Designing and Implementation of Teaching Factory in the Department of Accounting and Business Administration at Bali State Polytechnic: Fostering Financial Literacy and Entrepreneurship

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Abstract. Vocational education institutions focusing on practical training aim to provide learners with expertise in specific fields. Proficiency in both physical and intellectual skills involves direct engagement with tools similar to those used in real-world settings during the learning process. The Teaching Factory (TeFa) model is a production/service-based learning approach that references the industry standards and procedures, executed within an environment mirroring real-world industry practices. TeFa serves as a bridge to close the competency gap between education and industry demands. In the Department of Accounting and Business Administration, a TeFa collaboration with industry. This initiative stems from need analysis, revealing students' high enthusiasm for entrepreneurship, while most lack businesses. The TeFa aims to empower more micro, small, and medium enterprises (MSMEs). This paper is a part of the applied research collaboration in the Matching Fund 2023 project to address the demand for entrepreneurship support among students, aligning with the Merdeka Belajar Kampus Merdeka (MBKM) program and government efforts for digitalized MSMEs. The program's sustainability is crucial for meeting business needs and enhancing awareness in finance, taxation, and accounting. Trust is essential for the close relationship between business and these fields, making early establishment of the student center crucial. Ultimately, this project aims to improve financial literacy, entrepreneurship, and digitalization for MSMEs in Bali, fostering cooperation between academia and industry, addressing skill gaps, promoting student involvement, and serving a dynamic industry landscape.

Keywords: Digitalization of MSMEs, Micro, Small, and Medium Enterprises (MSMEs), Teaching Factory (TeFa)

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1 Introduction

In the context of vocational education, there is an increasing emphasis on integrating practical skills with academic learning to meet the evolving demands of the industry. Furthermore, human resources (HR) problems, for which most teachers do not have industry experience, make them weak in the sense of quality, efficiency, and innovation (Irawan et al., 2020). Vocational education must be able to keep up with the development of the business and industrial world. On the other hand, the industry continues to move very fast (Lestari et al., 2021).

The Teaching Factory (TeFa) model has emerged as a significant innovation in this regard, offering a framework that bridges the gap between theoretical knowledge and real-world application. By simulating actual industrial environments within educational settings, TeFa provides students with hands-on experience that closely mirrors daily industry practices (Sudiyono, 2019).

The Department of Accounting and Business Administration at Bali State Polytechnic is poised to implement the TeFa model to foster financial literacy and entrepreneurship among students. This initiative is driven by a recent needs analysis which indicates a high level of interest in entrepreneurship among students, yet a significant gap in practical business experience. Specifically, out of 137 respondents, only 19% had already established businesses, while 81% had yet to embark on entrepreneurial ventures. Despite this, 57.7% expressed a strong desire to start their businesses, underscoring the need for a structured platform to support and develop their entrepreneurial skills.

The implementation of TeFa at Bali State Polytechnic aims to address this gap by providing students with practical training in entrepreneurship, financial literacy, and business management. This initiative aligns with the Merdeka Belajar Kampus Merdeka (MBKM) program and supports government efforts to promote the digitalization of micro, small, and medium enterprises (MSMEs). According to the Ministry of Cooperatives and Small and Medium Enterprises, only 8% of Indonesia's 59.2 million MSMEs were utilizing online platforms for marketing as of 2017 (Akob et al., 2023). By integrating digital skills training and business management into the curriculum, TeFa seeks to enhance the capacity of students to contribute to the growth of digital MSMEs.

Furthermore, the TeFa model provides a unique opportunity for collaboration between students, faculty, and industry professionals. It also offers services to external MSMEs in areas such as accounting, taxation, and digital marketing, creating a comprehensive support system for both students and local businesses. This innovation not only benefits the students by equipping them with relevant skills but also contributes to the broader community by supporting the development of MSMEs and enhancing their online presence.

In conclusion, the design and implementation of the TeFa model in the Department of Accounting and Business Administration at Bali State Polytechnic represent a strategic advancement in vocational education. It aims to bridge the gap between academic learning and industry requirements while fostering financial literacy and entrepreneurship. This initiative is expected to have a substantial impact on student

development, industry collaboration, and the broader MSME sector, aligning with both educational and governmental objectives.

2 Methodology

This research, titled "Designing the Implementation of Teaching Factory in the Department of Accounting and Business Administration at Bali State Polytechnic: Fostering Financial Literacy and Entrepreneurship", employs a systematic approach to develop and implement the Teaching Factory (TeFa) model within a vocational education setting. The following methodology outlines the approach, tools, objects under study, research procedures, and data analysis techniques used to achieve the research objectives.

Research Approach

The research adopts a mixed-methods approach, combining qualitative and quantitative techniques to design and evaluate the TeFa model. This approach allows for comprehensive analysis and practical implementation of the TeFa model, including stakeholder engagement, system development, and impact assessment.

Research Tools and Objects

Objects Under Study, first is the Teaching Factory Model Focused on the Department of Accounting and Business Administration at Bali State Polytechnic, and second Student Center: A virtual and physical platform for fostering entrepreneurship and financial literacy. Third, FinEvolution: An industry partner providing expertise in financial planning, investment, and financial engineering.

Tools and Materials: Software Tools: Google Forms for needs analysis, SDLC tools for system development. Physical Tools: Booths, smart TVs, laptops, printers, and office furniture for the student center.Training Materials: Modules for financial literacy, taxation, and digital marketing.

Research Procedure

The research procedure for the implementation of the Teaching Factory (TeFa) model involves several key phases, beginning with initial coordination. This phase includes preliminary meetings with stakeholders such as Finevolution, academic staff, and university administration to establish clear objectives and delineate responsibilities. A critical component of this phase is the needs analysis, which involves surveying 137 students to gauge their interest in entrepreneurship and identify gaps in their business experience.

Following the initial coordination, the development phase commences with system design and development. This involves requirement analysis, where data on system needs is collected and analyzed from stakeholders to ensure the system's functionality meets their expectations. The design phase includes developing the system architecture using Software Development Life Cycle (SDLC) methodologies, which encompasses

System and Software Design. Implementation then follows, involving the coding and testing of system modules to ensure they function correctly (Implementation and Unit Testing). Integration and testing are conducted to combine and test the entire system, ensuring that all components work seamlessly together and addressing any potential issues (Integration and System Testing). The final step in this phase is Operation and Maintenance, where the system is deployed, and ongoing support and updates are provided to ensure its continued effectiveness.

The establishment of the Student Center, which includes both physical and virtual components, is also a crucial part of the development phase. This involves setting up necessary infrastructure and online platforms to facilitate the center's operations.

The program execution phase includes organizing training and workshops for students and MSMEs on key topics such as financial planning, accounting, taxation, and digital marketing. This phase also emphasizes student involvement, with students participating as advisors and in project-based learning activities to gain practical experience.

Finally, the monitoring and evaluation phase focuses on assessing the TeFa model's effectiveness. Performance metrics are tracked to evaluate student performance, MSME engagement, and stakeholder feedback. An impact assessment is conducted to determine the influence of the TeFa model on student entrepreneurship, financial literacy, and MSME growth.

3 Result and Discussion

3.1 Result

The implementation of the Teaching Factory (TeFa) model under the Matching Fund Vokasi 2023 project between Bali State Polytechnic and Finevolution has led to several notable outcomes:

Establishment of Teaching Factory Facilities. The TeFa model was successfully operationalized with both offline and online components. The offline facility, located in Building K at Bali State Polytechnic, provides a physical space for student and MSME engagement. Concurrently, the online platform, accessible at https://finaccbiz.id/, offers a virtual interface for accessing resources and connecting with stakeholders. These facilities have significantly expanded the reach and accessibility of the TeFa model.

Acceleration of Student Startups. The program led to the development of two student-led startup prototypes: “Eternal Blooms,” a business specializing in satin flower sales, and “Sego Box,” a culinary venture. Both startups benefited from targeted training, which included practical workshops and the issuance of certificates. Additionally, a new educational module, “*Memulai Usaha dari Nol*” (Starting a Business from Scratch), was created to guide students through the foundational steps

of business development. This module has been well-received, contributing to the students' preparedness for entrepreneurial endeavors.

Project-Based Learning and MSME Support. A key component of the project involved project-based learning aimed at providing real-world business support to MSMEs. This included practical assistance in financial reporting and tax preparation. The resulting system effectively streamlined the process of creating financial statements and tax documents, demonstrating the TeFa model's practical impact on local businesses.

In summary, the TeFa initiative has met its research objectives by establishing functional teaching facilities, fostering student entrepreneurship, and enhancing MSME support. The successful implementation of both offline and online components, alongside the development of startup prototypes and educational resources, aligns with the goals of improving financial literacy and entrepreneurship among students and local businesses. The study confirms that the hypothesis of enhancing practical skills through a comprehensive TeFa model was supported, effectively bridging the gap between education and industry.

3.2 Discussion

The implementation of the Teaching Factory (TeFa) model at Bali State Polytechnic, specifically through the Fin-e AccBiz and the start-up student center, represents a a significant innovation in vocational education aimed at enhancing financial literacy and entrepreneurship. This initiative aligns with the broader objectives of the Merdeka Belajar Kampus Merdeka (MBKM) program and supports the government’s efforts to promote the digitalization of MSMEs. The following discussion interprets the results of this study in light of relevant theories and previous research, examining the implications for students, faculty, industry partners, and the broader community.

The TeFa model’s success in bridging the gap between theoretical knowledge and practical application is consistent with established educational theories emphasizing experiential learning. Kolb (1984), Experiential Learning Theory posits that learning is most effective when students actively engage in a cycle of concrete experience, reflective observation, abstract conceptualization, and active experimentation. The TeFa model facilitates this process by providing students with real-world tasks in financial planning, accounting, and entrepreneurship, thereby reinforcing theoretical knowledge through hands-on practice.

Moreover, the collaborative approach of the TeFa model, which involves partnerships with industry players like Finevolution aligns with Vygotsky’s Social Development Theory (Vygotsky, 1978). This theory highlights the importance of social interaction in cognitive development, suggesting that learning is enhanced through collaborative efforts. By involving students in project-based learning and enabling interactions with industry professionals, the TeFa model (in Figure 1) fosters a deeper understanding of financial concepts and entrepreneurial skills, as students learn in a context that closely mirrors real industry environments.

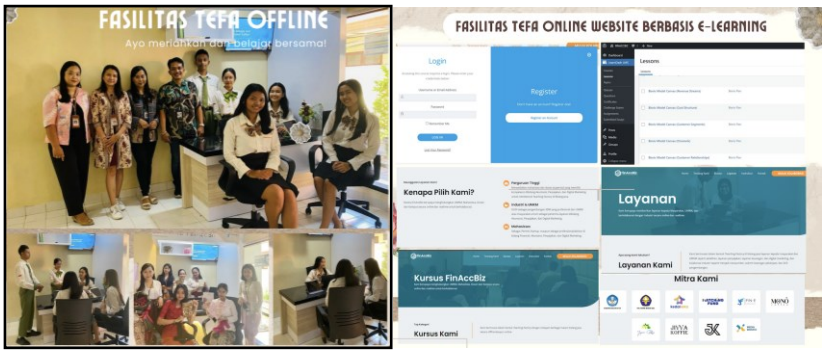

Figure 1. TeFa offline and online (in Indonesia language)
Photograph and permission by Matching Fund 2023 teams (Ni Nengah Lasmini, Jayanti Prita Utami, Putu Oktapriyana, Wayan Tari Indra Putri, Wayan Eny Mariani, and students)

The outcomes of this study can be compared with previous research on similar educational innovations. For instance, a study by (Tubaundule et al., 2024) found implications for vocational education policy and practice, enhancing graduates' employability and economic development. It also contributes to the discussion on soft skills and career readiness in vocational education. Similarly Estriyanto (2021), Hendrawan et al. (2024), and Irawan et al. (2020) found the results show that, to operate well, the program requires: 1.) A close relationship between the school and the industry; 2.) Agreement to share knowledge, skills, equipment, and funding between the two parties; and 3.) The willingness of the school to integrate industrial specificity into the learning system. This study also finds that the program just partially aligned with the demand-driven paradigm. Conformity has been realized in terms of preparing graduates' competence following the industry's need, but not yet in terms of the number of graduates required by the company. Any method in increasing the conformity between the labor demand and supply still needs further study. The TeFa model at Bali State Polytechnic has produced similar outcomes, as evidenced by the successful establishment of student-led startups and the practical support provided to MSMEs. These results underscore the effectiveness of industry-linked education in enhancing vocational training.

While the TeFa model at Bali State Polytechnic builds on existing theories and practices, it also contributes to the development of new perspectives in vocational education. The integration of digital tools, such as the virtual marketplace platform (https://finaccbiz.id/), represents a forward-thinking approach that not only broadens access to resources but also aligns with the digital transformation of MSMEs. This innovation is particularly relevant in the context of Indonesia's push for greater digitalization among MSMEs, a sector that has traditionally lagged in adopting online platforms (Akob et al., 2023). The TeFa model's focus on digital skills training, therefore, not only enhances students' employability but also supports national economic goals.

The findings of this study have several important implications for different stakeholders. For students, the TeFa model provides a pathway to becoming young

entrepreneurs or financial advisors, equipping them with the skills needed to thrive in a competitive job market. The program's emphasis on project-based learning and real-world applications ensure that students are not only knowledgeable but also capable of translating their knowledge into practice. Project Based Learning in assisting SMEs in accounting and taxation is also effective for student's understanding and creativity. This is in line with (Farihatun & Rusdarti, 2019) results of the effectiveness analysis of experimental class learning using the Project Based Learning (PjBL) method shows the ability to increase creativity and learning outcomes in the subject arrangement of stuffs using project-based learning is more effective than using conventional learning in class XI PM of SMK Negeri 2 Semarang.

For faculty members, the TeFa model offers opportunities to engage with industry, apply their expertise in practical settings, and obtain industry-recognized certifications. This enhances their professional development and ensures that their teaching remains relevant to industry needs.

For industry partners like Finevolution, the TeFa model serves as a valuable source of skilled labor and a means to fulfill their corporate social responsibility (CSR) goals related to financial literacy and entrepreneurship. The collaboration helps these companies align their operations with educational institutions, creating a pipeline of talent that meets their business prototype product as shown in Figure 2.

Figure 2. Business prototype product (in Indonesia language)
Photograph and permission by Matching Fund 2023 teams (Ni Kadek Putri Dita Laskmi & Kadek Dwi Darma Yanti)

Finally, for the broader community, particularly MSME owners, the TeFa model provides access to professional services in financial planning, accounting, and digital marketing. This support is crucial for the growth and sustainability of MSMEs, especially in the context of the government's MSME Go Online initiative.

The TeFa model at Bali State Polytechnic contributes significantly to the institution's Key Performance Indicators (IKU), particularly in areas related to graduate employability, faculty industry engagement, and international recognition of research outputs. By integrating industry collaboration, digital tools, and project-based learning, the TeFa model not only enhances the quality of education but also ensures that it remains aligned with both national and global trends in vocational training.

4 Conclusion

The development of the Teaching Factory (TeFa) in the Department of Accounting and Business Administration at Bali State Polytechnic, in collaboration with FinEvolution, represents a significant innovation in bridging the gap between vocational education and industry needs. Based on a needs analysis showing high student interest in entrepreneurship, this program successfully integrates both offline and online facilities to support student startup acceleration and provide mentoring for MSMEs in finance, taxation, and digital marketing.

TeFa offers students the opportunity to develop as young entrepreneurs and professionals across various fields while also enhancing the industrial competencies of faculty members. Through this collaboration, the industry can fulfill its mission of promoting entrepreneurship education and gaining access to skilled human resources tailored to its needs. Additionally, the general public, particularly MSME owners, benefit from professional financial services that support their transition toward digitalization.

Furthermore, this program supports the implementation of the Merdeka Belajar Kampus Merdeka (MBKM) initiative and government efforts to develop UMKM Go Online. The outcomes, including the establishment of TeFa facilities, startup training, and Project-Based Learning activities, create a holistic learning environment that aligns with both industry and societal needs. The success of TeFa in achieving its objectives underscores Bali State Polytechnic's role as an institution contributing directly to economic and social development through enhanced financial literacy and entrepreneurship.

The conclusion is intended not only to repeat findings. It covers the validation of meaning. It can elaborate a statement of what is being expected as proposed in the “Introduction” and what has been reported in the “Result and Discussion” so that there is compatibility. In addition, this section can also present the prospects of enriching the research findings and developing the potential for future research.

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