

Beyond Employability Rhetoric: A Critical Review of Curriculum Mismatch, Industry Collaboration and Soft-Skills Gaps in Higher TVET (H-TVET) Institutions

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ABSTRACT:

Higher Technical and Vocational Education and Training (H-TVET) institutions occupy a strategic position between higher education and labour-market preparation, with the expectation of producing graduates whose knowledge, skills, and competencies are responsive to dynamic industrial demands. However, the realization of this mandate remains persistently problematic. This critical review synthesizes literature on three interrelated challenges in H-TVET: curriculum–industry mismatch, weak collaboration between institutions and industry, and inadequate soft skills development. It examines how these issues are conceptualized in the literature, the institutional and pedagogical conditions that sustain them, and the reasons they endure despite sustained policy emphasis on TVET reform. The review argues that an excessive emphasis on employability through curriculum content alone obscures the importance of institutional capacity and learning ecosystems in shaping graduate readiness. Structural constraints, including limited resources, uneven lecturer professional development, and fragmented policy implementation, further reinforce these problems. In response, the paper calls for a more integrated reform agenda that incorporates systematic embedding of employability skills, competency-based pedagogy, authentic industry engagement, and curriculum renewal. The review concludes by identifying priorities for future research, particularly longitudinal, comparative, and multi-stakeholder

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studies that can assess the extent to which H-TVET reforms improve graduate outcomes.

Keywords: Higher Technical and Vocational Education and Training (H-TVET), curriculum-industry mismatch, industry-institution collaboration, soft skills development, TVET employability

1. Introduction

In recent years, H-TVET has played an important role in the national discourse on employability, industrial development and economic resiliency. The policy placement of H-TVET as a “practical” alternative to solve the problems of a high number of unemployed graduates, skills shortages and labour force required to adapt to technological change is prevalent in the policy discourse across the developing world (Joseph et al., 2025; Magagula & Awodiji, 2024). H-TVET is assessed not only on academic outcomes but also on the extent to which it can achieve occupational competence and productive labour-market involvement (Shi & Bangpan, 2022).

This double expectation is a chance and a pressure. On the other hand, H-TVET can provide highly relevant forms of education, which combine theory, application and workplace preparation (Thomas et al., 2024). However, it can be open to attack when graduates are not sufficiently equipped, if employers see a lack of skills, or if institutional production is lagging behind technological and industrial progress. Discussions of the quality of H-TVET often focus on the extent to which the institutions are aligned with work or if they are aligned in rhetoric and policy talk (Muhwezi et al., 2025).

The following challenges are prominent in the literature reviewed here. The first relates to curriculum–industry mismatch: the degree to which the curriculum, pedagogy and assessment of H-TVET matches current workplaces (Kamaruzaman et al., 2024; Motsepe et al., 2026). The second is poor industry–institution collaboration that impacts curriculum design, practical training, internship provision, and feedback from the labour market (Hussain et al., 2021; Muharam et al., 2025). The third is a lack

of soft skills development, which has been identified as a problem as a growing need for technical knowledge is not enough for employability in the present-day business environment (Mwita et al., 2023; Papp et al., 2023). Furthermore, the persistence of these systemic issues is frequently compounded by a lack of industry exposure among faculty, which limits their ability to model the self-motivation and initiative required by contemporary employers (Beatrice & Peter, 2023; Rus et al., 2023).

This manuscript addresses these three issues not as separate symptoms but as co-defining dimensions of the performance of H-TVET. It seeks to go beyond the simple description of problems to include a critical analysis of how problems are represented in the literature, the underlying assumptions of the current reform discourse, and future directions for scholarship that will help to build the body of evidence.

2. Review Scope and Approach

This manuscript uses a narrative critical review method using the principal sources found in the evidence base for this task. The first one looks at the problems in TVET education in HLEI using a survey method with the perception of the students in a higher learning institution in Malaysia. The second source focuses on a wider conceptual context for the institutional constraints, policy tensions and pressures for system reform in the context of a broader conceptual challenge to TVET in the global context.

3. Conceptual Foundations of H-TVET

H-TVET can be conceptualized as a higher level of education targeting technical and applied and job-oriented activities (Powell & Solga, 2010). It

must foster skills in problem solving and knowledge that is transferable, and in many instances, a wider occupational judgment, in addition to narrow job training. This implies that H-TVET functions in a blended field, within both higher education and assessed by largely non-academic criteria like employability, practical performance, and industry relevance (Naziz, 2019).

The study of the higher learning institution is based conceptually on experiential learning, particularly the concept of competence development that is carried out in a cycle of concrete experience, reflection, conceptual understanding and active experimentation. The framework is helpful because it emphasizes that the quality of H-TVET is not equivalent to syllabus content, it is the quality of the entire H-TVET. Students should have structured opportunities to do real tasks, assess their knowledge in practice, review their results and adjust their knowledge based on real-world needs. Relevance in H-TVET, experiential learning proposed, is pedagogical as well as curricular (Hatipoglu & Özoğul, 2026).

A second conceptual problem is related to employability. Employability, as presented in the literature, is often presented as an easily attainable educational goal, but a careful reading indicates that it is a relational and context dependent construct in addition to individual capability and that it is influenced by the economic situation, the employer's expectations, institutional reputation and social capital. This is important because if employability is solely a function of the curriculum content, then institutions may focus on changes to the curriculum and miss out on other factors that affect graduate transitions to employment (Tomlinson et al., 2021). Because several key terms are used inconsistently across the literature.

4. Present Research Landscape

Research on current challenges of H-TVET is strongly directed towards the aspect of employability, relevance and perceived quality of teaching and learning. The researchers employed a quantitative survey research design and

stratified random sampling to select respondents and descriptive statistics to analyze the study on the challenges that impede the development of graduate employability skills in TVET in higher learning institutions. This approach offers great insight into the students' experience of H-TVET and is particularly relevant to the delivery of the curriculum and readiness to work.

Some of the limitations of this research, however, are identified. Much of the literature is not intervention focused but problem focused that is it is far more likely to indicate a gap than it is an evaluation of a solution. Much of the research also focuses on the language of alignment, readiness and skills and relatively little research examines the influence of institutional power and resources, or the competing educational purposes on the maintenance of these issues. This pattern suggests that student-centered reforms in TVET, such as flipped classroom implementation, may be feasible only when they are introduced gradually and supported by clear guidance, because students often remain shaped by teacher-centered learning habits even when their digital readiness is high (Ghazali et al., 2026).

The overall TVET literature supports this view that these challenges are not specific to a specific institution or country. There are concerns about global discussions in relation to pressures from technological development, resource constraints, poor social perception of TVET, and problems in establishing a quality system that is responsive and not cumbersome (Amin et al., 2023; Beatrice & Peter, 2023; Cheok & Li, 2023; Ogur, 2023). The wider literature is valuable because it helps to avoid overly local explanations and contextualises the H-TVET challenges in broader structural shifts of the education-to-work systems.

5. Critical Review of the Three Main Challenges

5.1 Curriculum–Industry Mismatch

It is argued that the largest and most evident challenge in H-TVET is curriculum–industry mismatch (Maceke et al., 2025; Motsepe et al., 2026). On the most basic level, it's a mismatch between the skills students are developing in

school and those employers need. However, a critical examination reveals that there is more to it than meets the eye (Balada & Lo, 2025).

In many publications mismatch is presented as an issue of obsolete content. This perspective holds that institutions do not update syllabus, equipment, standards or modules quickly enough to keep pace with technological advances and workplaces requirements (Febrianti et al., 2024). In part, this is a convincing explanation, particularly in rapidly evolving technical fields where knowledge and tools quickly become obsolete. But a deeper critical reading indicates that outmodedness is one dimension of content.

A deeper issue is that curriculum relevance is often thought of as a state of alignment, rather than as a dynamic relationship that needs to be continuously translated between the education and industry logics (Mahardhani et al., 2023). Workplaces are not just a source of one-shot lists of skills to be copied and pasted into modules. They undergo technological change, organizational changes, uncertainty in the market, and new production technologies. If that's the case, the questions of curriculum relevance cannot be addressed through short-term revision exercises but needs institutional processes for continuous responsiveness.

This idea is supported although not always developed by the literature that was consulted. For instance, if the H-TVET study indicates that lecturers are struggling to find a match between the courses they teach and the needs of employers, this could be a sign of more than a half-hearted attempt or lack of consciousness (Nkwanyane, 2023). It could also suggest that institutions need a longer time to process change than industries because of their approval process, staff structure and limited resources. In this respect, mismatch is not only a problem in teaching, but also a time-lag problem in institutions that lack the inherent capacity for agile curriculum adaptation due to systemic reliance on rigid, short-term funding models (Wagner et al., 2025).

The other little-explored aspect is the supposed uniformity of "industry needs" and the ability to know what those needs are (Febrianti et al., 2024). Job firms vary in short-term labour demand, technological sophistication, sector, and firm size. Some may look to technical skills that can be applied right away, while others may look at being adaptable, trainable, and have a greater ability to learn. When literature refers to 'alignment with industry' in singular terms, it may overlook a very differentiated demand. This is important because institutions can be blamed for being misaligned even if the expectations of the employers are varied or volatile (Hutson et al., 2023).

The curriculum challenge is also didactic. Although a program may have content relevant to the task at hand, it may not result in competent graduates if learning is too didactic or too detached from application (Tena et al., 2025). The theory of experiential learning is significant here, because it involves a change from curriculum as document to curriculum as enacted practice. Students' access to new topics is not the only way to prepare them for the workplace; they are also prepared by doing real or simulated work tasks that involve them in making decisions, reflecting on their work, working in groups, and adapting to new situations.

However, the literature clearly shows that the challenge of curriculum – industry mismatch is a fundamental weakness, which has the potential of undermining the essence of H-TVET, despite the limitations. A lack of understanding about the link between education and work among students and employer's damages confidence in the value proposition of H-TVET. Hence, the ongoing agenda to reform the curriculum remains the main focus of TVET improvement efforts. Table 1 summarises the main dimensions of curriculum-industry mismatch identified in the literature and highlights the more critical interpretation advanced in this review.

Table 1. Critical Dimensions of Curriculum–Industry Mismatch

Dimension	Common problem in the literature	Critical interpretation	Source
Content relevance	Curriculum is outdated relative to current workplace demands	Outdated content is only one aspect; the larger issue is weak responsiveness to continuous industrial change	(Tefari, Gu, & Wu, 2025)
Skills alignment	Graduates lack the skills employers need	Employer needs are not always uniform, making “alignment” more complex than often assumed	(Kebede, Asgedom, & Asfaw, 2024)
Teaching delivery	Lecturers struggle to connect theory and practice	The problem may stem from pedagogical design and institutional constraints, not only lecturer capability	(Motsepe, Sethu, Sikhosana, & Dladlama, 2026)
Assessment	Students may pass without workplace readiness	Formal academic assessment may not adequately capture occupational performance	(Düzgünçınar, 2025)

5.2 Weak Industry–Institution Collaboration

The second significant challenge is the weakness of industry–institution collaboration, which abuts the heart of many solutions. The literature shows that without meaningful involvement of employers in the training design, in workplace exposure and in feedback systems, H-TVET will not be relevant (Muhwezi et al., 2025). However, there may be significant unanswered questions under this overall agreement. Specifically, while current policy discourses frequently advocate for deeper engagement, there is limited empirical understanding regarding the actual mechanisms that successfully incentivize employers to contribute to standard-setting and assessment beyond superficial consultation (Bank, 2021).

The problem is evident at the descriptive level. Lack of cooperation diminishes opportunities for internships, work-based learning, authentic assessment, exposure of the lecturer to practice in the workplace, and co-development of the curriculum. It also undermines the feedback mechanism that could enable institutions to recognize new technologies, changes in competency requirements or variation in recruitment needs.

The second issue is asymmetry of interest. The long-term goals associated with student development and credentialing, or even social mobility, exist in educational institutions, while the short-term goals of productivity, recruitment efficiency or skill requirements for the specific firm may be in effect in the workplace (Febrianti et al., 2024). These interests intersect but don't wholly overlap. This makes it harder for collaboration to be as easy as reform discourse proposes. Institutions might look for wide-ranging educational collaborations; employers may be looking for a more targeted relationship with some clear business benefit.

However, there is ample evidence in the literature that existing collaboration is insufficiently not overpowering (Yusuf et al., 2024). Students lose if internships are absent, poorly designed, and when feedback from industry does not influence the curriculum, and when lecturers have limited opportunities to update themselves in their work. However, weak collaboration can also exacerbate curriculum–industry mismatch, as it can take a long time for institutions to get a signal of change that is only superficial.

Existing literature has a limitation, as it recommends partnership without detailing the conditions of the organization that enable

partnership to be sustainable. Building a strong collaboration takes time, incentive, governance, and trust. It may also need some type of intermediation, professional association, or national framework that lessens the costs of engagement. Further work is required to understand collaboration architecture beyond just its desirability.

5.3 Inadequate Soft Skills Development

Thirdly, a lack of adequate soft skills development shows a marked shift in the understanding of the quality of H-TVET. Before this, vocational education was evaluated primarily in relation to technical skills, but the literature shifted to a more comprehensive set of skills associated with employability that encompasses communication skills, team working, leadership, adaptability, professional attitude and problem-solving (Choi-Lundberg et al., 2024).

This change is sound on one level. In today's work environment, collaboration, cross-functional interaction, customer contact, continuous learning, and many other things are necessary. It is not enough to have technical skill to be successful in such an environment. Employers may thus regard soft skills as non-negotiable asides, rather than mere add-on skills.

The literature reviewed here indicates that the capabilities are not always systematically integrated into H-TVET programs. Soft skills can be ignored as taken for granted and/or considered an add-on to technical courses, or even as a separate module that is not linked to vocational work (Wagiran et al., 2023). This is a poor way to go since soft skills are enacted in context. The collaboration in an engineering workshop is not similar to the collaboration in a classroom because it also has some time pressure, safety awareness, precision of communication and sharing responsibility. Recent review evidence suggests that blended learning is most effective in TVET when digital preparation does not replace workshop or workplace practice, but instead deepens students' tacit knowledge, reasoning, and professional judgment through repeated cycles of action and reflection (Azni et al., 2026).

A more robust model should therefore integrate non-technical aspects (soft skills) into real-life, work-based learning experiences. There are some directions suggested in the literature, but usually they go no further than general suggestions. Importance of communication and critical thinking is not enough, it needs to be said in a different way. The key one is how pedagogies, projects, internships, simulations and assessments designed by H-TVET institutions can become visible and developmental of these capacities.

6. Cross-Cutting Structural and Policy Problems

The literature suggests that the three fundamental challenges are related to broader structural conditions and not only to the lack of good local implementation. A common problem is a lack of institutional resources (Muharam et al., 2025). Practical and technical education is frequently more costly and demands greater infrastructure, such as labs and workshops, equipment, maintenance and supervision, than does lecture based education. When resources are limited, modernizing the curriculum and authentic practice is challenging.

The second structural problem was the lack of capability of lecturers and industrial currency. H-TVET lecturers might have academic or teaching credentials but lack exposure to the industry in recent years (Motsepe et al., 2025). This is not to suggest that the individual is deficient but has revealed the difficulty in remaining dual-professional in both teaching and occupational practice. Lecturers may find it difficult to understand the evolving expectations set by the industry or to plan the learning experience to meet the demands of the workplace without constant professional development (Kim & Park, 2025).

The third is fragmentation of policies. While TVET reform is frequently talked about in terms of a high-level national narrative on skills and competitiveness, implementation can take place at several levels, be under-invested, and poorly coordinated (Rahman et al., 2025). This may generate high expectations for institutions to

enhance employability outcomes without any clear policy guidance or incentives for curriculum innovation, staff training, or collaboration.

7. Future Perspectives for H-TVET Reform

Whether H-TVET institutions can move from reactive adjustment to anticipatory capability is the future of reform of the H-TVET. In practical terms, this translates to the creation of systems that identify changing skill requirements at an early stage, convert them to pedagogical and curricular strategies and assess performance by measuring whether they result in better student outcomes when measured against graduation standards.

The first is that curriculum renewal need to be sustained and evidence based. The regular revision cycles do not work in the rapidly evolving industries. To ensure content and practical tasks are up to date, institutions might require a modular approach to review processes, more robust employer feedback on the curriculum, and a more robust competency mapping model (Febrianti et al., 2024).

Second, partnerships need to be institutionalised instead of being based on the personal network or ad hoc projects. Clear governance structures, incentives to collaborate, and clear roles regarding the quality of internships and curriculum reviews and assessments can make collaboration more lasting (Chang & Kuo, 2025).

Third, lecturer development should be addressed as strategic priority. There is a need for continuous professional development of H-TVET teachers in both their industrial knowledge and their teaching practices. Even the best plans for reform can be poorly implemented in the classroom and workshop if the lecturer is not continually updated in his/her capability (Dalimunte & Harahap, 2023).

Fifth, H-TVET institutions might have to shift the perspective of what employability means to a more holistic developmental understanding. Programs should not be just designed to meet the short-term needs of the employer, but to help students transition between occupations, to continuously learn, and to work in increasingly

digital and team-based environments (Wales et al., 2023).

8. Conclusion

This review paper shows that there are three challenges that dominate the current debate on H-TVET institutions: curriculum–industry mismatch, weak industry–institution collaboration and inadequate soft skills development. These issues have been found to be barriers to employability and relevance of graduates in TVET in the present-day research, and they are reflected in wider TVET literature today as being part of wider structural, pedagogical and policy considerations.

A critical review of the literature indicates that the field has achieved success in identifying the key issues but has not yet been as successful in understanding the continuity of the issues and in assessing solutions. Alignment, relevance and soft skills are used everywhere and are often not well defined and weakly measurable. Besides, there are times in literature when enhanced responsiveness toward the employer is always seen as the primary remedy without a thorough analysis of the conflicts between the short-term demand for labour and the longer-term developmental role of higher vocational education.

The best approach is then not to consider the three challenges in isolation, but as a single institutional system. Strong partnerships and effective pedagogy are needed for curriculum reform, authentic technical and work contexts are needed for soft skills development, and governance, resources and mutual commitment are needed for industry collaboration. Future research should be stronger by making more use of comparative, longitudinal, intervention and policy-oriented studies to create an evidence base to ensure that the transformation of H-TVET shifts from a recurring diagnostic exercise to a proven and effective transformation.

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10. Author Declaration

Authors declare that there is no conflict of interest regarding the publication of the paper.

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