nature of the research allows the researcher to capture the actual conditions of the school, including challenges, innovations, and the responses of various stakeholders involved in the revitalization process.

Data collection techniques in this study involve interviews, observations, and documentation, which serve as the main sources of qualitative data. Interviews are conducted with school leaders, teachers, students, and other relevant parties to gather their experiences and perspectives. Observations allow the researcher to witness directly the school’s day-to-day activities and revitalization initiatives. Meanwhile, documentation such as school reports,

curricula, and policy documents provide supporting data that strengthen the analysis. Through this method, the research does not aim to generalize findings statistically but to construct a rich narrative that reflects the unique process of vocational school revitalization at Mambaul Ulum Bata-Bata. The hope is that the insights gained can be a reference for similar educational institutions in designing effective revitalization strategies.

RESULT AND DISCUSSION

Implementation of Teaching Factory-Based School Revitalization at SMKs Mambaul Ulum Bata-Bata

The *teaching factory* program is an innovative learning model in Vocational High Schools (SMK) initiated by the Ministry of Education, Culture, Research, and Technology (Kemendikbudristek) through the Directorate General of Vocational Education to increase innovation for Vocational High Schools The Teaching Factory or abbreviated as TeFa is a learning approach model oriented to students' abilities that refers to industry standards and procedures in produce products.This (Romanti, 2024)teaching factory *program* is carried out based on Government Regulation Number 41 of 2015, as a production/service-based model in vocational schools that refers to industry standards and is carried out in an atmosphere similar to the actual industry. The teaching factory combines production-based learning with a curriculum that is oriented to industrial needs, so that it can bridge the gap between the competencies of vocational school graduates and the demands of the world of work.(Alptekin dkk., 2001) The teaching factory learning model applied in vocational schools can have a positive impact on increasing learning motivation, practical skills, and work readiness of vocational school students.

SMKs Mambaul Ulum Bata-Bata is one of the high school vocational schools in Pamekasan Regency that implements the *teaching factory* learning model, precisely in class X majoring in Culinary Arts. To implement this learning model, according to Mr. Muniriyanto, M. Pd, as the head of SMKs Mambaul Ulum Bata-Bata, said that the first step taken to carry out *teaching factory* learning was to plan and prepare the production site and its equipment. Furthermore, according to Mrs. Desi Susilowati, S.Pd, SMK Mambaul Ulum Bata-Bata prepares its human resources by delegating teachers at vocational schools that have implemented the *teaching factory* program, namely SMK 8 Surabaya, to gain technical knowledge of *teaching factory operations*. This follows the view of Amar dkk., (2015) who stated that the availability of industrial facilities and tools is the main prerequisite in creating a learning environment with *a teaching factory* model. However, it is no less important to have qualified human resources in running the teaching factory learning model, as in the opinion of

Chryssolouris and Rentzos, who emphasize the dual competence of teachers who teach in a *teaching factory* environment, namely, pedagogical expertise and relevant industry experience (Chryssolouris dkk., 2016). This is important to equip teachers with practical skills in the industrial world.

Figure 1. Comparative study of teachers of SMKs Mambaul Ulum Bata-Bata To SMK Negri 8 Surabaya

To facilitate the *teaching factory learning model,* according to Mrs. Desi Susilowati, S.Pd, SMKs Mambaul Ulum Bata-Bata involves the nearest community and alumni, as is carried out in class X of gastronomy. Working with the community it will make it easier to obtain raw materials and distribute production products. This is in line with the opinion of Lanz dkk., (2018) who emphasize collaboration with the community in creating an innovation ecosystem that supports the development of locally relevant products and services. By collaborating with the community, it facilitates the implementation of *the teaching factory* program because the culinary department that uses this program at SMK Mambaul Ulum Bata-Bata facilitates the implementation of this program, especially in obtaining raw materials. Mr. Muniriyanto, M. Pd said that cooperation with the community, especially alumni, is very helpful in the *teaching factory program* at SMKs Mambaul Ulum Bata-Bata in obtaining the main ingredients in the culinary department by buying directly from farmers and breeders around the school and alumni. Likewise, the distribution of production products is also easier to distribute, in addition to the Mambaul Ulum Bata-Bata Vocational School, which has a large number of students, it is also distributed to alumni who have educational institutions.

Mrs. Kiki, the *teaching factory program facilitator* emphasized that the program can be implemented more effectively because effective cooperation with the surrounding community and alumni can make it easier for them to obtain basic materials such as cassava and sweet

potatoes and in the distribution of production products. Ayu Wulandari, a student of class X culinary arts at SMKs Mambaul Ulum Bata-bata said that she and her friends in learning activities in the *teaching factory program* can focus on processing because the required materials are already available so as to make the process of processing ingredients more effective into their production, and their production products such as jelsue, roty bakery, cassava chips and sweet potato chips can also be marketed directly around the school and at educational institutions in around the school and alumni. Likewise, Sarifuddin stated that the school's cooperation with the surrounding community, especially those who use the teaching factory program, makes it easier for schools to obtain production materials and distribute production products.

Figure 2. Basic production materials obtained from the surrounding community

For the effectiveness of the teaching factory program at SMKs Mambaul Ulum Bata-Bata, an evaluation is carried out every week. Mrs. Desi Susilowati as the *teaching factory program* companion, said that evaluations are carried out every year to find out the development of students' abilities and the existence of obstacles and obstacles in the teaching factory in the process of processing, packaging, and marketing. The evaluation of the teaching factory program according to Aryana et al. is very important because it can measure the effectiveness of learning, identify areas, and measure the relevance of the program to the needs of the industry (Aryana dkk., 2023).

Honing Student Skills through the Teaching Factory Program in Class X Culinary at SMKS Mambaul Ulum Bata-Bata

The skills of students at vocational schools can be improved through the teaching factory program. According to Mr. Muniri, M. Pd, Head of SMKs Mambaul Ulum Bata- Bata, the teaching factory program can provide real work experience that integrates the value of learning

in the classroom with industrial practices. With this program, students not only learn theory but also engage in the production process so that they gain a comprehensive understanding, especially in industrial workflows. According to Mrs. Kiki, the industrial work experience forged by students at SMKs Mambaul Ulum Bata-Bata, according to Mrs. Kiki as the teacher *of the teaching factory program*, for example, techniques and how to process raw materials into products that can be marketed in the community, such as raw materials such as cassava and sweet potatoes which are processed into chips so that they can meet the needs of the production market.

In line with the view above, Fajaryati in her research revealed that the *teaching factory learning model* can improve students' competencies in the field of production and entrepreneurship, through a learning model that resembles industry (Fajaryati, 2012). Likewise, at SMK Mambaul Ulum Bata-Bata, as revealed by Mr. Munirianto as the head of SMK Mambaul Ulum Bata-Bata that the teaching factory program carried out at the school can increase the enthusiasm and motivation of students in class X majoring in culinary arts. This is due to the complete practice room facilities, competitive production tools and machinery, and teachers who have competence in their fields and have professional certifications, so that they can improve students' abilities and experience, especially in the industry.

The same thing was also expressed by Mrs. Kiki, a culinary teacher at SMKs Mambaul Ulum Bata-Bata that the teaching factory program makes students very enthusiastic because they can learn the practices of production, packaging, and marketing, so that they can instill an entrepreneurial mentality for students so that they are ready to work and be entrepreneurial after graduation. This is strengthened by the opinion of Nurul Fadilah, a grade XI student of culinary arts at SMK Mambaul Ulum Bata-Bata, that the teaching factory program encourages her spirit of learning because it follows her desire to become an entrepreneur later. So the teaching factory program has given him experience in the process of product processing, packaging, and marketing, which will be a provision when he becomes an entrepreneur.

Research conducted by Karyanto and Asmaul revealed that direct experience felt by students such as in the teaching factory program, has a very important role in increasing the motivation and entrepreneurial interest of students, because they are actively and directly involved in the production process to marketing to form their independent mentality which becomes capital when they are truly entrepreneurial (Karyanto & Asmaul, 2023). This was admitted by Ayu Wulandari, a class X student of culinary studies, SMK Mambaul Ulum Bata-Bata that she felt very lucky because she chose the culinary department, which, with the *teaching factory* program, provides a learning experience that is very important in building an

entrepreneurial spirit. With this program, he feels that he has meaningful provisions to compete in the business world after graduation.

Figure 3. Production practices at SMKs Mambaul Ulum Bata-Bata

The Impact of the Implementation of the Teaching Factory Program on Students of SMKS Mambaul Ulum Bata-Bata

The implementation of *the teaching factory* program at SMK Mambaul Ulum Bata-Bata has had a significant impact on its graduates, as evidenced by the rate of graduates in the world of work, which has increased by 30% in the last three years. This was conveyed by Mr. Muniri, the head of SMK Mambaul Ulum Bata-Bata, that graduates of his school who have participated in the teaching factory program show better performance in the world of work. They are more adaptable to the industrial environment because they already have the practical skills they acquired when they joined the teaching factory program. This is following Wibowo's view that students who take part in the teaching factory model have higher job readiness compared to students who take part in conventional learning. This is due to the real experience gained by students in handling production processes following industry standards (Wibowo, 2016). Hadam et al. also revealed that vocational school graduates who have gained teaching *factory experience* have a competitive advantage in technical skills and mental readiness to enter the world of work.

The aspects of teamwork and competence possessed by students as a result of the *teaching factory program* provide a spirit for students of SMKs Mambaul Ulum Bata-Bata who participate in the *teaching factory program* to open an independent business after graduation. This is felt by Nurul Fadilah, a grade XI student of SMK Mambaul Ulum Bata-Bata, who aspires to become an entrepreneur after graduating from vocational school. According to Mrs. Desi Susilowati, the *teaching factory* manager of SMKs Mambaul Ulum Bata-Bata, the program has provided valuable experience that not only improves students' technical skills but

also improves the ability to collaborate in a team, which can spur students' work morale. The results of the research conducted by Rosi et al. show that the teaching factory learning model has a significant influence on students' learning creativity, helps improve their abilities, and can adapt to the work environment (Rosi dkk., 2024). Mrs. Kiki Mustika Indah Pertiwi, the teaching *factory program assistant teacher of* SMKs Mambaul Ulum Bata-Bata also strengthened that the teaching factory program is designed to equip students with soft skills and hard skills needed by the industry. As concluded by Sulaiman et al. in their research, the *teaching factory* learning model plays an important role in creating an educational ecosystem that is in line with the needs of the industry, and students not only gain theoretical knowledge, but the practical experience they forge form a mental entrepreneurship (Sulaiman dkk., 2022).

CONCLUSIONS

The implementation of the teaching factory program at SMKs Mambaul Ulum Bata-Bata begins with thorough planning and preparation of both the production site and the necessary equipment. This initial stage also includes the selection and preparation of educators who possess educational backgrounds relevant to the program's objectives, ensuring they are capable of guiding students in line with industry needs. To support the successful realization of the program, the school actively collaborates with the surrounding community and alumni. These collaborations play a crucial role in facilitating access to raw materials and easing the distribution of production outputs, thereby strengthening the sustainability and efficiency of the teaching factory activities.

Weekly evaluations are an integral part of the program's implementation. These evaluations are conducted to monitor the development of students' skills as well as to identify any challenges or obstacles that arise during the learning and production processes. Through direct involvement in various stages of production, such as processing, packaging, and marketing the students gain practical experience that fosters a strong entrepreneurial mindset. This experience becomes a valuable asset, instilling the confidence and motivation needed for them to become independent entrepreneurs after graduation. Furthermore, the teaching factory program has had a significant and measurable impact on the employment outcomes of the school's graduates. In the past three years, data shows that approximately 30% of graduates have successfully entered the workforce, a figure that reflects the program's effectiveness in preparing students to meet the demands of the labor market. This positive trend highlights the role of the teaching factory as not only a learning model but also as a bridge between education and employment.

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