
Corporate Social Responsibility-Based Teaching Factory as a Strategy for Enhancing Vocational High School Graduate Competence

Zalma Niendya Pangestika¹, Dian Khoiriyani Putri², Kamal Ramadhani³, Afif Nur Khayati⁴,
Joko Widodo⁵

Abstract

Corporate Social Responsibility (CSR) programs play a strategic role in ensuring that companies contribute not only to economic growth but also to social development, particularly in the education sector. One of the challenges faced by vocational schools is the gap between graduates' competencies and industry needs, which often results from limited facilities, weak industry linkages, and curricula that are not fully aligned with professional demands. To address this issue, the Djarum Foundation implements an education-oriented CSR program in collaboration with SMK PGRI 2 Kudus and industry partners through the Teaching Factory model. This study aims to analyze the implementation of the Teaching Factory program at SMK PGRI 2 Kudus and to examine the collaboration patterns among the school, the Djarum Foundation, and industry partners in enhancing the quality of vocational education. This study employs a descriptive, qualitative approach, utilizing observation, documentation, and in-depth interviews. Interview guidelines focus on collaboration mechanisms among stakeholders, the implementation model of the Teaching Factory program in the culinary department, the curriculum framework applied, and the availability of learning facilities and infrastructure. Data were analyzed using Miles and Huberman's interactive model, which includes data reduction, data display, and conclusion drawing. The findings indicate that the CSR collaboration between the Djarum Foundation and SMK PGRI 2 Kudus has a significant positive impact on producing competent and competitive graduates. CSR contributions include the construction of Teaching Factory facilities, teacher capacity building, provision of practical equipment and infrastructure, and reinforcement of an industry-based curriculum. The synergy among the school, industry, and the Djarum Foundation has been well established, enabling students to gain hands-on experience and better prepare them for the professional work environment. The study implies that education-focused CSR programs can serve as an effective strategy for strengthening vocational education and human resource development. It also suggests that other corporations should emulate the Djarum Foundation's model to support sustainable partnerships between the education and industry sectors.

Keywords: *Collaboration, Corporate Social Responsibility, Teaching Factory, Vocational High School.*

¹Semarang State University, Central Java, Indonesia, zalmaniendyapangestika_03@students.unnes.ac.id

²Semarang State University, Central Java, Indonesia

³Semarang State University, Central Java, Indonesia

⁴Semarang State University, Central Java, Indonesia

⁵Semarang State University, Central Java, Indonesia

A. Introduction

Rapid technological advancements in the era of disruption have significantly altered human behaviour patterns as a whole. The rapid changes caused by human-made technology demand that life keep up with current standards (Ulfah, Supriani, & Arifudin, 2022). The era of disruption is marked by radical shifts in mindsets and ways of working due to technological innovations such as artificial intelligence (AI), automation, and digitization, which have expanded across all industrial sectors (Abshor, 2021). Humans must enhance their skills to keep up with the rapid advancement of technology. In the field of education, this transformation requires educational institutions to adapt by developing various aspects of learning that enable students to acquire competencies aligned with the needs of society and industry. Educational institutions that are expected to possess certain competencies to produce human resources with skills aligned with industrial needs are vocational high schools (SMK).

Vocational schools are educational institutions aimed at preparing students to work in specific fields, resulting in job-ready graduates (Nugroho et al., 2023). However, this objective has not been fully achieved. This is supported by data showing that SMKs have the highest open unemployment rate among all educational levels, at 9.02%. This occurs due to the mismatch between the competencies acquired during learning and the needs of the industry (Aini & Purba, 2022). Schools frequently create curricula that do not fit with industry needs, making it difficult for SMK graduates to find work. This fact involves schools implementing learning and practical training that is aligned with industry needs, thereby meeting the educational institution's goals. One initiative that schools can undertake to produce graduates who are ready to work according to industry needs is the Teaching Factory program at SMK.

According to Nugroho et al. (2023), the Teaching Factory is a learning model that standardizes the achievement of school curriculum competencies through production processes aligned with global workplace standards, aiming to produce graduates with specific competencies and character by creating learning media in the form of goods or services. Teaching Factory can be implemented through school factories in a broad context, which includes sites of production for goods or services, such as workshops, restaurants, cafés, hotels, and other establishments. The Teaching Factory is implemented through continuous learning with a block schedule, allowing learning to be applied as if working in an industry (Prasloranti, Bukit, & Maharani, 2021). The learning experience gained by students during the Teaching Factory can be applied by students when they enter the industry, ensuring that, if the Teaching Factory is implemented appropriately, students will possess competencies that match the industry's needs. These competencies will provide students with great opportunities to begin working immediately and contribute to the improvement of industrial quality.

Although the Teaching Factory has the potential to produce excellent human resources, schools face various difficulties and challenges in adopting it. According to Irsyad & Effendi (2023), several factors hinder and challenge the management of the Teaching Factory, including limited resources, collaboration with industry, design and development, massive technological developments, and financing. The establishment of a Teaching Factory undoubtedly requires substantial funding to support all production activities, especially tools and supporting facilities. These challenges can be addressed through collaboration between schools and external parties, such as the government, industry, or foundations, to support the

Teaching Factory program. External parties play a crucial role in providing learning facilities, funding, and assisting in the design of industry-based curricula. One example of collaboration between schools and external parties is the vocational school mentoring program by Djarum Foundation in the Kudus District. The foundation has established partnerships with several vocational schools, including SMK PGRI 2 Kudus.

SMK PGRI 2 Kudus is one of the leading vocational schools in Kudus Regency, offering five majors: accounting, marketing, computer network and telecommunications engineering (TJKT), tourism services (ULP), and culinary arts. The culinary arts major at SMK PGRI 2 Kudus collaborates with the Djarum Foundation, which provides facilities and equipment for a Teaching Factory that aligns with technological developments and industry needs. Based on observations, the facilities provided by the Djarum Foundation are effectively utilized by the school, as evidenced by the culinary graduates' standards, enabling them to work as chefs in four-star restaurants or hotels. In addition, the school collaborates with various industries to understand the culinary industry standards that support the cooking competency standards established by the school. This collaboration can also be seen in the development of the culinary program's curriculum, which is suited to the needs of the culinary industry. According to Sobari et al. (2023), to assess students' skills in the workplace, schools need to collaborate with industry in designing an industry-based curriculum, which includes the implementation of the Teaching Factory program.

The Teaching Factory implemented at SMK PGRI 2 Kudus is very suitable as an independent school business, given its facilities and human resources, namely competent students. This is an interesting topic for further study, especially since this school is a pioneer that has collaborated with various industries, particularly hotels and restaurants, in the culinary department. A study on the management of the Teaching Factory program in enhancing students' competencies amid resource constraints should be thoroughly understood. Furthermore, other vocational schools should be aware of and apply the curriculum development implemented to produce competent students in their particular fields of study.

B. Methods

This study used a descriptive qualitative technique to examine the curriculum and teaching factory program at the Culinary Department of SMKS PGRI 2 Kudus. This approach was chosen because it provides a comprehensive review of program conception, implementation, and challenges encountered during implementation.

The study was conducted on May 21, 2025, at SMKS PGRI 2 Kudus, which was chosen specifically because it has been running a teaching factory constantly. Purposive sampling was used to select the research subjects, which included the Deputy Head of Curriculum, the Head of the Culinary Department, and vocational teachers from the Culinary Department who play direct roles in implementing the curriculum and teaching at the factory.

The research objects included curriculum planning, production-based learning, and evaluation of student learning outcomes. Data was collected through triangulation techniques, namely semi-structured interviews, non-participatory observation, and documentation. Primary data was obtained from interviews with key informants, while secondary data came from official school documents. The instruments used include interview guidelines, recording devices, digital cameras, and field notes. The semi-structured

interviews focused on collaboration patterns between SMK PGRI 2 Kudus, the industry, and the Djarum Foundation; the implementation model of teaching factory learning in the culinary department of SMK PGRI 2 Kudus; the curriculum used; and the learning facilities available in the department.

Data analysis was conducted interactively based on the Miles and Huberman model, which includes data reduction, data presentation, and drawing conclusions and verification. Data validity was ensured through source triangulation and technical triangulation, ensuring that research findings are scientifically accountable.

C. Results and Discussion

General information about the School

SMK PGRI 2 Kudus is a private vocational school affiliated with the PGRI Foundation (Indonesian Teachers' Association), located at Jl. Raya Jepara No. KM 4, RW.5, Kedungdowo, Kaliwungu District, Kudus Regency, Central Java. The vision of SMK PGRI 2 Kudus is to produce graduates who are capable of competing on a worldwide scale, have a Pancasila spirit, are diligent, and uphold moral principles. To achieve this vision, the school has a mission to enhance the moral character of students through school activities, implement work-based learning, provide optimal guidance according to students' potential, foster the spirit of Pancasila through various intra-curricular, co-curricular, and extra-curricular activities, producing academically successful graduates with successful interests and talents, and collaborating with all parties to produce students who can compete globally. This vision and mission are carried out by a total of 70 teachers and 1,008 students.

Five vocational programs are available at SMK PGRI 2 Kudus: marketing, computer networking and telecommunications, accounting and institutional finance, culinary arts, and tourism services. Based on observations and interviews, the school has received facility assistance from the Djarum Foundation as part of its Corporate Social Responsibility (CSR) program. The facilities provided include training facilities and a teaching factory for the culinary program, which have been available since 2014. A new teaching factory was built in 2020. The presence of a teaching factory at the school can enhance students' work readiness and entrepreneurial skills, aligning with the objectives of establishing a vocational high school. According to Purwanto, Novitasari, & Asbari (2022), vocational high school graduates are not only expected to be ready to enter the workforce as skilled workers but also to possess an entrepreneurial spirit capable of creating business opportunities independently. The teaching factory can be one of the efforts to achieve this; hence, the teaching factory built by the Djarum Foundation is named Jiva Bestari, which means "brave and effective spirit" to be developed. The teaching factory offers facilities, including modern buildings, state-of-the-art infrastructure, practical rooms, and technical support in arranging production spaces according to culinary industry standards. In the culinary skills program, there are two types of classes: regular and advanced, with a total of 311 students. Students in the advanced class are placed in the teaching factory, and the learning process is conducted in shifts. In contrast, students in the regular class attend from morning to afternoon, following a typical school schedule.

Collaboration Pattern Between SMK PGRI 2 Kudus, Djarum Foundation, and Industry

The collaboration between SMK PGRI 2 Kudus and the Djarum Foundation does not involve individual student scholarships, but rather represents a concrete manifestation of the Djarum Foundation's Corporate Social Responsibility (CSR) initiative. This collaboration aims to establish a strategic partnership that enhances the quality of vocational education in Kudus Regency. Through this collaboration, Djarum Foundation actively contributes to strengthening the vocational education ecosystem by improving the quality of the learning process, developing teachers' competencies, and providing relevant facilities and infrastructure aligned with industry needs. The long-term goal of this collaboration is to produce vocational school graduates who are not only job-ready but also highly competitive in the labour market, in line with the demands of the 4th Industrial Revolution and the increasingly dynamic business world.

The Culinary Arts Department of SMK PGRI 2 Kudus and Djarum Foundation have been collaborating since 2014, with the development of a teaching factory in the form of a mini-restaurant named "Kokiku Resto," which can serve 10 to 15 people. This program marks the first step toward creating an industry-based learning environment. Furthermore, in 2020, this relationship grew with the opening of a café called "Jiva Bestari," which has a philosophical meaning: "Jiva" means soul, and "Bestari" means seeking knowledge. The Djarum Foundation supports productive teachers (vocational teachers) in culinary arts by providing training and human resource development to keep up with the latest technological developments in the culinary field, allowing teachers to better equip students with relevant and adaptable skills for the demands of the job market. In terms of facility provision, the Djarum Foundation plays a direct role by providing a fully operational teaching factory, including a restaurant and café building, practical equipment, and professional interior design. All this support is provided in the form of goods and physical facilities, not cash assistance, ensuring that its use is directly focused on vocational education.

Meanwhile, SMK PGRI 2 Kudus and the industrial world have collaborated to build an industry-based curriculum, create Standard Operating Procedures (SOPs) for learning, and apply Field Work Practice (PKL). The curriculum in the Culinary Arts department no longer fully aligns with the government's standards, but is instead aligned with industry needs, as referenced in the curriculum of Hotel Padma Semarang. This aims to ensure that the competencies developed by students at school are truly relevant and ready to be used in a professional work environment. In addition, industry involvement extends beyond the curriculum aspect to include direct teaching through a guest teacher scheme. In this context, professionals from the Food & Beverage (F&B) and hospitality sectors are invited to the school to provide up-to-date materials, including market trends, new technologies in food processing, and industry service standards. As a result, students gain insights and knowledge that are constantly updated, not only theoretical but also practical and contextual in line with current industry developments.

Further collaboration includes the development of Standard Operating Procedures (SOPs) for learning practices, which are developed jointly with industry partners. These SOPs serve as standard guidelines for student practical activities, ensuring that the entire learning process aligns with actual industry work standards. This also marks the first step in fostering a professional work culture within the school environment. Another important component of this collaboration is the Field Work Practice (PKL) program. In this case, the industry plays a role not only as the place where PKL is carried out, but also as the party

with full authority in determining which students are eligible to undergo internships at their places. According to Rohmah, Suyatmini, Hasanah, & Setiyana (2021), in the work training program, now known as *prakerin*, students are equipped with vocational training and education to prepare them for the workforce. The selection process conducted by SMK PGRI 2 Kudus is carried out directly by the industry through a competency and readiness assessment, without any involvement from the school. This system encourages students to take their preparation seriously and demonstrate their best qualities. Various industry partners have established active collaborations with SMK PGRI 2 Kudus in this program, including Hotel Padma Semarang, Hotel Indonesia Kempinski Jakarta, Hotel Pullman Jakarta, Sheraton Grand Jakarta Gandaria City, Hotel Tentrem Yogyakarta, Gumaya Hotel Semarang, Resinda Hotel Karawang, Sapphire Hotel Kudus, @HOM Hotel Kudus, and several restaurants in the Kudus area.

Overall, the collaboration pattern established between SMK PGRI 2 Kudus, Djarum Foundation, and industry partners demonstrates a strong, systematic, and sustainable synergy. This collaboration not only supports efforts to improve the quality of vocational education but also effectively realizes the principle of linking and matching education to the needs of the world of work, which is one of the 36 strategic agendas in Indonesia's vocational education reform. On the other hand, challenges arose during the initial implementation of the industrial class, particularly regarding the adaptation of students' learning schedules to align with industrial working hours, leading to complaints from parents due to later dismissal times. However, this issue was successfully addressed through the signing of a Memorandum of Understanding (MoU) with parents at the beginning of the academic year, as a form of mutual understanding regarding the schedule differences between the industrial class and regular classes.

Implementation Model of Teaching Factory Learning in the Culinary Department

The Teaching Factory (TEFA) program in the Culinary Arts Department at SMKN 2 Kudus was officially implemented in 2018. This implementation is part of efforts to improve the quality of vocational Education through an industry-based learning approach. Collaboration with the Djarum Foundation has been a key driver behind the development of this learning system, aiming to produce graduates who are not only excellent in theory but also proficient in professional practice. In its implementation, TEFA is carried out through a well-planned organizational structure. The school principal serves as the main responsible party, supported by the vice principal in charge of curriculum and industry relations. At the department level, a TEFA coordinator is responsible for managing daily operations and collaborating with productive teachers and student teams involved in production activities. According to Febriani, Nurjanah, & Setiawati (2021), the goal of teaching Factory is not only to produce technically competent graduates but also to shape a generation that is adaptive, innovative, and highly competitive in the job market and business world. The Djarum Foundation, an external partner, provides strategic support through a consulting role and quality control of the Teaching Factory at the school.

Not every student participates directly in TEFA activities. The school employs a selection mechanism based on several indicators, including student interest, academic achievement, attitude during learning, and readiness to follow the pace of production work. This selection aims to ensure that the students involved are mentally and technically ready to participate in a learning process that resembles the real world of work. The TEFA implementation model in the Culinary Arts Department integrates culinary business

production activities with regular learning processes. This aligns with the objectives of implementing TEFA in vocational schools, which aim to align the learning process with the needs and work culture of the industry (Wati & Efi, 2021). As a result, students not only receive training in technical aspects, such as food processing, but also participate in various managerial and operational activities that reflect real-world work practices in 37 actual industries. TEFA activities are designed in specific time blocks, where students are assigned to carry out the production process from start to finish on an ongoing basis.

The involvement of the Djarum Foundation as an industrial partner provides significant added value. Their role is not limited to providing facilities, but also includes developing student competencies. The Djarum Foundation supports the learning process, offers supplementary skills training, and collaborates in designing a curriculum that aligns with the latest culinary industry requirements. The presence of industry partners also serves as an important bridge in aligning the learning process with the dynamics of the workplace. The implementation of TEFA has proven to have a positive impact on students' competencies. Students gain real-world work experience that strengthens their technical skills in food processing, as well as non-technical skills such as time management, communication, responsibility, and teamwork. By adhering to industry standards, students become more disciplined and more prepared to face challenges in the professional workplace.

Up to 80% of graduates from the Culinary Arts program at SMKN 2 Kudus are immediately absorbed into the workforce upon graduation. Meanwhile, approximately 20% choose to continue their education at the university level or start their own businesses in the culinary field. This data reflects the effectiveness of TEFA in producing job-ready graduates while also fostering entrepreneurial spirit among students. This fact demonstrates the effectiveness of TEFA in developing a generation of excellent employees or entrepreneurs. This aligns with the statement by Sudrajat, Buditjahjanto, & Warju (2025) that TEFA has broad implications for how the learning process is designed, implemented, and evaluated, including a shift in approach from theoretical learning to practice-based learning and direct experience.

However, the implementation of TEFA is not without obstacles. Some of the challenges faced include limited practical materials when product demand increases, uneven mental readiness among students, and a lack of production space, which sometimes hinders work efficiency. To overcome these challenges, the school collaborates with industry partners to increase the supply of materials, provide regular job readiness training, and arrange practice schedule rotations so that every student gets a balanced experience. In daily practical activities, students are not only guided by teachers at school but also accompanied by industry representatives and experienced instructors with professional backgrounds in the culinary field. This mentoring is conducted collaboratively to ensure optimal knowledge transfer and provide students with a comprehensive understanding of workplace practices in the food and beverage industry.

Students in the TEFA program create a diverse range of products, including ready-to-eat meals, a variety of breads and pastries, and market-specific beverages. These products are marketed through various channels, both directly within the school environment and through digital platforms such as social media and local marketplaces. Product distribution is managed by students assigned to the logistics and customer service departments, enabling them to gain training in marketing and customer service. Fund management in TEFA is carried out transparently and responsibly. Funds obtained from product sales are reinvested

in purchasing raw materials, maintaining equipment, and as a form of appreciation for students actively involved in production activities. This financial system is supervised by supervising teachers and involves students in business management, serving as an additional learning tool in financial literacy and entrepreneurship.

In terms of task distribution, students in the Culinary Arts program do not solely focus on cooking activities. Learning activities are designed to resemble the work system in the culinary industry, with roles divided into procurement (stocking), food preparation (cooking), food presentation (plating), customer service, and transaction management (cashier). This division is structured to ensure that every student gains a comprehensive understanding of the entire operational process in the workplace.

Culinary Arts Department Curriculum

The Culinary Department at SMKS PGRI 2 Kudus implements the Merdeka Curriculum as the basis for its educational activities. This curriculum emphasizes the development of competencies, character building, and flexible learning tailored to the potential of each student. In the context of vocational schools, the Merdeka Curriculum also provides greater scope for integrating work-based learning and real-world projects, such as teaching factories.

The curriculum in the Culinary Department is based on the KOSP (Operational Curriculum for Educational Units) model. KOSP is a curriculum document developed independently by educational units, specifically schools, using the Merdeka Curriculum framework. This curriculum is designed with 39 considerations, including the characteristics of the educational unit, the needs of students, and the relevant environmental and work conditions. This model emphasizes flexibility and contextual learning to align with local needs and potential. In the Culinary Arts Department, this is particularly relevant due to its connection to the food service and hospitality industries. Through the KOSP, the Culinary Arts Department designs a curriculum structure that includes learning outcomes, learning objective sequences, and learning plans tailored to workplace needs.

The development of the curriculum in the Culinary Department involves both internal and external stakeholders within the school. Internal stakeholders include the Vice Principal for Curriculum, the Head of the Culinary Department, and productive teachers. External stakeholders collaborate with industry partners and the Djarum Foundation. The curriculum development process is carried out through synchronization forums involving industry representatives, such as hotels and culinary businesses. The results of this synchronization are submitted to the Djarum Foundation, which then facilitates curriculum development by providing facilities such as infrastructure and equipment, as well as mentoring and training for teachers. This involvement aims to ensure that the curriculum developed is truly relevant to the workplace's conditions and needs. Thus, the curriculum produced is not only in line with government regulations but also contextual to local needs and industry trends.

Curriculum revisions are conducted on a regular basis every year. Revisions are implemented based on the results of evaluations of the previous curriculum implementation, including feedback from teachers, students, and internal evaluations of learning outcomes. Additionally, changes in policies from the central government, including those from the Ministry of Education and Culture (Kemendikbudristem) and the Provincial Education Office, also serve as guidelines in the curriculum adjustment process. Any changes in government regulations will be reviewed and integrated into the KOSP document to ensure alignment with the national education system. Furthermore, the results of synchronization

with industry are also a major factor in curriculum revision. SMKS PGRI 2 Kudus, particularly in the Culinary Department, actively collaborates with industry partners and supporting institutions from the Djarum Foundation. This collaboration certainly has a positive impact on graduate achievements, as stated by Noviyanti, Sudirtha, & Widiartini (2023) that industry can provide input in curriculum development, be involved in supervising the learning process, and assess student work, thereby strengthening the principle of linking and matching the world of education and the world of work, which has been a challenge in Indonesia's vocational education system.

Through activities such as curriculum development and discussion forums, the school receives direct input on the latest skills and competencies required by the job market. This input is then used to update learning content, teaching methods, and evaluation models. This evaluation process is a crucial component of quality assurance efforts and adapting to the workplace's dynamics. With regular and systematic curriculum revisions, schools ensure that teaching materials, learning strategies, and student competency outcomes remain contextual, up-to-date, and adaptive to changes occurring in both the education sector and the professional workplace. Teachers become agents who can drive the advancement of Teaching Factories in their efforts to produce outstanding and competitive graduates. According to Sudrajat et al. (2025), teachers are required to possess an understanding of industrial processes and managerial skills; therefore, it is necessary to continuously improve teacher competence through training and internships in the industrial world. The Culinary Department features local content as its distinctive characteristic, including learning programs that emphasize competence in the fields of Hot Kitchen and Pastry & Bakery. This focus aligns with the needs of the hotel and restaurant industry.

Theoretical learning is delivered through PowerPoint presentations, instructional videos, and interactive discussions. This aligns with the concept of culinary arts in education. In the context of vocational education, culinary arts are understood as a discipline that integrates technical, aesthetic, managerial, and hygienic aspects in professional culinary production and service activities. Meanwhile, practical learning is carried out directly in teaching factories, practical laboratories, and production kitchens. Additionally, the curriculum is adapted to technological advancements, particularly in learning media, the use of modern cooking equipment, and digitalization in food service. Therefore, teachers are required to continuously update their knowledge and skills through training programs organized by the school and facilitated by the Djarum Foundation. This aims to ensure that graduates are not only professional but also technologically proficient when entering the workforce.

The Culinary Arts curriculum is designed with a strong orientation to the world of work. The development of course materials, teaching methods, and evaluation is designed to closely resemble real-world conditions in the food service and hospitality industries. Project-based learning, teaching factories, and industrial internships are examples of how the curriculum is aligned with the world of work. Students receive theoretical instruction during the first semester, followed by intensive practical training in the subsequent semester. Evaluation is conducted on a regular basis throughout both theoretical and practical instruction, ensuring a continuous learning process. This approach is considered effective in building conceptual understanding before students are exposed to real-world practice. The aim is for students not only to understand theory but also to be practically trained to work professionally.

The Competency-Based Assessment (UKK) in the Culinary Department at SMKS PGRI 2 Kudus is designed to reflect real-world workplace conditions, particularly in the food service and hospitality industries. The UKK is conducted in the form of a final project based on a theme, with the concept of “All You Can Eat,” which is structured to simulate food service in a starred hotel. This project is designed as a platform for students to demonstrate their competencies in all the skills they have learned during their education, including technical culinary skills, managerial skills, and work ethics. Each group of students is required to develop a culinary project with a specific theme, such as Indonesian cuisine, continental cuisine, modern desserts, or fusion food. The theme is determined by considering industry trends and alignment with the competencies possessed by the students.

The entire UKK implementation process is assessed collaboratively by an assessment team consisting of vocational teachers and industry assessors, one of whom is from Fatma Hotel, which has been an active partner in the implementation of the teaching factory. This collaboration ensures that the assessment not only reflects vocational education standards but also meets the expectations of the professional industry. The assessment is comprehensive, covering cognitive (knowledge), affective (attitude), and psychomotor (skills) aspects. In addition to their final grades, students who pass the exam also receive a certificate of competence from the industry, which can be used as a professional portfolio when applying for jobs in the real world. Through this project-based UKK assessment model, students are not only tested technically but also trained to think critically, work together in teams, plan, and communicate effectively, skills that are highly sought after in the modern workplace.

Teaching Factory Learning Facilities in the Culinary Department at SMK 2 PGRI Kudus

The culinary department at SMKS 2 PGRI Kudus is a consistent vocational program in developing a teaching factory (TEFA) based learning model. Through this approach, it bridges the gap between education and industry by incorporating real-world work practices into a school environment that simulates a professional culinary industry. One of the key factors in the successful implementation of TEFA is the availability of relevant, functional, and industry-standard learning facilities. Observations were conducted directly at the culinary department's practical units, involving interviews with the program head, productive teachers, and documentation of the facilities used by students in the implementation of TEFA. The learning facilities available to support learning in the culinary field include various equipment and practical rooms designed to resemble industrial kitchens.

Furthermore, the main facilities identified include a production kitchen (also known as a kitchen lab), which is based on various functions, such as a main kitchen, cold kitchen, hot kitchen, pastry kitchen, butcher kitchen, and fast food kitchen. In addition, cooking equipment such as convection ovens, mixers, deep fryers, chillers, freezers, and stoves is available with adequate facilities. For storage, there is a complete stock room with stainless steel shelves and controlled room temperature. The food packaging and display area, located on the upper floor, is adjacent to a café bar and cashier area for sales, featuring a simple point-of-sale system for transaction simulation and learning purposes. Other facilities include individual practice tables, clean sinks, restrooms for customers or visitors to the café and restaurant, and well-maintained cleaning supplies. This demonstrates that the general condition of the facilities adequately reflects the school's efforts to maintain an industrial environment suitable for teaching factory-style practical training.

The facilities described above are available and sourced from various collaborative partners, including school support through scholarships following the implementation of internal TEFA management, as well as industry partners in the local culinary and catering sectors, who provide equipment, cooking practice, training, tools, and other forms of assistance. The main beneficiaries of the educational program, named Jiva Bestari, which translates to "brave spirit," receive strategic support and contributions from the Djarum Foundation in the form of modern facilities, including infrastructure, practice rooms, and technical assistance in setting up production spaces according to culinary industry standards. This multi-stakeholder collaboration enables culinary programs to implement TEFA sustainably with adequate facilities. The availability of supporting facilities in TEFA enhances students' competitiveness, enabling them to work in accordance with industry SOPs after graduation. According to the increase in the number of vocational school graduates absorbed by the industry, learning should be aligned with industry needs, as most successful individuals in this field have a strong motivation to drive every learning activity using the TEFA learning model.

In terms of utilizing facilities for TEFA-based learning activities, the facilities are utilized optimally. Students not only practice cooking techniques but also participate in the entire production and food service process, encompassing menu planning and ingredient preparation, product production and packaging, customer service simulations, sales transaction management, and financial record-keeping. The facilities provided and supported by the Djarum Foundation's educational program are utilized in a rotating work schedule based on production group shifts. Meanwhile, the display section is operated by students according to a schedule established by the school. All processes are supervised by productive teachers and industry partners who serve as practical business mentors.

The learning facilities in the culinary department, particularly in terms of facility updates, are also adapted to industry developments. These facilities undergo regular and gradual updates through evaluations of new equipment needs, conducted at least once a year. The school and department actively engage in procurement activities, including workshops, mapping culinary industry trends in modern equipment, and seeking recommendations from industry partners to align equipment standards and work practices. This aligns with the findings of Sari, Giatman, & Ernawati (2022), who identified supporting factors in TEFA management as certified teachers, adequate facilities in an industrial environment, student readiness, scheduling, and industry collaboration. These factors significantly impact the development of potential and enhance the competencies of experts focused on industry-relevant skills. These updates demonstrate that the school is not passive but progressive in maintaining the relevance of its learning facilities to the dynamic changes in the industrial world.

Facility management and maintenance are also carried out in a detailed and structured manner, involving various parties. This is related to facility management, which includes important points such as SOPs for the use and cleaning of equipment used and applied to all students as part of a professional work culture. Furthermore, there is a weekly or monthly routine maintenance schedule for checking electronic equipment, a kitchen management team consisting of productive teachers and TEFA coordinators who are responsible for inventory and cleanliness in the culinary practice area, and finally, a system for reporting damage and replacing equipment to facilitate the identification of facility needs and updates.

Additionally, student involvement in facility maintenance activities is utilized as part of multidisciplinary, character-based learning.

Based on this, the learning facility support provided, as indicated by the results of observations, can be concluded to be effective in supporting the professional, effective, and efficient implementation of TEFA. Synergy and collaboration among schools, industry partners, and the Djarum Foundation have created a learning environment that mimics real-world work practices, allowing students to continue gaining comprehensive practical experience and enhancing their learning outcomes. However, several challenges also need to be considered in the sustainability of facility upgrades, including the accumulation and adaptation of teachers to sustainable facilities and infrastructure. Therefore, a sustainable approach to facility planning is crucial for improving human resource capacity and is an important strategy for maintaining the quality of TEFA implementation in the workplace and beyond.

D. Conclusion

The collaboration between SMK PGRI 2 Kudus and Djarum Foundation is strategic through a CSR program, which includes the construction of a teaching factory, teacher training, provision of practical facilities and infrastructure, and strengthening of industry-based curriculum. Meanwhile, collaboration between the school and the industrial world (DUDI) is achieved through the development of an adaptive curriculum, fieldwork practice (PKL), and the presence of guest teachers from professional circles. The implementation of the teaching factory in the culinary skills program is carried out through a selection process at the end of the even semester of grade X. The collaboration between the school, Djarum Foundation, and DUDI in developing the teaching factory has had a positive impact on improving students' technical and non-technical skills, as well as making students more prepared to face the professional world of work. This study emphasizes the importance of synergy among vocational education, the private sector, and DUDI in enhancing the quality of SMK graduates. The collaboration between SMK PGRI 2 Kudus, the Djarum Foundation, and industry partners serves as a best practice in creating a link and match between education and the needs of the workplace. The implementation of the teaching factory learning model has proven to provide contextual learning experiences and improve students' overall competence. However, several challenges remain in implementing the teaching factory, including limited practical materials, students' mental readiness, and limited space. These challenges have been overcome through strategic cooperation with industry partners, practical schedule arrangements, and intensive mentoring from teachers and professional instructors.

Based on the research results, there are several recommendations for various stakeholders, namely a) SMK PGRI 2 Kudus is expected to strengthen collaboration with the Djarum Foundation and industry partners so that the implementation of the teaching factory can be optimized. Evaluation appears to be essential for periodic assessment, particularly in relation to facilities, curriculum, and student involvement. The school can develop a business unit from the teaching factory as a learning medium and a source of income for program sustainability; b) teachers must improve their competencies through industrial training so that the learning provided is in line with work requirements. Teachers also need to strengthen soft skills, such as discipline, work ethic, and customer service, in the teaching factory learning process. This study is currently limited to one vocational

program and one school; therefore, further research can be conducted with a broader scope, either in terms of region, vocational program, or variations in collaboration forms.

Acknowledgment

We would like to express our gratitude to SMK 2 PGRI Kudus for allowing us to conduct observations and interviews as part of this study.

References

- Abshor, M. U. (2021). Pendidik transformatif: Antara disrupsi dan pandemi Covid-19. *Jurnal Intelektual: Jurnal Pendidikan dan Studi Keislaman*, 11(2), 173–186. <https://doi.org/10.33367/ji.v11i2.1846>
- Aini, Y. N., & Purba, Y. A. (2022). Analisis penyerapan tenaga kerja dan program link & match pada lulusan sekolah menengah kejuruan (SMK) program kelautan & perikanan. *Jurnal Kebijakan Sosial Ekonomi Kelautan dan Perikanan*, 12(1), 23. <https://doi.org/10.15578/jksekp.v12i1.10339>
- Badan Pusat Statistik. (2025). Tingkat pengangguran terbuka berdasarkan tingkat pendidikan, 2024. BPS.
- Febriani, I., Nurjanah, N., & Setiawati, T. (2021). Kreativitas kuliner dalam pembelajaran teaching factory peserta didik SMK tata boga se-Malang Raya. *Jurnal Ilmiah Pendidikan dan Pembelajaran*, 5(3), 465. <https://doi.org/10.23887/jipp.v5i3.38010>
- Gozali, G., Dardiri, A., & Soekopitojo, S. (2018). Penerapan teaching factory jasa boga untuk meningkatkan kompetensi entrepreneur siswa sekolah menengah kejuruan. *JSHP (Jurnal Sosial Humaniora dan Pendidikan)*, 2(1), 46. <https://doi.org/10.32487/jshp.v2i1.264>
- Irsyad, & Effendi, A. F. (2023). Manajemen teaching factory di SMK: Masalah dan tantangannya. *Innovative: Journal of Social Science Research*, 3(5).
- Noviyanti, E., Sudirtha, I. G., & Widiartini, N. K. (2023). Pengaruh pembelajaran teaching factory (TEFA) berbasis model project based learning (PjBL) untuk meningkatkan inovasi produk cake dan kue Indonesia (PCKI) melalui kreativitas peserta didik. *Penelitian dan Evaluasi Pendidikan Indonesia*, 13(1), 77–89.
- Nugroho, P., Utomo, M., Turijin, Sugiarta, Rahayu, E. S., Syah, M., & Wicaksono, W. (2023). Panduan teaching factory sekolah menengah kejuruan (W. Wicaksono & H. Abror, Eds.). Direktorat Sekolah Menengah Kejuruan.
- Prasloranti, Z. P., Bukit, M., & Maharani, S. (2021). Evaluasi pelaksanaan model pembelajaran teaching factory di SMKN 1 Cibadak. *Edufortech*, 6(2). <https://doi.org/10.17509/edufortech.v6i2.39294>
- Purwanto, A., Novitasari, D., & Asbari, M. (2022). The role of leadership, the teaching factory (TEFA) program, competence in creative products, and entrepreneurship on the entrepreneurial interest of vocational school students. *International Journal of Social and Management Studies*, 3(5), 58–64.
- Rohmah, W., Suyatmini, S., Hasanah, U. U., & Setiyana, B. E. (2021). Pola pembelajaran akuntansi sekolah menengah kejuruan dengan mengadopsi teaching factory. *Jurnal Pendidikan Ilmu Sosial*, 31(2), 74–81. <https://doi.org/10.23917/jpis.v31i2.15395>
- Sari, A. K., Giatman, M., & Ernawati, E. (2022). Manajemen pembelajaran teaching factory dalam meningkatkan kompetensi keahlian siswa jurusan tata kecantikan di sekolah menengah

- kejuruan. *JRTI (Jurnal Riset Tindakan Indonesia)*, 7(2), 148. <https://doi.org/10.29210/30031696000>
- Sobari, M., Wahyudin, D., & Dewi, L. (2023). Keterlibatan industri dalam pengembangan kurikulum pada tingkat SMK. *Journal of Education and Development*, 11(3), 230–238. <https://doi.org/10.37081/ed.v11i3.4771>
- Sudrajat, S. C., Buditjahjanto, I. G. P. A., & Warju, W. (2025). The effects of responsibility and empathy on customer satisfaction in teaching factory learning. *Edunesia: Jurnal Ilmiah Pendidikan*, 6(1), 535–549. <https://doi.org/10.51276/edu.v6i1.1142>
- Ulfah, U., Supriani, Y., & Arifudin, O. (2022). Kepemimpinan pendidikan di era disrupsi. *JIP – Jurnal Ilmiah Ilmu Pendidikan*, 5(1), 153–161. <https://doi.org/10.54371/jiip.v5i1.392>
- Wati, L. F., & Efi, A. (2021). Design of e-module based on discovery learning in basic boga students of class X tata boga in SMK Negeri 1 Beringin. *Jurnal Pendidikan Teknologi Kejuruan*, 4(1), 8–18. <https://doi.org/10.24036/jptk.v4i1.17123>