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Implementation Of Teaching Factory As An Effort To Improve Graduates' Competence At State Vocational School 10 Luwu

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Abstract

This study aims to describe the implementation of the Teaching Factory (TeFa) in improving graduate competence at SMK Negeri 10 Luwu and to identify supporting and inhibiting factors. This research addresses the gap between vocational school graduates' competencies and the demands of the industrial world. A qualitative descriptive approach with a case study design was used. Data were collected through in-depth interviews, non-participant observations, and document analysis. Informants included the school principal, vocational teachers, active TeFa students, industry partners, and alumni. The results show that TeFa contributes significantly to the enhancement of technical skills, professional work attitudes, and entrepreneurial mindsets. Supporting factors include industry collaboration, teacher training, and school leadership. Inhibiting factors involve limited facilities and fluctuating student interest. The study concludes that Teaching Factory is an effective contextual learning model bridging vocational education and industrial demands, particularly in regional areas.

Keywords: Teaching Factory, graduate competence, vocational education, industry collaboration, SMK Negeri 10 Luwu

INTRODUCTION

Background of the Problem

Vocational education in Indonesia plays a strategic role in preparing competent human resources who are ready for work. Vocational high schools (SMK) aim to equip students with both

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technical and professional skills, enabling them to enter the workforce, pursue higher education, or become entrepreneurs upon graduation. SMK curricula emphasize not only theoretical knowledge but also practical training and real work experience.

However, based on data from the Central Statistics Agency (BPS) as of August 2024, the open unemployment rate (TPT) among SMK graduates reached 9.01%, the highest among all education levels. Furthermore, only 35.4% of SMK graduates are employed in fields related to their competencies. These figures indicate a mismatch between the competencies acquired in school and industry demands. This mismatch is a significant challenge for vocational education, calling for curriculum reform, industry collaboration, and the adoption of more relevant learning models.

One such model is the Teaching Factory (TeFa), which integrates learning in school with real production experiences. Students are not only exposed to industry-standard practices but also trained to manage time, maintain product quality, and interact with clients. TeFa simulates real work environments within the school, thereby enhancing students' technical competence and professional behavior.

Despite these advantages, the implementation of TeFa still faces obstacles, particularly in regions with limited industrial access. Challenges include lack of infrastructure, limited teacher readiness, and weak collaboration with industries. Furthermore, many schools still apply TeFa in a symbolic manner, without involving industry partners in curriculum planning, teaching, or evaluation.

SMK Negeri 10 Luwu, located in South Sulawesi, has begun implementing the TeFa model in its Motorcycle Engineering program. This study investigates how TeFa is implemented in this school, what competencies are developed, and the factors that support or hinder its success. It is expected that findings from this research will contribute to improving the quality of vocational education and enhancing graduate employability.

Problem Formulation

1. How is the graduates' competence at SMK Negeri 10 Luwu characterized?
2. How is the Teaching Factory implemented at SMK Negeri 10 Luwu?
3. What are the supporting and inhibiting factors in the implementation of the Teaching Factory at SMK Negeri 10 Luwu?

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Research Objectives

1. To describe the graduate competence at SMK Negeri 10 Luwu.
2. To analyze the implementation of the Teaching Factory program at SMK Negeri 10 Luwu.
3. To identify supporting and inhibiting factors in the implementation of the Teaching Factory.

Research Significance

Theoretical Significance: This study contributes to the theoretical framework of vocational education by providing insights into the application of Teaching Factory as a model for developing graduate competencies. It enriches the literature on contextual learning models and industry-oriented curriculum development.

Practical Significance:

- For Schools: Offers an evaluation reference for enhancing Teaching Factory practices.
- For Teachers: Provides insight into optimizing their roles in TeFa implementation.
- For Students: Enhances understanding of how TeFa prepares them for real work environments.
- For Industry: Serves as a guide to strengthen partnerships with vocational schools.
- For Policymakers: Provides empirical data for designing effective vocational education policies.
- For Future Researchers: Acts as a foundational study for exploring vocational-education collaboration models.

LITERATURE REVIEW

Definition of Competence

Competence is understood as a set of attributes encompassing cognitive ability, technical skills, and professional attitudes required to perform tasks effectively. In the context of human resource management and vocational education, competence serves as a benchmark for assessing an individual's readiness to handle job-related challenges independently or in teams.

Competence is a multidimensional concept involving technical skills, cognitive knowledge, and professional behavior. It enables individuals to perform tasks efficiently within specific contexts. Traditionally, competence has been defined as a personal attribute linked to high performance (McClelland, 1973; Spencer & Spencer, 1993). Boyatzis (1982) expanded this definition, suggesting that competence includes knowledge, skills, values, and attitudes reflected in consistent and productive work behaviors.

With the rise of Industry 4.0 and digital transformation, the meaning of competence has evolved. Marsono and Anwar (2021) introduced the Outcome-Based Competency Model,

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emphasizing observable and measurable real-world achievements over theoretical mastery alone. This aligns with contextual learning in vocational schools like Teaching Factory, where students engage in industry-simulated production tasks.

Contemporary competence also demands 21st-century skills—critical thinking, creativity, communication, and collaboration (4Cs). These pillars shape adaptive competencies necessary for modern workplaces. Through TeFa, students develop both technical and soft skills by working in environments that mimic industry operations.

Wahyuni, Ahyani, and Tahrun (2022) proposed a Competency-Based Learning Ecosystem, where authentic learning experiences and industrial involvement shape effective competence development. In TeFa, teachers act as facilitators, while industries co-design, co-teach, and co-evaluate training activities.

Widayana (2023) introduced the Work Readiness Competency Framework (WRCF), categorizing competence into core work skills, technical expertise, and transferable soft skills. Teaching Factory effectively develops these layers by combining production practice with professional values and discipline.

Santoso and Wardani (2023) emphasized integrated competence development through educational-industry synergy. Their Integrated Competency Development Model (ICDM) advocates for co-designed curricula, joint teaching efforts, and shared evaluation responsibilities. This model underscores the role of TeFa as more than a teaching strategy—it's a comprehensive competence management system.

Overall, competence today is not just about completing tasks but adapting, innovating, and sustainably contributing in dynamic work environments. TeFa thus provides a robust framework for embedding such competencies in vocational education.

RESEARCH METHOD

Research Approach

This study adopts a qualitative research approach with a descriptive case study design. The qualitative approach was selected to explore in-depth the phenomena surrounding the implementation of the Teaching Factory (TeFa) at SMK Negeri 10 Luwu, especially in terms of how it affects graduate competence. According to Moleong (2005), qualitative research aims to understand the meaning behind behavior, perceptions, motivations, and actions experienced by the research subjects holistically and naturally.

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Research Design

The case study design was used to allow a comprehensive investigation of the Teaching Factory program. This design facilitates an in-depth understanding of the program's implementation, including the dynamics, challenges, and contextual factors influencing it. The case study focuses specifically on the Motorcycle Engineering Program at SMK Negeri 10 Luwu, which has pioneered the implementation of TeFa in the region.

Research Focus

This study focuses on the following areas:

1. Description of graduate competencies developed through the TeFa model.
2. Description of the implementation of Teaching Factory at SMK Negeri 10 Luwu.
3. Identification of supporting and inhibiting factors influencing TeFa implementation.

Time and Research Location

The research was conducted at SMK Negeri 10 Luwu, South Sulawesi, in the second semester of the 2024–2025 academic year.

Data Sources

Primary data sources include:
- The school principal
- Vocational (productive) teachers
- TeFa student participants
- Industry partners (from PT. Honda Bintang Motor Belopa)
- Alumni of the Motorcycle Engineering program

Secondary data sources include:
- School documents (curriculum, program guidelines)
- Student assessment results
- Industry feedback
- Performance and evaluation reports

Data Collection Techniques

1. In-depth Interviews: Conducted with the principal, teachers, students, alumni, and industry partners to gather detailed perspectives on TeFa implementation.

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2. Observation: Non-participant observation of teaching-learning and production activities within the TeFa environment.
3. Documentation: Collection and review of relevant school documents, such as lesson plans, workshop schedules, and collaboration agreements.

Data Collection Instruments

The instruments used include:

- Interview guidelines tailored for each category of informant
- Observation sheets focusing on student engagement, teacher roles, and workshop settings
- Document analysis checklists to ensure comprehensive review of relevant records

Data Validity Techniques

To ensure the credibility and trustworthiness of the data, the following techniques were applied:

- Triangulation of data sources and collection methods
- Member checking by confirming findings with respondents
- Prolonged engagement and persistent observation at the research site

Data Analysis Techniques

Data were analyzed using the interactive model from Miles and Huberman, which involves the following steps:

1. Data Reduction: Selecting, simplifying, and focusing raw data related to research questions.
2. Data Display: Organizing data into thematic matrices and narratives to facilitate understanding.
3. Conclusion Drawing and Verification: Interpreting the data to derive insights, then verifying through triangulation and rechecking with data sources.

This systematic approach ensures that findings are well-grounded in data and accurately represent the real conditions of TeFa implementation at SMK Negeri 10 Luwu.

RESEARCH FINDINGS AND DISCUSSION

Research Findings

1. Graduate Competence at SMK Negeri 10 Luwu Graduates of SMK Negeri 10 Luwu's Motorcycle Engineering program demonstrate improved technical competence, including the ability to perform motorcycle maintenance and repairs based on standard operating

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procedures. Additionally, they show positive work attitudes such as discipline, punctuality, teamwork, and communication. These competencies were observed during school-based production activities and confirmed through alumni and industry partner feedback. Despite progress, challenges remain in achieving consistent performance across all graduates, particularly in soft skills and entrepreneurial readiness.

2. Implementation of Teaching Factory at SMK Negeri 10 Luwu The implementation of TeFa at SMK Negeri 10 Luwu is centered in the Motorcycle Engineering workshop. The school has collaborated with PT. Honda Bintang Motor Belopa, enabling students to engage in real maintenance services, apply industrial work procedures, and operate industry-standard equipment. The learning process integrates production tasks into the curriculum, where students take on roles in customer service, diagnostics, parts replacement, and quality control. Teachers act as supervisors and facilitators, while industry partners contribute to curriculum alignment, assessment, and periodic coaching. The TeFa environment is designed to simulate a real automotive service center. Students wear uniforms, manage client orders, and follow repair documentation processes. The school also hosts occasional service campaigns open to the public, increasing students' exposure to real customer interactions.
3. Supporting and Inhibiting Factors Supporting Factors:
    - Strong leadership from the school principal who promotes industry-based education and empowers staff.
    - Active industry collaboration, especially with PT. Honda Bintang Motor Belopa, which provides technical guidance and feedback.
    - Motivated and trained vocational teachers with relevant industrial certifications.
    - Positive student attitudes and enthusiasm for hands-on learning.

Inhibiting Factors:

- Limited practice space and outdated infrastructure constrain the scale and variety of services that can be simulated.
- Insufficient equipment and consumable materials, leading to delays or reduced practice opportunities.
- Variability in student motivation, with some preferring academic or theoretical tasks over practical engagement.
- Challenges in maintaining continuous and deep industry involvement in curriculum planning and evaluation.

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DISCUSSION

The findings indicate that Teaching Factory implementation significantly enhances graduate competence by immersing students in contextualized, industry-like environments. The shift from traditional instructional models to production-based learning improves not only technical skills but also work readiness and entrepreneurial attitudes.

The role of school leadership and teacher capability is central to TeFa's success. Effective principals act as change agents, fostering an innovation culture and mobilizing external partnerships. Likewise, vocational teachers must transition from conventional teaching to mentoring roles within real production contexts. This requires ongoing professional development and industrial exposure.

Industrial collaboration provides legitimacy and relevance to vocational education. The partnership with PT. Honda Bintang Motor Belopa exemplifies how co-teaching, co-assessment, and co-supervision improve the quality of student learning and align outcomes with workforce expectations. However, to sustain this collaboration, schools must build mutual value and offer shared benefits, such as skilled labor pipelines and brand visibility for industry partners.

Despite promising results, challenges persist. Infrastructure limitations and inconsistent student engagement reduce the overall impact of TeFa. Addressing these requires strategic investment in facilities and proactive student counseling. Moreover, government policies should support long-term school-industry partnerships through incentives, joint certifications, and professional development funding.

In conclusion, SMK Negeri 10 Luwu's Teaching Factory model represents a viable and scalable approach for bridging the gap between vocational education and labor market needs. With refinement and support, this model can be adopted more widely to improve graduate outcomes in other vocational schools across Indonesia.

CONCLUSION AND SUGGESTIONS

Conclusion

Based on the research findings, it can be concluded that the implementation of the Teaching Factory (TeFa) at SMK Negeri 10 Luwu has significantly contributed to enhancing graduate competence, particularly in the Motorcycle Engineering program. TeFa has proven effective in improving technical skills, professional attitudes, and entrepreneurial readiness. Students benefit from real-world experience through production-based learning environments supported by industry partnerships.

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Key factors contributing to successful implementation include leadership from the school principal, the commitment of vocational teachers, and collaboration with industry partners such as PT. Honda Bintang Motor Belopa. However, several obstacles remain, such as limited infrastructure, fluctuating student motivation, and the need for deeper and more consistent industry involvement.

Overall, Teaching Factory serves as a promising educational model to align vocational training with labor market demands, particularly in regional schools. Its integration into the learning process helps bridge the gap between theory and practice, producing graduates who are more competent, competitive, and career-ready.

Suggestions

1. For Schools:
    - Invest in improving workshop infrastructure and equipment to enhance the realism and quality of the Teaching Factory learning environment.
    - Strengthen internal coordination and planning to integrate TeFa more holistically into the curriculum.
2. For Teachers:
    - Participate in continuous professional development to stay updated on industry standards and improve facilitation skills in production-based learning.
    - Collaborate actively with industry partners to co-design, co-teach, and co-evaluate student performance.
3. For Industry Partners:
    - Engage more deeply in curriculum development, mentoring programs, and evaluation processes.
    - Provide structured internship opportunities and industry certification support to enhance student employability.
4. For Policymakers:
    - Provide policy support and funding incentives for schools implementing Teaching Factory models.
    - Develop national frameworks for vocational-industry partnerships, including recognition for co-developed training programs.

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5. For Future Researchers:
    - Conduct longitudinal studies to evaluate the long-term impact of TeFa on graduate employment outcomes.
    - Explore quantitative analysis to complement qualitative insights and strengthen evidence-based policy and practice.

Teaching Factory has the potential to transform vocational education when supported by strong leadership, effective collaboration, and continuous innovation. The insights from this study can guide future improvements and replication in other vocational institutions across Indonesia.

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