

THE ROLE OF THE TEACHING FACTORY MODEL IN ENHANCING UNDERGRADUATE STUDENTS' WORK READINESS: A LITERATURE REVIEW

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ABSTRACT

Education in the era of Industry 4.0 demands learning models that are able to bridge the gap between theoretical knowledge and real-world industrial needs. One innovative approach that addresses this challenge is the Teaching Factory model, which integrates industry-based production processes into the educational environment. This study aims to examine the role of the Teaching Factory model in enhancing the work readiness of undergraduate students, particularly in terms of technical skills, soft skills, adaptability, and professional attitudes. Using a literature review method, this research synthesizes findings from previous empirical studies related to Teaching Factory implementation, work readiness, and employability skills in vocational and higher education contexts. The review focuses on how Teaching Factory learning replicates industrial conditions, encourages collaboration with industry partners, and provides experiential learning opportunities that foster both hard and soft skills. The findings indicate that the Teaching Factory model has a significant positive impact on students' work readiness, including personal and social maturity, work attitudes, problem-solving abilities, teamwork, and entrepreneurial spirit. Moreover, the model contributes to improved employability by familiarizing students with real production standards and workplace culture. The study concludes that the Teaching Factory model is an effective pedagogical strategy for preparing undergraduate students to meet the dynamic demands of the labor market. It recommends further longitudinal and empirical research to evaluate the long-term impact of Teaching Factory-based learning on graduates' career development and professional success.

Keywords: teaching factory, readiness to work

INTRODUCTION

Education is a crucial investment for individuals to develop skills and knowledge that help them survive and succeed in a global competitive and ever-changing workforce (Natsir et al., 2024). Considering the challenges of Industry 4.0, the education sector is undergoing transformations, and more and more education models prioritise adding components that allow students to gain practical industry exposure to close the gap between theory and practice (Tikhonova & Raitskaya, 2023). One of the models is the Teaching Factory model, which seeks to replicate an industrial atmosphere in a school setting so students can improve their technical competencies, work attitudes, and employability (Dwijyanthi & Rijanto, 2022). This model is particularly important in vocational education, where it has been widely documented to enhance students' practical skills and employability, which is the result of the mutually beneficial knowledge collaboration between industry and academia (Tanjung et al., 2025; Wahjusaputri et al., 2024). More specifically, the Teaching Factory model offers students the opportunity to experience actively learning real-world situations, develop constructive ideas, and innovate through practical activities where they engage in the production of goods or services like a real business and industry (Prianto et al., 2020). This teaching framework is important for closing the gap between graduates' skills and the needs of the industry, especially regarding soft skills that are often lacking in traditional academic settings (Saputro et al., 2022). By simulating industrial processes and standards in an educational environment, the Teaching Factory model prepares students with not only technical knowledge but also the professional behavior and problem-solving skills needed in today's workplaces (Dwijyanthi & Rijanto, 2022; Wahyudi et al., 2023). Implementing these models aims to boost graduates' skills and entrepreneurial spirit while strengthening connections with relevant industries and businesses (Natsir et al., 2024).

Work readiness is a complex concept that includes not just the technical skills learned through education but also soft skills, professional attitudes, and the ability to adapt, which are essential for successfully entering the workforce (Tanjung et al., 2025). It reflects a person's readiness to meet job market demands while adjusting to new technologies and changing job roles in today's industrial environment (Ahmid et al., 2023). This overall readiness is crucial for undergraduate students as it affects their smooth transition from school to professional careers, impacting both their success and overall economic productivity. Therefore, it is important to understand how effective the Teaching Factory model is in developing this varied work readiness among undergraduate students to improve educational outcomes and tackle skills shortages (Dwijyanthi & Rijanto, 2022; Wahyudin et al., 2025). Work readiness is a key result of higher education. It indicates a person's overall preparedness to effectively meet the demands of their chosen job and the larger economy (Naseer et al., 2025). This can be achieved by incorporating practical, industry-relevant experiences directly

into the curriculum, such as those provided by the Teaching Factory model (Maarof & Bohari, 2023; Natsir et al., 2024). This integration helps students build both technical skills and professional knowledge needed to handle the challenges of modern industries (Dewi & Sudira, 2018; Singh & Tilak, 2020). This paper aims to examine how the Teaching Factory model affects the work readiness of undergraduate students. It will look at its ability to develop essential technical, soft, and adaptive skills required by the current workforce (Natsir et al., 2024; Zutiasari et al., 2021). Specifically, this research will investigate how different aspects of work readiness, including core skills, personal skills, and self-confidence, are influenced by participation in Teaching Factory-based learning activities, especially among vocational school graduates (Imron & Abdullah, 2023; Prianto et al., 2020).

LITERATURE REVIEW

Teaching Factory Learning is a new teaching approach that combines theory with hands-on experiences in a production setting (Natsir et al., 2024). This model mimics real industrial conditions, allowing students to work on the production of goods or services that meet industry standards and procedures (Prianto et al., 2020). This practical experience helps students build both technical skills and important 21st-century skills, like critical thinking, collaboration, communication, and creativity, which are highly sought after in today's job market (Hatmojo & Ikhsannudin, 2024). By immersing students in a real work environment, the Teaching Factory model connects academic knowledge with practical application. This connection creates a deeper understanding of industrial processes and needs (Wahyudin et al., 2025). The Teaching Factory learning model usually includes planning, implementation, and evaluation phases. Each phase is meant to replicate real-world production cycles and project management (Saputro et al., 2022). Engaging directly in these simulated industrial settings helps students grasp quality control, efficiency, and problem-solving in a professional setting, which improves their overall employability (Zutiasari et al., 2021). Additionally, the Teaching Factory model often includes collaboration with industry. External companies contribute to curriculum development and send guest teachers, ensuring that the learning activities reflect current industry needs (Dwijayanthi & Rijanto, 2022; Prianto et al., 2020).

Work readiness covers a wide range of skills that go beyond technical knowledge. It includes personal maturity, social maturity, work attitudes, and an entrepreneurial spirit (Dwijayanthi & Rijanto, 2022; Zutiasari et al., 2021). These skills involve collaborating well, networking effectively, and adjusting to fast-changing job markets. All of these qualities are important predictors of success in workforce transitions (Naseer et al., 2025). This readiness is essential for undergraduate students, as it determines how smoothly they can move from school to work, benefiting both their careers and the economy. Indicators of work readiness are often divided into hard skills, which include technical abilities, and soft skills, like problem-solving, communication, and teamwork (Prianto et al., 2020). These skills are developed through structured learning experiences that reflect real-world scenarios, building the adaptive capabilities and professional attitudes essential for success in ever-changing industrial settings (Idkhan et al., 2021). The Teaching Factory program specifically addresses this by including real-world activities and input from industry experts, which enhances students' employability and encourages an entrepreneurial mindset (Dhani et al., 2021; Suranto et al., 2022). This model effectively brings the industrial production environment into the classroom, equipping students with the practical experience and problem-solving skills necessary for the job market (Subekti et al., 2019; Suranto et al., 2022).

METHOD

This literature review will combine existing research on the Teaching Factory model. It will focus on its teaching principles, how to implement it, and the outcomes related to student readiness for work and employability skills. This analysis will cover different aspects of readiness, including technical skills, soft skills, and adaptability. It will use evidence to build a strong understanding of how effective the model is (Hinai et al., 2020; Naseer et al., 2025). This review will look closely at how the Teaching Factory model connects educational results with industry needs. It aims to prepare graduates for the changing job market by encouraging innovation and adaptability (Awwad, 2025; "Frontiers in Educational Research," 2018).

RESULT DAN DISCUSSION

The study about Teaching Factory in increasing readiness to work among undergraduate students reveals that effective implementation can significantly enhance key attributes such as personal maturity, social maturity, work attitudes, and work competence (Prianto et al., 2020). This aligns with findings that emphasize the critical role of such programs in developing soft skills and hard skills crucial for meeting job market demands (Dwijyanthi & Rijanto, 2022; Nugroho et al., 2024). The integration of industrial work culture habituation within vocational education, particularly in technology and engineering fields, further strengthens student work readiness by fostering specific skills, mental resilience, and adaptability to industrial environments (Rohmatika & Sudira, 2025). Moreover, the Teaching Factory concept has been shown to foster comprehensive competence, encompassing psychomotor skills, positive attitudes, and higher-order thinking abilities, thereby producing graduates who are not only skilled but also productive and adaptable to industry demands (Hasanah & Malik, 2018). The implementation of the teaching factory model, particularly in vocational high schools, has been shown to improve student work readiness by facilitating a learning environment that closely mirrors actual production processes and industry expectations (Dwijyanthi & Rijanto, 2022; Suranto et al., 2022). Such programs instill a sense of professionalism and entrepreneurial spirit, which are vital for vocational graduates entering a competitive workforce (Dwijyanthi & Rijanto, 2022).

Evaluating the Teaching Factory learning model in higher education reveals the potential to enhance work readiness of undergraduate students as it offers experiential learning in the real production environments which helps students integrate and apply theoretical knowledge (Natsir et al., 2024). This engagement helps students develop better problem solving, critical thinking, and team collaboration skills, which are some of the most important soft skills employers look for (Suranto et al., 2022). In addition, the benefits of Teaching Factory model are positively reflected in improving students' competencies and ultimately, employability (Permata et al., 2021). These initiatives have shown to greatly affect students' readiness for certain occupations between 22.80% to 34.6% which emphasizes the model's potential in equipping students for the labor market (Dewi & Sudira, 2018). In this study, we discuss the impact of such studies and the potential of Teaching Factory models in improving students' employability skills and the most effective ways to implement into undergraduate programs. More precisely, we discuss the effects of the combination of a Teaching Factory with other innovative learning techniques, such as project based learning, as this would best foster critical thinking and creativity in students which would ultimately enhance their work readiness for the ever changing industrial world (Dwijyanthi & Rijanto, 2022)

CONCLUSION

In sum, the Teaching Factory model stands as a pivotal innovation in education, fundamentally transforming how undergraduate students are prepared for the complexities of the modern workforce by bridging the gap between theoretical learning and practical application. This model effectively fosters a comprehensive skill set encompassing critical thinking, problem-solving, and adaptability, thereby significantly enhancing graduates' employability and ensuring their seamless integration into diverse professional environments (Lamichhane & Karki, 2020; Nanda et al., 2025; Naseer et al., 2025). The sustained engagement within these environments, characterized by real-world production units and interdisciplinary problem-solving, ensures students develop both the technical prowess and the soft skills necessary for sustained career success (Prianto et al., 2020; Wahjusaputri et al., 2021; Yoto et al., 2024). Moreover, such models instill a culture of lifelong learning and continuous improvement, preparing students to navigate the ever-evolving landscape of engineering practice and industrial demands (Caratozzolo et al., 2024). Future research should focus on longitudinal studies to assess the long-term career trajectories of graduates from Teaching Factory programs compared to traditional educational models, thereby quantifying the enduring impact of this pedagogical approach on professional development and career advancement. Furthermore, exploring the specific mechanisms through which interdisciplinary collaboration and industry partnerships within Teaching Factories cultivate leadership skills and entrepreneurial mindsets would provide deeper insights into their transformative potential (Naseer et al., 2025; Pavas & Arzola, 2019).

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