

Industry Perception of TVET Graduate Competencies in Malaysia: A Case Study in the Automotive Sector

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ABSTRACT (10 PT)

This study aims to explore industry perceptions of the competencies of Technical and Vocational Education and Training (TVET) graduates in Malaysia, with a particular focus on the automotive sector. A qualitative approach using a case study design was employed, involving semi-structured interviews with representatives from the automotive industry. The findings indicate that TVET graduates generally possess basic technical skills that are relevant to industry needs, especially in automotive operations and maintenance. However, the industry highlighted deficiencies in soft skills such as communication, work discipline, and professional attitudes. In addition, the level of graduates' readiness for the real working environment varies depending on the quality of industrial training exposure and the institutions attended. The study suggests that stronger collaboration between TVET institutions and the automotive industry is necessary to ensure better alignment of curricula and training with current industry demands. The findings are expected to contribute to policy improvement and the enhancement of TVET implementation in Malaysia.

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INTRODUCTION

Technical and Vocational Education and Training (TVET) has become a key focus in human capital development in Malaysia to ensure a highly skilled workforce is available for the industries of today and tomorrow. TVET not only provides technical training but also emphasizes the skills required by industry to drive the nation's economic growth. TVET programs are viewed as a practical, job-oriented pathway that can enhance graduate employability across various industry sectors. In Malaysia, the TVET sector has expanded with the offering of diverse courses covering automotive, mechanical, and electronics fields that are closely aligned with current industry demands. This demonstrates the nation's commitment to providing educational pathways relevant to the needs of the modern job market. According to research reports, TVET education in Malaysia focuses on technical skills and graduate employability to ensure the stability of the job market (Aziz & Subramaniam, 2023a).

The automotive industry is one of the key sectors that requires a skilled workforce with high technical competence. This industry continues to grow in the era of Industry 4.0 with an emphasis on the latest automotive technologies and intelligent systems that demand a rapid response from TVET. The automotive sector requires graduates who are not only proficient in basic skills but also have an understanding of digital technology and automation. Relevant qualifications and experience in the automotive sector make graduates more attractive to employers when faced with job challenges. Collaboration between TVET institutions and the automotive industry is expected to bridge the gap between academic theory and the realities of the industry. The automotive industry's perception of graduate competencies is a key indicator of the effectiveness of the TVET education system in Malaysia (Ali dkk., 2024).

However, challenges exist in TVET delivery in Malaysia, including a mismatch between graduate skills and the actual demands of the industry. Think tank reports indicate that although most employers acknowledge that TVET can produce skilled graduates, there are constraints in collaboration between educational institutions and the industry. Industry often expects more structured involvement in curriculum input and authentic work placements. This lack of systematic collaboration affects graduates' ability to adapt effectively to industrial work environments. This indicates that the industry's perception of TVET graduates' competencies still needs to be further examined. Studies like this are crucial for understanding the perspectives that exist outside the classroom (Aziz & Subramaniam, 2023b).

In the context of TVET graduate employability, statistics show a significant increase in the employment rate after graduation. According to government reports, the employability rate of TVET graduates has reached high levels following the implementation of comprehensive TVET reforms. This reflects that TVET programs are capable of meeting the demands of the job market in certain sectors. However, these figures do not necessarily explain the overall industry perception of the graduates' competencies, especially in technical fields such as automotive. In this study, the industry's perception of competency levels is the focus to assess the extent to which TVET graduates truly meet actual job requirements. The perspective of the automotive industry provides valuable insight into graduate performance in the real world of work (Said, 2023).

Graduate attributes and employability skills are also issues discussed in several previous studies in the context of Malaysian TVET. A systematic review of TVET literature indicates that technical skills still dominate the curriculum, but there is a need to enhance soft skills and other employability skills. Today's industry demands more than just technical skills but also an understanding of communication, teamwork, and adapting to new technologies. This indicates that the TVET education system needs to move towards, producing holistic human capital. Graduates equipped with such skills will be better prepared to adapt to technological changes in the automotive sector (Ragunathan, 2023).

The empowerment of TVET is expected to be a catalyst for Malaysia's overall economic development by providing a skilled workforce in various fields, including

automotive. The government has allocated funding and strategic partnerships to ensure TVET can meet the demands of the industry. These initiatives include aligning curricula and training programs with industry demands, as well as opportunities for international collaboration. With a holistic strategy in the TVET sector, graduates are expected not only to enter the job market but also to contribute to innovation and productivity in the automotive sector. Therefore, assessing the industry's perception of graduate competencies is fundamental to more responsive TVET reforms (Anafi & Noor, 2024).

The automotive industry requires graduates who are not only skilled but also able to adapt to rapidly evolving technologies such as hybrid and electric vehicles. A successful TVET program must provide practical training that is relevant to current technologies. This is to ensure that graduates can be an asset to the industry on their first day of work. If there is a gap between the TVET curriculum and industry demands, graduates may face difficulties in the job adaptation process. The automotive industry often views practical skills and technological understanding as crucial elements in determining a graduate's level of competence (Said, 2023).

From the industry's perspective, TVET graduates are often seen as a valuable workforce because they are trained to perform technical tasks directly. Employers in the automotive sector acknowledge that graduates with TVET training have an advantage in performing practical work and solving technical problems hands-on. However, the industry also expresses expectations for other aspects such as interpersonal skills and the ability to work in a team. This indicates that the industry's perception is not solely about technical skills, but also about the graduate's overall competence. Graduates who demonstrate a combination of technical and soft skills will find it easier to adapt in the workplace (Saud, 2021).

Although the employability of TVET graduates shows promising results, there are still challenges in ensuring that every graduate can consistently meet industry demands. This is because each industry sector has its own competency standards that graduates must meet. The automotive industry, for example, has specific requirements in mechanical and electronic competencies that the TVET education system must address. The mismatch between the courses taught at institutions and the skills required in the workplace can make it difficult for graduates to adapt. Therefore, a deeper understanding of industry perceptions is crucial for addressing this shortcoming (Aziz & Subramaniam, 2023a).

The emphasis on industrial training is a significant mechanism in bridging the gap between academic skills and practical application in TVET. Industrial training provides students with opportunities to experience real-world work situations and gain practical experience relevant to industry demands. This, in turn, helps graduates understand employer expectations and the competency standards required in the workplace. In the automotive sector, such exposure is crucial due to the practical nature of the work and ever-changing technology. Consequently, employers' perceptions of graduate competence are often influenced by the industrial training experience they have undergone (Aziz & Subramaniam, 2023a).

Another challenge faced by the TVET system is society's perception of vocational pathways as a primary educational track. There is still a stigma that TVET programs are a second choice compared to traditional academic education. This perception can affect student motivation as well as parental support for TVET educational pathways. However, TVET can provide promising career paths and competitive salary opportunities, especially for those skilled in technical fields. High-quality TVET graduates will enhance the reputation of the TVET system and attract more students. This again highlights the importance of examining industry perceptions as a reflection of general public knowledge (KEMENTERIAN PENGAJIAN TINGGI, 2022).

Additionally, government policies and actions also play a role in ensuring that TVET education is evaluated and adapted to current needs. The National TVET Policy 2030 provides a long-term roadmap for aligning educational standards with industry demands through multi-sector collaboration. This policy also emphasizes the development of 21st-

century skills and the integration of technology into TVET programs. Through a comprehensive approach, Malaysian TVET graduates are expected to possess relevant skills and be able to compete globally. This can also improve the industry's perception of graduate competencies (PRAKTIKAL & SANI, t.t.).

This study focuses on the automotive sector as a case study because this field requires highly specific competencies and ever-evolving technology. By adopting a case study approach, a more detailed picture can be obtained of how the industry assesses the competencies of TVET graduates. This analysis will help identify the strengths and weaknesses in the current TVET training system as well as the relationship between education and industry needs. Such a study also helps explore the extent to which graduates are prepared to face real job challenges. This provides a strong foundation for future TVET education improvement proposals (Aziz & Subramaniam, 2023a).

Universities and training institutions in Malaysia are also increasingly collaborating with the industry to enhance the quality of TVET training. For example, several universities implement practical training programs in partnership with industry to ensure graduates are highly skilled and relevant to current technological developments. This collaboration can improve graduates' ability to adapt to real-world work standards and strengthen employers' confidence in their competence. In the automotive context, the university-industry relationship can open direct job opportunities for graduates. This is a key element in shaping the industry's positive perception of TVET graduates (Ansen, 2023).

Overall, the industry's perception of TVET graduates' competencies in the automotive sector is a key factor in determining the success and effectiveness of the vocational education system in Malaysia. Industry assessment can provide insight into the extent to which graduates meet actual job requirements and industry competitiveness. This study contributes to improving the quality of TVET through a deep understanding of industry perspectives and offers constructive recommendations to policymakers and educational institutions. This, in turn, can support national economic goals and the development of a competitive, skilled workforce. Therefore, understanding industry perceptions not only reflects the current performance of TVET but also serves as a foundation for future reforms (Ismail dkk., 2024).

LITERATURE REVIEW

Technical and Vocational Education and Training (TVET) in Malaysia has long been recognized as a strategic instrument in the nation's human capital development. According to the (KEMENTERIAN PENGAJIAN TINGGI, 2022), TVET aims to produce a highly skilled workforce that aligns with current industry needs. Several local studies indicate that TVET plays a crucial role in enhancing graduate employability, particularly in the technical and vocational sectors (Yunos dkk., 2020). The effectiveness of TVET is often measured by the employability rate and industry acceptance of its graduates. Therefore, industry feedback is a key element in evaluating the success of the TVET system. The literature indicates that the relationship between education and industry needs to be dynamic and mutually complementary.

The concept of TVET graduate competency encompasses a combination of technical skills, theoretical knowledge, and soft skills. According to (Hassan & Wahab, 2019), technical competency refers to a graduate's ability to operate equipment, machinery, and technology related to their field of study. In the automotive context, this competency involves mechanical skills, automotive electronics, and vehicle diagnostics. A study by (Ismail dkk., 2024) found that employers tend to evaluate graduates based on practical proficiency rather than purely academic achievements. This underscores the importance of practical training in TVET programs. Graduate competency must be assessed holistically to align with industry demands.

In addition to technical skills, soft skills are also identified as an important component of TVET graduate competence. Communication, teamwork, discipline, and work ethics are often emphasized by the industry in Malaysia (Zainudin & Kadir, 2020). A study by (Rahman

dkk., 2022) indicates that a lack of soft skills is one of the main factors making it difficult for graduates to adapt to the workplace. The automotive industry, in particular, requires workers who can interact effectively in a complex work environment. Therefore, the literature emphasizes the need for integrating soft skills into the TVET curriculum. The combination of technical and soft skills produces more competent and competitive graduates.

Industry perceptions of TVET graduates are often used as an indicator of the effectiveness of vocational education. According to a study by (Omar & Ahmad, 2019), employer perceptions are influenced by graduates' job performance, work attitude, and problem-solving abilities. Industries that are satisfied with graduate performance are more likely to continue collaborating with TVET institutions. Conversely, negative perceptions can harm the reputation of educational institutions. The literature indicates that industry perception is contextual and varies by sector. Therefore, a specific study in the automotive sector is significant for obtaining a more accurate picture.

The automotive sector in Malaysia is experiencing rapid development in line with technological advancements and the shift towards electric vehicles and smart systems. According to the (MARii, 2022) report, the automotive industry requires a workforce with up-to-date technical skills and the ability to adapt to new technologies. A study by (Hamzah dkk., 2021) found that the TVET curriculum must be continuously updated to keep pace with changes in automotive technology. Failure to adapt the curriculum can lead to a mismatch between graduate skills and industry demands. Literature supports the need for active industry involvement in TVET curriculum development. This is crucial for ensuring the sustainability of graduate competencies.

Industrial training is a crucial element in enhancing the competence of TVET graduates. According to (Yusof & Samad, 2020), industrial training provides students with direct exposure to a real work environment and industry standards. In the automotive sector, this experience helps students understand work procedures, the use of modern equipment, and safety culture. Local studies show that graduates who undergo quality industrial training are more readily accepted by employers (Azman dkk., 2020). Therefore, the effectiveness of industrial training also influences the industry's perception of TVET graduates. The literature recommends that the duration and quality of industrial training be strengthened.

Collaboration between TVET institutions and industry is identified as a critical factor in developing graduate competencies. According to (Noor & Hamid, 2019), strategic collaboration can help institutions understand the real needs of the industry. The form of this collaboration includes sharing of expertise, joint curriculum development, and the provision of industrial training. Studies in Malaysia show that institutions with strong industry networks produce graduates who are more relevant to the job market (Latif dkk., 2022). In the automotive context, this collaboration is crucial due to rapid technological changes. The literature emphasizes that the ongoing relationship between institutions and industry needs to be strengthened.

Several previous studies have found a gap between the skills taught at TVET institutions and the actual needs of the industry. According to (Salleh & Ibrahim, 2020), this gap stems from constraints in facilities, instructor expertise, and exposure to the latest technologies. The automotive industry, which uses modern technology, often finds that graduates are unprepared to face real-world job challenges. The literature indicates that this gap can be reduced through industry involvement in the training and assessment process. Industry assessment of graduate competencies provides valuable feedback to TVET institutions. Therefore, research on industry perceptions is highly relevant.

Studies related to industry perceptions in Malaysia mostly focus on graduate employability in general. However, studies focusing on the automotive sector are still limited (Rahim dkk., 2021). This sector has specific competencies that differ from other sectors. Therefore, a case study approach in the automotive sector can provide a deeper and more contextual understanding. The literature supports the use of case studies to explore

employer perceptions in detail. This allows researchers to identify the specific strengths and weaknesses of TVET graduates.

In conclusion, the literature indicates that the competencies of TVET graduates are influenced by various factors, including curriculum, industrial training, soft skills, and industry collaboration. Industry perception is a crucial element in assessing the effectiveness of the TVET system, particularly in the high-tech automotive sector. Previous studies emphasize the need for continuous improvement in TVET education to align with industry demands. However, a research gap remains that requires further exploration from the perspective of the automotive industry in Malaysia. Therefore, this study is expected to contribute to enriching the literature and improving national TVET practices.

METHOD

This study employs a qualitative approach with a case study design to explore the industry's perception of the competencies of TVET graduates in the automotive sector in Malaysia. This approach was selected because it facilitates a deep and contextual understanding of employers' views, experiences, and assessments (Creswell & Poth, 2018). A case study is particularly suitable as the research focus is narrowed to a single industry sector with specific and dynamic skill requirements (Yin, 2018). Through this design, the phenomenon can be analyzed holistically based on workplace realities, allowing for the exploration of nuances that cannot be captured quantitatively (Merriam & Tisdell, 2016).

The study was conducted within the Malaysian automotive sector, involving diverse organizations such as maintenance workshops, service centers, and manufacturing companies. Respondents were selected using purposive sampling, consisting of industry representatives with direct experience supervising TVET graduates, including managers, technical supervisors, and human resource managers (Patton, 2015). The primary criterion was a minimum of three years of professional experience in the automotive industry to ensure the information obtained was authoritative and relevant. The final number of respondents was determined by data saturation, the point at which no new themes or information emerged from the interviews (Rasul dkk., 2021; Saunders dkk., 2018).

Data was gathered through semi-structured interviews, developed based on an extensive literature review regarding TVET competencies and industry demands. The interview protocol addressed four key domains: technical skills, soft skills, work attitude, and readiness for the professional environment (Hamzah dkk., 2021). Interviews were conducted either face-to-face or online, depending on respondent availability. Each session was recorded with explicit permission and transcribed verbatim to ensure data integrity and facilitate detailed analysis (Kvale & Brinkmann, 2015).

The transcribed data were analyzed using thematic analysis, a systematic process of identifying, analyzing, and reporting patterns within the data (Braun & Clarke, 2021). The analysis began with an immersive reading of the transcripts, followed by the generation of initial codes. These codes were then categorized into main themes, including technical proficiency, soft skills gap, work readiness, and graduate challenges. This systematic approach ensures that the interpretation remains consistent with the raw data and provides a rigorous foundation for the study's findings (Flick & Flick, 2018).

To ensure the study's validity and reliability (trustworthiness), techniques such as member checking and peer debriefing were utilized during the analysis phase (Lincoln & Guba, 1985). Ethical considerations were strictly maintained; informed consent was obtained from all participants, and confidentiality and anonymity were guaranteed throughout the process (Miller dkk., 2020). All data were used exclusively for academic purposes. These rigorous measures were implemented to ensure the integrity of the findings and to effectively achieve the study's objective of understanding industry perceptions of TVET graduate competencies in Malaysia.

RESULTS AND DISCUSSION

The study's findings indicate that, in general, the automotive industry maintains a moderate to positive perception regarding the competency of TVET graduates in Malaysia. While most respondents acknowledged that graduates possess sufficient basic technical skills for workplace tasks, they noted that competency levels vary significantly based on institutional background, industrial training duration, and technological exposure. These findings are consistent with (Yunos dkk., 2020) and (Ahmad dkk., 2023), who argue that the quality of TVET graduates remains non-uniform across the nation. This disparity underscores a critical need to standardize TVET training frameworks, a sentiment echoed in international benchmarks which suggest that standardized certification improves labor market mobility (OECD, 2022; Rasul dkk., 2021).

In terms of technical proficiency, respondents stated that graduates are generally capable of performing basic automotive maintenance and operating workshop equipment. However, their mastery of advanced automotive technologies such as vehicle electronic systems and digital diagnostics is still categorized as moderate. These results support the study by (Hamzah dkk., 2021) and (Mustapha, 2022), which identify a persistent gap between TVET curricula and rapid industrial evolution. Globally, this "skills gap" is a recognized challenge in the transition toward Industry 4.0, requiring a more technology-oriented training approach to ensure graduates remain relevant (Spottl & Windelband, 2021; World Bank, 2023).

Industry respondents rated the practical efficiency of TVET graduates as superior to that of academic-stream graduates, noting that TVET alumni require a shorter adjustment period when performing hands-on tasks. This finding aligns with (Ismail dkk., 2024) and (Wahid dkk., 2022), who emphasize that the core strength of TVET lies in its practical-based training. Nevertheless, respondents highlighted that this efficiency is often hindered by limited exposure to actual industry-grade technology. This facility constraint is a common hurdle identified by (UNESCO, 2021) and (Mohamad dkk., 2020), suggesting that stronger, strategic collaborations with the industry are vital to provide students with authentic learning environments (Sern dkk., 2021).

Regarding soft skills, the study revealed a consensus among respondents that TVET graduates remain weak in communication and self-confidence, often appearing less proactive in voicing opinions or interacting with clients. This is consistent with (Zainuddin dkk., 2020) and international research by (Jackson, 2024), which labels soft skills as a primary weakness among technical graduates. Because the modern automotive work environment relies heavily on teamwork and client relations, the development of these interpersonal attributes is essential for workplace effectiveness (Alias dkk., 2023; Suarta dkk., 2022).

Beyond communication, work attitude and discipline are paramount in industry assessments. Respondents noted that while most graduates demonstrate satisfactory discipline regarding punctuality and adherence to instructions, a minority still lack the resilience and sense of responsibility required under high-pressure conditions. This supports the findings of (Rahman dkk., 2022) and (Bakar dkk., 2021), who assert that professional attitude is a primary determinant of employability. Strengthening character-building modules is therefore necessary to meet the socio-emotional demands of the global workforce (Azman dkk., 2020; Rizvi dkk., 2020).

The study further revealed that industrial training experience is a pivotal factor in shaping industry perceptions of graduate competence. Respondents indicated that graduates who complete internships of adequate duration within relevant organizations exhibit superior job performance. These findings are consistent with (Yusof & Samad, 2020) and (Maclean dkk., 2022), who argue that industrial training significantly enhances a graduate's readiness for the complexities of the professional world. By serving as a critical bridge between theoretical knowledge and practical application, the industry views this experience as a primary value-added component for TVET alumni (Billett, 2023; Latif dkk., 2022). Consequently, there is a pressing need to elevate the qualitative standards of

industrial training programs to meet global benchmarks (International Labour Organization, 2023).

However, respondents highlighted that the implementation of industrial training lacks uniformity across TVET institutions. A significant concern is the placement of graduates in organizations that are only tangentially related to the automotive field, which dilutes the impact of the training on core competency development. This finding supports (Salleh & Ibrahim, 2020) and (Akyol & Gurer, 2022), who emphasize the necessity of rigorous coordination in industrial placements. To maximize learning outcomes, industry stakeholders suggest that TVET institutions must be more selective in their partnerships, fostering strategic collaborations that ensure high-quality, relevant technical exposure (Sern dkk., 2021; UNESCO, 2021).

From a work-readiness perspective, the majority of respondents acknowledged that TVET graduates are generally prepared to enter the labor market, demonstrating a foundational understanding of work culture and organizational structures. Nevertheless, this readiness is often predicated on the provision of initial guidance and mentorship to bridge the gap toward specific industry work standards. These findings align with (Omar & Ahmad, 2019) and (Wahid dkk., 2022), who suggest that early-career support is essential for long-term retention. Forward-thinking industries view this initial guidance not as a burden, but as a strategic investment to accelerate graduate productivity and professional integration (Rahim dkk., 2021; World Bank, 2023).

The study also identified that the automotive industry holds high expectations for graduates to keep pace with rapid technological advancements. Respondents emphasized that a "lifelong learning" mindset is now a mandatory competency for adapting to the shift toward electric vehicles (EVs) and smart manufacturing. This finding is in synergy with the (MARII, 2022) report and international findings by (Spottl & Windelband, 2021), which advocate for a flexible, tech-savvy workforce. To maintain competitiveness, TVET institutions must move beyond static curricula and foster a culture of continuous learning, ensuring graduates are equipped with the cognitive agility required for the future of work (Ahmad dkk., 2023; OECD, 2022).

Regarding the curriculum, respondents opined that TVET instructional content must become more responsive to the dynamic needs of the automotive sector. The industry noted that their current involvement in curriculum development remains constrained. This finding is consistent with (Noor & Hamid, 2019) and (Mustapha, 2022), who emphasize that industry collaboration in curriculum design is not merely beneficial but essential. Without direct industry input, academic frameworks risk becoming obsolete. Therefore, a robust two-way collaboration must be institutionalized to ensure training relevance, a strategy strongly advocated by international bodies to align education with market demands (OECD, 2022; UNESCO, 2021).

This study also demonstrates that industry perceptions of TVET graduates are heavily influenced by the cumulative experiences of individual employers. Positive encounters with high-performing graduates significantly bolster industry confidence in TVET institutions, whereas negative experiences can erode long-term trust. These findings support (Latif dkk., 2022) and (Jackson, 2024), who argue that a graduate's reputation serves as a proxy for the institution's brand. Consequently, maintaining consistent graduate quality is paramount, as industry perception is a longitudinal construct formed through repeated professional interactions (Ahmad dkk., 2023; Bakar dkk., 2021).

From an institutional development perspective, the findings indicate that TVET institutions with robust industry links produce significantly more competent and adaptable graduates. Respondents noted that active collaboration facilitates a more seamless transfer of technology and specialized knowledge. This aligns with (Rahim dkk., 2021) and (Maclean dkk., 2022), who highlight the importance of industry networking in modern vocational education. Such relationships provide a competitive advantage by allowing institutions to stay abreast of technological shifts, a necessity echoed by (Rasul dkk., 2021) and (Sern dkk., 2021).

The study confirms a persistent skills gap between industry expectations and actual graduate competencies, particularly in the domains of emerging technology and soft skills. These results corroborate the earlier work of (Hassan & Wahab, 2019) and (Hamzah dkk., 2021). To mitigate this, industry stakeholders suggest that competency assessments be conducted jointly with industry experts to ensure evaluations are grounded in realistic workplace standards. Addressing this gap requires a systemic approach that integrates advanced technical training with socio-emotional development (Rizvi dkk., 2020; World Bank, 2023).

In conclusion, the findings of this study reinforce the established literature stating that industry perception is a critical benchmark for the effectiveness of TVET education. This perception serves as a holistic reflection of curriculum relevance, the quality of industrial training, and the strength of institutional partnerships. These findings are consistent with (Yunos dkk., 2020) and (Omar & Ahmad, 2019), suggesting that the industry evaluates graduates beyond mere technical proficiency. Therefore, the TVET pedagogical approach must be comprehensive and industry-centric to effectively contribute to national human capital development (Azman dkk., 2020; International Labour Organization, 2023).

CONCLUSION

This study concludes that, in general, the automotive industry in Malaysia recognizes the importance and role of TVET graduates in meeting the country's technical workforce needs. TVET graduates were found to possess a sufficient and relevant foundation of technical skills in the automotive field, particularly in the areas of basic operations, maintenance, and the use of technical equipment. However, the level of proficiency in these skills still varies depending on the training institution, industry exposure, and practical experience the graduates receive during their studies. These findings indicate that TVET remains relevant but requires continuous improvement to keep pace with technological developments in the automotive industry.

In addition to technical skills, this study also emphasizes that soft skills play a crucial role in determining the employability of TVET graduates. The industry values aspects such as work discipline, communication, professional attitude, teamwork ability, and a willingness to learn as key factors influencing the performance of graduates in the workplace. A lack of soft skills was found to be among the main challenges faced by TVET graduates, even though they possess good technical skills. Therefore, the development of TVET graduates must be implemented holistically by balancing technical and soft skills.

Overall, this study suggests that strategic collaboration between TVET institutions and the automotive industry be strengthened, particularly in the areas of curriculum alignment, industrial training, and exposure to current technologies. Continuous improvement of the in the TVET system is crucial to ensure that the graduates produced truly meet the expectations and needs of the industry. This study is also expected to serve as a reference for policymakers, educational institutions, and the industry in their efforts to empower the TVET system in Malaysia. With a more integrated and industry-oriented approach, TVET has the potential to become a key driver of human capital development and the growth of the nation's automotive sector.

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