Al-Ishlah: Jurnal Pendidikan
Vol.18, 1 (March, 2026), pp. 1018-1030
ISSN: 2087-9490 EISSN: 2597-940X, DOI: 10.35445/alishlah.v18i1.9120

Managing Teaching Factory Implementation in Culinary Vocational Education: A POAC-Based Case Study in Indonesia

Amelia Desri Junelti[1], Muhammad Giatman[2], Elida[3], Kasmita[4]

[1]Universitas Negeri Padang, Padang, Indonesia; ameliade38@gmail.com
[2]Universitas Negeri Padang, Padang, Indonesia; giatman@ft.unp.ac.id
[3]Universitas Negeri Padang, Padang, Indonesia; 11111961@fpp.unp.ac.id
[4]Universitas Negeri Padang, Padang, Indonesia; kasmita70@fpp.unp.ac.id

ARTICLE INFO

Keywords:

teaching factory;
vocational education;
culinary program;
school management;
POAC

Article history:

Received 2025-12-08
Revised 2026-01-18
Accepted 2026-03-31

ABSTRACT

Vocational high schools (SMK) play an important role in preparing skilled workers in Indonesia. However, many graduates still face difficulties entering the job market. This study aims to explore the implementation of the Teaching Factory (TeFa) model in the culinary department at SMKN 2 Pariaman and to examine stakeholders' perceptions of its influence on students' work readiness. Employing a descriptive qualitative single-site case study design, data were collected through interviews, observations of learning and production activities, and analysis of relevant institutional documents. The study involved seven informants, including the school principal, the head of the TeFa unit, three productive teachers in the culinary department, and two students directly participating in the TeFa program. Data were analyzed using the POAC (Planning, Organizing, Actuating, and Controlling) framework. The findings reveal that TeFa implementation faced several challenges, particularly informal planning processes, a suboptimal organizational structure, limited management of human resources, and inadequate facilities. Nevertheless, participants perceived positive outcomes of the TeFa program, such as improved practical skills, work discipline, and self-confidence among students, although these outcomes were not supported by standardized competency measurements. Despite its perceived benefits, high teacher workloads and limited infrastructure constrained optimal implementation. This study recommends strengthening formal planning, enhancing collaboration with industry partners, and integrating entrepreneurial aspects into learning activities. The findings provide context-specific insights for vocational school administrators and policy makers seeking to improve Teaching Factory implementation and better align vocational education with industry needs.

Corresponding Author:
Amelia Desri Junelti
Universitas Negeri Padang, Padang, Indonesia; ameliade38@gmail.com

1. INTRODUCTION

Vocational high schools (VHS) play a very important role in addressing labor and human resource development issues in Indonesia (Fahlefi, 2025; Rosana et al., 2025). Unlike public schools, which focus

more on theory and academic knowledge, SMKs offer more practical and applicable education. The programs offered at SMKs are designed to meet the needs of industry and the ever-evolving world of work (Rongmin & Fah, 2024). In this context, SMK graduates are expected to possess both technical competencies and employability skills that support a smoother transition into employment, rather than merely theoretical knowledge. However, several national reports and policy discussions indicate a persistent mismatch between vocational education outcomes and industry needs, suggesting the need for systemic improvements in vocational education programs.

One strategic approach to addressing this mismatch is strengthening curriculum relevance and learning models that closely reflect real industrial practices (Yoto, Marsono, Suyetno, et al., 2024). In addition, the learning approach in vocational schools must be more practical and work-oriented. For example, by increasing internship programs, collaborating with companies, and using technology and equipment that meet industry standards (Bidandari et al., 2024; Supraptono et al., 2018; Yoto et al., 2024). Such approaches are expected to enhance students' work readiness, defined in this study as a combination of technical skills and employability attributes such as discipline, teamwork, and work attitudes. Therefore, Teaching Factory (TeFa) has emerged as a model that integrates learning in school with direct experience in the industrial world.

Teaching Factory (TeFa) is defined as a production-based learning model in vocational education that integrates instructional activities with real or simulated industrial production processes. TeFa is regarded as a systemic educational innovation that links learning in vocational high schools with industry needs (Imran et al., 2024; Isnantyo et al., 2024). The implementation of this model has shown a significant improvement in efforts to align the vocational high school curriculum with the demands of the job market. The TeFa program is designed to provide a more realistic and practical learning experience for vocational high school students by integrating the learning process at school with hands-on practice in industry (Maksum et al., 2025; Widiatna et al., 2025). Thus, students not only gain theoretical knowledge but also practical skills relevant to current industry needs. Production-based learning implemented in the Teaching Factory allows students to manage real projects that prepare them for the challenges of the working world.

However, the effectiveness of TeFa largely depends on how the program is managed, particularly in terms of planning, organization, implementation, and control (Brown & Jones, 2025). POAC (Planning, Organizing, Actuating, and Controlling) is a management framework used in this study to analyze how Teaching Factory activities are designed, executed, and evaluated. Without proper management, the processes and outcomes of Teaching Factory activities can be hampered, resulting in reduced effectiveness and efficiency (Sahdu, 2024; Saputro et al., 2021). Research by Santoso et al. (2021) shows that the application of POAC (Planning, Organizing, Executing, Controlling) management in Teaching Factories can improve student competence and the quality of products and services produced. Nevertheless, empirical evidence on how POAC is applied specifically in culinary Teaching Factory programs within Indonesian vocational schools remains limited.

SMK Negeri 2 Pariaman, located in West Sumatra, is one of the schools that has implemented the Teaching Factory since 2019, particularly in the culinary department. Through the "Tefa Maichin" program, students are involved in the production of foods such as rendang fish balls and fish sala pizza, as well as other products such as snack boxes and rice boxes. This case is particularly relevant because it combines local culinary products, a school-based revenue-generating model, and intensive teacher involvement within a formal vocational learning setting. In addition to supporting student skill development, the Teaching Factory also contributes financially to the school. However, managerial challenges—including informal planning, limited human resources, scheduling conflicts, and inadequate facilities—have affected the sustainability and effectiveness of the program.

Based on preliminary interviews with school stakeholders, several issues persist in the implementation of the Teaching Factory at SMK Negeri 2 Pariaman, particularly related to organizational structure, role distribution between teachers and students, and facility limitations. Teachers often perform dual roles as instructors and production supervisors, resulting in high workloads that may interfere with

instructional quality. Inadequate facilities and equipment that do not fully meet industry standards further constrain production quality and learning effectiveness.

Although the Teaching Factory provides valuable practical learning opportunities, tracer study data at SMK Negeri 2 Pariaman indicate that many culinary graduates are not yet fully absorbed into jobs aligned with their field of expertise. This suggests that gaps between vocational training and employment outcomes remain, highlighting the importance of evaluating Teaching Factory implementation not only from a learning perspective but also from a management standpoint.

This study addresses a research gap concerning the limited evidence on Teaching Factory management processes in culinary programs using the POAC framework within Indonesian vocational high school contexts. Accordingly, this study aims to explore the management of the Teaching Factory at SMK Negeri 2 Pariaman in developing students' culinary competencies. The research is guided by the following questions: (1) How is the Teaching Factory planned, organized, implemented, and controlled based on the POAC framework? (2) What managerial barriers and enabling conditions influence Teaching Factory implementation? (3) How do stakeholders perceive the effects of the Teaching Factory on students' learning experiences and skill development?

2. METHODS

2.1 Research Methods

This study uses a case study approach with a qualitative descriptive research design. The purpose of this approach is to gain a deep understanding of how individuals construct their reality, particularly in explaining how the world is perceived, organized, and interpreted in the context of everyday life, including their interactions with others (Ulfah et al., 2025). In this study, a case study was conducted to explore information about school management in improving students' culinary skills through the implementation of the Teaching Factory Program at SMK Negeri 2 Pariaman. This program aims to equip students with skills relevant to industry needs, thereby improving the quality of vocational education at the school.

2.2 Research Subject

This research was conducted at SMK Negeri 2 Pariaman, with the object of research being Teaching Factory learning in the culinary department. To obtain representative and in-depth data, this study used purposive sampling, which is the planned and purposeful selection of informants (Tajik et al., 2025). This approach was chosen to ensure the inclusion of participants with strategic, managerial, instructional, and experiential perspectives relevant to the research objectives (Ahmad & Wilkins, 2025). Informants were selected based on their functional roles within the Teaching Factory system, including the principal and the head of the Teaching Factory to represent planning and control functions, productive culinary teachers to represent organizing and implementation processes, and students to capture learning and skill development experiences. Data collection continued until data saturation was achieved, as indicated by recurring themes and no new information emerging in the later interviews. Saturation was reached after interviewing seven informants, which was considered sufficient for this single-site qualitative case study. Data were obtained through interviews with seven informants, namely the principal, the head of the teaching factory, three productive teachers from the culinary department, and two students at SMK Negeri 2 Pariaman.

Table 1. Informants of the Study

Informant Group	Contribution	Number of Informants
Headmaster	Coordinate and control all Teaching Factory activities, including technical control and policy issuance that supports this program.	1
TEFA Unit Manager	Responsible for the operational activities of the Teaching Factory in the culinary department, including planning, production procedures, and quality control.	1
Culinary Productive Teachers	Assisting with production and learning implementation in the Teaching Factory, including recording production activities and carrying out tasks according to plan.	3
Students	Directly involved in production and service activities at the Teaching Factory, as well as responsible for cleanliness, sanitation, and time and stock management.	2
	Total	7

2.3 Research Instruments

The research instruments in this study consisted of primary and auxiliary instruments. As the primary instrument, the researcher played a direct role in data collection and analysis, supported by theory and insights related to Teaching Factory management. The auxiliary instruments used included semi-structured interview guidelines, recording devices, and cameras. The interview guidelines were used to elicit in-depth information from informants. Recording devices and cameras serve to document interviews and observations, ensuring that the data collected is accurate and can be further analyzed. In addition, observation guides are used to observe the learning process directly, and documentation formats are used to collect secondary data in the form of documents and photos of activities.

The research instrument grid was designed to ensure systematic data collection covering all aspects relevant to Teaching Factory management. The instruments were designed to explore information about the planning, organization, implementation, and supervision of the program, which would then be analyzed to understand its impact on the culinary skills of students at SMK Negeri 2 Pariaman. Table 2 shows the research instrument grid used to ensure that all aspects to be studied were adequately covered and in line with the research objectives.

Table 2. Research instrument guidelines

Aspect	Indicator	Instrument
Planning	1) Strategic Planning - Establishing the vision, mission, and objectives of the Teaching Factory - Identifying industry needs - Planning facilities, infrastructure, and human resources 2) Operational and financial planning	Interview guide, documentation, and observation
Organizing	Organizational Structure: - Division of duties and authority - Efficient resource management	Interview guide
Actuating	Production Implementation: - Production process from raw materials to final products - Student involvement in the production process	Documentation, and observation
Controlling	Operational and financial performance monitoring: - Monitoring product quality and student work results - Evaluation and follow-up improvements	Interview guide

2.4 Data Collection

This study uses field research methods to collect data directly related to the research topic (Taherdoost, 2021). Observations were conducted over a three-month period during routine learning and production activities in the culinary department, focusing on instructional processes, production workflows, and teacher–student interactions. Semi-structured interviews were also carried out with key informants, including the principal, the head of the Teaching Factory unit, productive culinary teachers, and students. Each interview lasted approximately 30–60 minutes and was conducted on-site.

Documentation was used to support and triangulate the primary data. Reviewed documents included Teaching Factory schedules, standard operating procedures (SOPs), production records, memoranda of understanding (MoUs) with industry partners, and internal reports related to resource use and production outcomes. In addition, library research was conducted to examine relevant theories and prior studies on Teaching Factory implementation, vocational education management, and the POAC framework, providing a strong theoretical basis for data analysis and interpretation (Savin-Baden & Major, 2023).

2.5 Data Analysis

Data analysis in this study was conducted using a qualitative content analysis approach to systematically transform raw data into meaningful findings. The analysis began with data preparation and familiarization, in which interview transcripts, observation notes, and institutional documents were transcribed, organized, and repeatedly reviewed to gain an in-depth understanding of Teaching Factory (TeFa) implementation in the culinary department. Initial open coding was then applied to identify meaningful units of data that reflected management practices, activities, and interactions related to TeFa. These codes were derived directly from participants' statements and observed practices to maintain closeness to the empirical data.

In the next stage, the initial codes were grouped into analytical categories based on the POAC (Planning, Organizing, Actuating, and Controlling) management framework (Santoso et al., 2021; Ulfah et al., 2025). Codes related to curriculum alignment, industry collaboration, and production planning were classified under Planning, while those concerning role distribution, coordination mechanisms, and organizational structure were categorized as Organizing. Data reflecting the implementation of learning activities, student involvement in real production processes, and industry-standard work practices were analyzed under Actuating. Meanwhile, supervision, evaluation procedures, quality control, and feedback mechanisms were categorized under Controlling. This categorization enabled a structured and theory-driven analysis of Teaching Factory management.

The analytical process followed the interactive model proposed by Miles and Huberman, consisting of data reduction, data display, and conclusion drawing. Data reduction was carried out by selecting and synthesizing relevant information within each POAC dimension, while data display was achieved through thematic narratives and comparative matrices across data sources. Conclusions were drawn iteratively by interpreting patterns and relationships within the data and linking them to relevant theories and previous studies. To ensure the credibility and trustworthiness of the findings, source, method, and theory triangulation were applied by comparing interview, observation, and document data as well as multiple theoretical perspectives.

3. FINDINGS AND DISCUSSION

3.1. Findings

Based on interviews with the Principal, Head of the Teaching Factory, teachers in strategic positions, and students, a picture emerged regarding the implementation and development of the Teaching Factory program. In general, the implementation of this program still faces a number of obstacles that require serious attention in order to run optimally and provide maximum results in

shaping student competencies. One of the main obstacles identified is the unavailability of formal documents such as official assignment letters, job descriptions, and clear work schedules. This has resulted in the division of tasks and coordination between teachers and students in Teaching Factory activities being informal and unsystematic, which ultimately impacts the effectiveness of the program's implementation.

In addition, the workload of teachers is a significant challenge, as most teachers have to take on various roles, such as head of the Teaching Factory, treasurer, equipment manager, and operations manager. This condition causes fatigue among teachers and has the potential to reduce their productivity in guiding students optimally. From the students' perspective, it was found that their involvement in the production process is still limited. Many students are afraid of making mistakes and tend to rely on help and direction from teachers. In addition, there are complaints about long working hours and a lack of motivation among some students in carrying out the tasks assigned to them.

Other obstacles are related to facilities and infrastructure, where the laboratory space used must be shared with other practical activities, so that the available capacity and equipment are not sufficient to support the learning and production processes optimally. This has an impact on the limited opportunities for students to master skills optimally. In terms of financial management, the school has not fully implemented a formal fund management system such as BLUD, so that budget management is still carried out in a simple and unsystematic manner. Nevertheless, the school and Teaching Factory management have developed a follow-up plan that focuses on increasing human resource capacity through training, improving facilities and infrastructure, and reorganizing management and task distribution in a more clear and structured manner. Strengthening partnerships with industry is also one of the keys to improving the quality and relevance of the Teaching Factory program.

Specific findings based on POAC management theory:

3.3.1 Planning

Theme 1: Teaching Factory Planning as a Quality Improvement Strategy

Findings indicate that the teaching factory (TeFa) at SMK Negeri 2 Pariaman is understood by school leaders as a strategic effort to improve the quality of vocational education. The principal stated that *"The teaching factory plan was developed collaboratively as a strategy to strengthen students' skills in line with regional needs."* However, he also acknowledged that "*there is no specific vision and mission document for the teaching factory; it still refers to the school's general vision."* This indicates that long-term planning has not yet been formally documented.

Theme 2: Product Selection Based on Local Potential but Weak Financial Planning

From the head of the teaching factory's perspective, superior products were selected by considering local resources and market demand. He explained that *"products such as Rendang Bakso Ikan and Pizza Sala Ikan were chosen because the ingredients are locally sourced and currently in high demand."* However, he admitted that *"teachers and students still have many weaknesses in financial management, especially in calculating capital and profit."*

This view is reinforced by productive teachers, who stated that *"there is a production proposal, but the financial details have not been clearly prepared, so calculating costs and profits is often confusing."*

Theme 3: Limited Industry Involvement and Evaluation Planning

Industry involvement at the planning stage remains limited. The head of the expertise program noted that *"the MoU with industry partners has expired and has not yet been renewed."* Consequently, schools lack updated input related to industry standards. A student emphasized this need by stating, *"If industries were involved in providing assessments or advice, we would better understand real workplace standards."*

Theme 4: Schedule Synchronization Issues

Planning has not fully synchronized production activities with academic schedules. A productive teacher stated that *"production schedules often conflict with classroom learning."* This was confirmed by a student, who said, *"When production is busy, we spend more time in the kitchen than in theory classes."*

3.3.2 Organizing

Theme 1: Formal Organizational Structure with Implementation Constraints

The organizational structure of the teaching factory has been formally established. According to the principal, *"The organizational structure is already in place so that teaching factory activities can run smoothly."*

However, the head of the teaching factory acknowledged implementation challenges, stating that *"Human resources are limited, so many teachers must carry multiple responsibilities."*

Theme 2: Role Overlap and Teacher Workload

Productive teachers confirmed this condition by stating, *"We teach, guide practice, and manage production at the same time, which can be overwhelming."* This situation leads to overlapping roles and reduced effectiveness.

Theme 3: Limited Student Involvement

From the students' perspective, participation is restricted to a weekly duty system. One student explained, *"We are assigned weekly, but not all students get the same opportunity."*

Teachers also admitted that *"coordination is still one-way, and students are not yet involved in production decision-making."*

3.3.3 Actuating

Theme 1: Implementation of Production-Based Learning

The teaching factory is implemented through hands-on learning that simulates real industry practices. The principal stated that *"This teaching factory was designed so students can experience real working conditions, not just classroom theory."*

However, he also noted that "we are still searching for the most suitable format so that theory and practice do not interfere with each other."

Theme 2: Unequal Practice Opportunities and High Workload

The head of the teaching factory explained that *"Not all students receive equal opportunities; some have participated several times, while others only once."*

A productive teacher added that *"We often feel overwhelmed because we must teach theory and supervise production simultaneously."*

Theme 3: Student Readiness and Entrepreneurial Gaps

Students expressed mixed experiences. One 11th-grade student stated, *"We enjoy practicing directly, but often feel confused because there is no specific briefing beforehand."*

Another student mentioned emotional pressure, saying, *"When production orders increase while schoolwork piles up, it becomes stressful."*

Teachers admitted that *"Students are still mostly involved only in production, not in pricing, promotion, or financial recording."*

3.3.4 Controlling

Theme 1: Evaluation without Standardized Instruments

The principal stated that *"Annual evaluations are conducted, but there is no specific instrument for teaching factory assessment."*

Similarly, the head of the teaching factory explained that *"Evaluation focuses more on production efficiency than on students' entrepreneurial competencies."*

Theme 2: Informal Daily Evaluation and Lack of Documentation

Productive teachers described that *"After production, we usually reflect on cleanliness, teamwork, and discipline."* However, they admitted that *"These reflections are not documented, making follow-up improvements difficult."*

Theme 3: Subjective Assessment and Limited Feedback Transparency
Assessment is largely observation-based. A teacher stated, *"We assess without formal rubrics, so the results can be subjective."*
From the students' perspective, feedback is unclear, as one student said, *"We only receive verbal feedback and never see written evaluation results."*

Theme 4: Absence of Industry-Based Control
The principal acknowledged that *"Collaboration with industry partners has ended, so external evaluation based on industry standards is unavailable."*
As a result, evaluation outcomes are rarely translated into policy changes. A teacher noted that *"Evaluation results are discussed in meetings but are rarely followed up in practice."*

To provide a clearer overview of the research results, the key findings are synthesized into a visual matrix that highlights patterns across management functions. Table 3 presents how planning, organizing, actuating, and controlling were implemented in the teaching factory, along with supporting qualitative evidence and the main gaps identified. The matrix format allows readers to compare strengths and weaknesses in each management stage quickly and to understand how these factors influence the effectiveness of teaching factory practices in strengthening students' culinary skills.

Table 3. Summary Matrix of Key Findings

POAC Aspect	Theme	Evidence	Management Implication
Planning	Teaching factory as a strategic quality improvement program	*"The teaching factory plan was developed collaboratively to strengthen students' skills in line with regional needs."*	Formalize teaching factory strategy in a specific vision and mission document.
	Product selection based on local potential	*"Products were chosen because the ingredients are locally sourced and in high market demand."*	Strengthen linkage between local potential and market-oriented learning.
	Weak financial planning integration	*"Financial details are not yet clearly prepared, making cost and profit calculations difficult."*	Integrate structured financial planning and basic accounting into TeFa learning.
	Limited industry involvement	*"The MoU with industry partners has expired and has not been renewed."*	Renew DUDI collaboration to align planning with industry standards.
	Schedule misalignment	*"Production schedules often conflict with classroom learning."*	Synchronize TeFa schedules with the academic timetable.
Organizing	Formal structure with limited effectiveness	*"The organizational structure is already in place to support teaching factory activities."*	Strengthen operational implementation beyond formal structure.
	Role overlap due to limited human resources	*"We teach, supervise practice, and manage production at the same time."*	Add supporting staff or redistribute tasks to reduce teacher workload.
	Limited student participation in management roles	*"Students are only involved during weekly production duties."*	Expand student roles in planning, decision-making, and evaluation.
Actuating	Production-based learning implementation	*"Students are trained to experience real working conditions, not just classroom theory."*	Maintain production-based learning as core teaching strategy.

	Unequal practice opportunities	*"Some students participate several times, while others only once."*	Improve rotation system to ensure equal practice exposure.
	Limited entrepreneurial learning	*"Students are mostly involved in production, not pricing or bookkeeping."*	Integrate entrepreneurship competencies into daily TeFa activities.
Controlling	Evaluation without standardized instruments	"Annual evaluations are conducted, but there is no specific teaching factory instrument."	Develop structured evaluation indicators and rubrics.
	Informal and undocumented daily evaluation	*"Reflections are done after production, but they are not documented."*	Establish written evaluation and follow-up documentation.
	Subjective assessment and limited feedback	*"We only receive verbal feedback and do not know our evaluation results."*	Improve transparency through written feedback and assessment reports.
	Lack of external (industry) control	*"There is no current industry collaboration for evaluation."*	Involve industry as an external evaluator for quality assurance.

3.2 Discussion

The implementation of the Teaching Factory (TeFa) program at SMK Negeri 2 Pariaman has contributed to strengthening students' technical culinary competence, as reflected in improved product quality, more consistent adherence to standard operating procedures, and positive internal customer feedback from school-based consumers. These findings are in line with broader evidence that well-managed TeFa can enhance the technical skills, soft skills, and work readiness of vocational students (Imran et al., 2024; Tanjung et al., 2025). However, this case also confirms what TeFa management studies underline: management remains a critical bottleneck, especially in planning, organizing, execution, and control (Tutty et al., 2025; Widiatna et al., 2025).

Formally, the school has established a TeFa organizational structure and written procedures, yet implementation often relies on informal task-sharing and unwritten routines. This "structure-on-paper versus practice" gap, including the absence of clear job descriptions and documented task distribution, weakens accountability and process reliability (Ogur, 2023). Similar discrepancies between formal design and actual practice are reported in other TeFa settings, where limited documentation, ad hoc coordination, and underused management tools reduce the effectiveness of otherwise promising models (Marniati et al., 2020; Yoto et al., 2024).

From a management perspective, several resource and governance issues—such as fragmented financial planning, expired or weakly activated Memorandums of Understanding (MoUs), and limited systematic involvement of industry partners in curriculum design and assessment—hamper the operational effectiveness of the program and its alignment with labor market needs (Dewi et al., 2025; Wahyudin et al., 2025). At the same time, the case demonstrates that even partially implemented TeFa management can still improve students' perceived confidence and work readiness, echoing studies that find positive but uneven impacts when management and partnerships are not fully optimized (Anggitan & Gunadi, 2025; Dwijayanthi & Rijanto, 2022).

In terms of learning outcomes, the program has been effective mainly at the level of technical and service competence. Internal competency rubrics used by teachers show that most participating students meet or exceed minimum standards in food preparation, hygiene, and basic customer service, which mirrors quantitative evidence from other Indonesian and international TeFa studies reporting gains in technical skills, employability, and occupational future time perspective (Anggitan & Gunadi, 2025; Imran et al., 2024). However, consistent with the literature on entrepreneurship-oriented TeFa and production unit models, the results are much weaker for entrepreneurial and business

competencies (Fitriawati et al., 2025). Students' limited exposure to cost calculation, pricing, marketing, and competition analysis leads to a narrow understanding of the full value chain, similar to patterns observed in other vocational schools where TeFa is run primarily as a practice workshop rather than as an integrated, school-based enterprise (Patria et al., 2024; Puspita et al., 2020).

The issues identified at SMK Negeri 2 Pariaman are not unique to this school but resonate with patterns reported in other cases in Indonesia and abroad. Research on TeFa management and production unit governance shows that weak or under-formalized management practices—particularly in planning, documentation, and monitoring—often undermine otherwise solid technical learning environments (Marniati et al., 2020; Widiatna et al., 2025). At the same time, comparative work on TeFa and school–industry collaboration in various contexts shows that when planning is explicitly based on industry standards, supported by documented roles, and embedded in continuous feedback loops with industry, TeFa can substantially improve graduates' competence and employability. Thus, the present case should be read as an analytical generalization from one setting to broader TeFa management theory, rather than as a statistical generalization to all vocational schools (Aji et al., 2025; Wahyudin et al., 2025).

Several practical implications emerge from this analysis. First, a more formalized planning process is needed, including a written vision and mission for TeFa, explicit competency targets (technical, service, and entrepreneurial), and an integrated financial plan that links production activities with budgeting for ingredients, equipment maintenance, and revenue allocation (Dewi et al., 2025; Tutty et al., 2025). Second, the school would benefit from a clearer scheduling integration model: for example, block scheduling or dedicated TeFa days that align production cycles with the academic timetable, as demonstrated effectively in other vocational schools. Such a model should be accompanied by workload redistribution for teachers and staff, with explicit time allocations for TeFa preparation, supervision, and evaluation to reduce reliance on informal extra work (Widiatna et al., 2025).

Third, the case underlines the need for an explicit industry feedback loop. Rather than treating MoUs as a one-off requirement, schools can institutionalize periodic joint reviews with industry partners to discuss product quality, service standards, and graduate performance, using feedback to adjust curricula, job sheets, and assessment rubrics (Aji et al., 2025; Tanjung et al., 2025). This approach is consistent with international TeFa/TVET models that emphasize continuous industry–school dialogue as a precondition for relevance and sustainability.

Fourth, entrepreneurship education should be integrated into TeFa as a structured module rather than an incidental add-on. Drawing on evidence that production unit–based TeFa can foster entrepreneurial intentions and startup creation, schools could embed activities such as basic bookkeeping for each production cycle, simple break-even analysis, market surveys among local consumers, and reflection sessions on pricing and competition (Pamungkas et al., 2025). This would help close the gap between technical skill mastery and business acumen, preparing students both for employment and self-employment, as recommended in recent TeFa management and entrepreneurship-focused reviews (Tutty et al., 2025).

This study has several important limitations that constrain the scope of its conclusions. The student sample is relatively small and drawn only from the culinary program in a single vocational school, which limits the transferability of the findings to other departments or institutions with different industry characteristics (Tutty et al., 2025). In addition, the voices of external stakeholders—especially industry partners, alumni, and external customers—are under-represented; most of the data come from internal actors (school leaders, teachers, and current students), which may introduce social desirability bias and an overly positive picture of outcomes (Wahyudin et al., 2025). The heavy reliance on qualitative interviews and observations, with limited use of standardized outcome measures (such as externally benchmarked competency tests or structured customer satisfaction surveys), also restricts the strength of claims that can be made about improvements in work readiness and employability (Imran et al., 2024).

Future research on TeFa management at SMK Negeri 2 Pariaman and comparable schools could address these gaps by triangulating student self-reports with tracer studies, employer evaluations, and objective performance data (e.g., competency rubric scores before and after TeFa, external product quality audits, and systematic customer feedback). Studies could also compare alternative scheduling and workload models (e.g., block vs. integrated scheduling, centralized vs. distributed production management) to assess their impact on both management quality and student outcomes, as suggested by recent work on production unit–based TeFa and link-and-match frameworks. Moreover, including multiple departments and schools with varying levels of industry involvement would enable more robust analytical generalization to TeFa management theory, while still avoiding overgeneralization beyond the specific cases studied.

4. CONCLUSION

The implementation of the Teaching Factory (TeFa) model at SMK Negeri 2 Pariaman demonstrates notable strengths in providing authentic production-based learning and promoting local culinary product innovation, which contribute positively to students' practical skill development and work readiness. However, this study identifies several key weaknesses across the POAC management functions, including limited formal documentation in planning, high teacher workloads and role overlap in organizing, scheduling conflicts during implementation, and weak evaluation systems due to the absence of standardized assessment rubrics and industry-based feedback. To address these challenges, several actionable improvements are recommended. These include the development of standard operating procedures (SOPs) to strengthen managerial consistency, the renewal of industry Memorandums of Understanding (MoUs) to align curriculum and assessment with workplace standards, the implementation of rubric-based competency assessments supported by systematic documentation, and the integration of entrepreneurship learning components such as pricing, cost calculation, marketing, and profit–loss analysis to enhance both employability and self-employment competencies. This study is based on a single-case analysis, and therefore its findings should be interpreted as analytical generalization rather than statistical generalization. Future research is encouraged to conduct multi-site comparative studies, incorporate industry and alumni perspectives, and apply longitudinal approaches to measure graduate employability and career outcomes, in order to strengthen the empirical foundation of Teaching Factory implementation in vocational education.

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