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Challenges and Structural Barriers to Student Success in Technical and Vocational Education: A Study in Tehran

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Original Article

Abstract

Background and Aim: Technical and vocational education (TVE) at high schools has been frequently highlighted as essential in key national strategic documents, such as the Comprehensive Scientific Map of the Country and various educational reform acts, under the premise that this track delivers a large number of skilled graduates to the labor market. Yet, despite this high-level prioritization, skepticism regarding the overall effectiveness and efficiency of TVE persists due to ongoing structural constraints.

Data and Method: To fully understand these obstacles, an in-depth investigation is required to explore the operational and institutional barriers affecting TVE from the perspectives of subject-matter experts and educational specialists. For this purpose, a qualitative research methodology was adopted, utilizing semi-structured interviews with 33 experts and specialists in the relevant field to gain comprehensive insights into the subject. The gathered interview data were systematically analyzed using thematic analysis.

Findings: The findings categorized the existing challenges into several key areas, including misalignment of training with labor market needs, lack of job opportunities for graduates of technical and vocational fields, lack of preparedness of trainees for real-world market conditions, weakness of educational equipment and facilities, socio-cultural factors, development of gender inequalities, and weak support for trainees.

Conclusion: Addressing these issues is crucial for enhancing the overall effectiveness of technical and vocational education, ensuring better structural alignment with labor market needs while promoting equitable access for all students.

***Keywords*:** Technical education, vocational education, thematic analysis, challenges, education policy, educational obstacles.

Key Message: Technical and Vocational Education (TVE) in Iran faces major structural, cultural, and policy-related challenges that significantly reduce its efficiency and institutional effectiveness, thereby preventing it from successfully meeting labor market needs and contributing to sustainable development.

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Introduction

Educational policy is regarded as a major initiative of governments aimed at improving the lives of all members of society, as it is a primary factor in socializing and mobilizing the community, as well as enhancing social justice and social cohesion (Alcock et al., 2012). Following the Islamic Revolution in Iran, significant emphasis was placed on technical and vocational training to address the shortage of skilled workers required in industry, agriculture, and services (Khallaqi, 2004). Special attention was paid to this sector in the country's diverse macro-development plans and documents, such as the Comprehensive Scientific Map of the Country (Salehi Omran et al., 2011), the Sixth and Seventh Five-Year Development Plans, and the Fundamental Transformation Document in Education. Consequently, it was emphasized that 50% of students should enroll in career training and business courses to acquire essential professional skills and competencies (Razvanfar et al., 2026).

The literature extensively confirms that one of the key determinants of a country's economic development is the skill level and expertise of its workforce, alongside the accessibility of employment opportunities for its active population. Furthermore, individuals receiving technical and vocational training are recognized as having both the potential and practical capacity to contribute effectively to skilled sectors (Asadi, 2019). This is particularly important for achieving sustainable development, which inherently centers on human development (Hojabrynejad, 2016; Hosseinzadeh et al., 2025; Rahmaninezhad et al., 2025). Given its significant role in advancing societal objectives, employment policies, and sustainable development, any challenges or barriers encountered in this area pose significant obstacles to achieving the overarching policies of the system. Accordingly, addressing such challenges should not be regarded as trivial, nor should they be confined solely to the educational sector.

Despite its recognized prominence, this type of education encounters several significant challenges. Among these challenges is the absence of a well-defined structure for interaction between technical and vocational education, the labor market, and industry. Additionally, as previous studies indicate, there is a mismatch in many regions between the skills taught in vocational schools and those needed in the labor market. Anwar and Mohamad (2022) asserted that technical and vocational education teachers, irrespective of their pedagogical competence, are unable to effectively implement instructional practices, primarily because existing facilities have not advanced in alignment with contemporary educational needs. Recent research indicates that structural pressures within the education system can lead to maladaptive behaviors among adolescents. For instance, in a qualitative study, Hosseini-Fathabadi et al.

(2022) identified self-harm among female students not merely as a psychological issue but as a response to normative stress and institutional pressures inherent in the educational system.

Shimu and Haolader (2025) highlighted another critical dimension of barriers, namely socio-cultural impediments, emphasizing that a positive societal and cultural perception of the significance and efficacy of technical and vocational education is still lacking. This deficiency undermines both the effectiveness of instruction and the motivation of teachers and students alike. In a similar vein, Mack and White (2019), while underscoring socio-cultural obstacles, contend that such barriers further exacerbate policy and structural deficiencies and contribute to increased student dropout rates.

However, when effectively planned and implemented, technical and career education can contribute to the growth and advancement of industries and the scientific level of the country. Additionally, effective and efficient technical and vocational training can cultivate an entrepreneurial spirit and create employment among community members, serving as an important solution to unemployment (Soleimani Khajeh Nas et al., 2022).

Theoretical Considerations

The theory of social efficiency is considered the unifying foundation of vocational education, often referred to as the doctrine of social efficiency. This theory is based on the assumption that only an efficient society can create a positive environment in which individuals can thrive and achieve satisfaction. From this perspective, preparing a workforce aligned with proper education is essential for an efficient society. Challenges related to vocational education from the social efficiency standpoint include the mismatch between curricula and the rapidly changing needs of the labor market, which can lead to skill shortages among graduates.

Another relevant theory is behaviorism, which emphasizes learning as a change in behavior shaped through environmental conditions and appropriate reinforcement (Seif, 2007). In vocational education, behaviorism can guide the teaching and assessment of the skills and behaviors required in work environments. From a behaviorist perspective, the main challenges in vocational education stem from an overemphasis on rote repetition and task completion, without fostering a deep understanding of fundamental concepts. If education focuses solely on observable behaviors and does not encourage active participation and experiential learning, vocational students will struggle to develop the comprehensive skill set required by employers in dynamic workplaces.

Constructivist theory (radical, cognitive, and social) in vocational education emphasizes knowledge formation through experience. In this approach, learners become self-directed and relate their personal and social experiences to work and other contexts (Eskandar & Nofreyash, 2016; Hosseini-Fathabadi et al., 2022). According to constructivism, vocational education prepares workers for skilled positions through a general system of pre-employment programs, on-the-job training, skill development, and retraining; this role remains central even in a changing society and workplace (Marques, 2018). From the constructivist perspective, challenges arise when teaching methods fail to promote active and experiential learning, resulting in passive knowledge acquisition. This theory also specifically addresses the problem of inadequate gender development in vocational education, emphasizing the importance of creating inclusive and supportive learning environments where all students feel valued and encouraged to participate.

Situated learning posits that knowledge acquisition is influenced by social context and individual experience, leading to deeper understanding and meaning. This theory argues that learning must occur within real-life situations and challenges to be effective. Learning is realized when students analyze and interpret presented situations and develop strategies to navigate common workplace obstacles, achieving practical outcomes (Saine & Atlaw, 2008). Situated learning emphasizes how the environment and location affect learning outcomes. In vocational education, this includes considering regional economic conditions, cultural attitudes, and available resources. A key challenge in vocational education is the lack of adequate facilities and resources, which situated learning addresses by highlighting the roles of instructors and students. A shortage of qualified vocational students often results in curricula that do not align with industry needs, creating a mismatch between acquired skills and employer requirements. Additionally, a negative social stigma associated with vocational education can affect students' and families' perceptions of its value, reducing willingness to participate.

Work-based learning is an educational approach focused on the workplace, involving structured training programs and practical experiences. This approach effectively integrates theory and practice, recognizing the workplace as a rich source of learning. Students acquire necessary skills and attitudes by observing and imitating experts (Anarti, 2016). Work-based learning has become a key element in international discourse to strengthen the school-to-work transition (Akoji, 2019). It aims to reduce the gap between theory and practice, creating meaningful learning and strong connections between classroom education, the workplace, and employment opportunities (Haruna & Kamin, 2019; Kavousi, 2008). Key challenges in work-based learning include limited collaboration between vocational education institutions and

industries, which reduces students' access to internships and practical experiences. Another challenge is that many vocational schools lack sufficient resources and equipment, hindering the simulation of real workplace environments.

The skills gap theory suggests that graduates' technical skills do not meet industry expectations or that there is insufficient alignment (Alinea, 2022; Abbaszadeh et al., 2019). Skills gaps become evident when the workforce lacks the abilities required to perform tasks to standard, or when workers' skill levels are inadequate for their current jobs. This may result from inadequate vocational or general education, such as when an employer upgrades equipment or introduces new technology without simultaneously upgrading workers' skills (Islam, 2018). This theory highlights significant challenges for vocational students, especially in developing the hard and soft skills essential for workforce success. A key concern related to hard skills is that many vocational programs fail to keep pace with rapid technological and industrial changes. Conversely, in terms of soft skills, many vocational programs give insufficient attention to developing interpersonal skills such as communication, teamwork, adaptability, and problem-solving.

Given the critical importance of effective vocational and technical training, and in light of existing challenges hindering its efficacy, addressing these impediments is paramount in the literature. A fundamental strategy for policymakers is to conduct an initial systematic investigation to identify these challenges. Consequently, this study seeks to examine the specific challenges confronting technical and vocational education, aiming to probe the question: what challenges hinder the effectiveness and efficiency of vocational and technical education? Acknowledging that knowledgeable specialists and experts are crucial sources of insight in this area, this study uses semi-structured interviews with them to address the research question.

Literature Review

The current literature on challenges in vocational and technical education (VTE) highlights several key themes. Numerous studies highlight the discrepancy between VTE curricula and the demands of the labor market (e.g., Azizi, 1998; Nafisi, 2011; Schnarr et al., 2008; Shakoori & Hassanvand, 2024). These researchers typically agree that VTE programs often fail to equip graduates with the necessary skills for successful integration into the workforce, potentially contributing to lower employment rates.

Table 1. *Summary Review of the Relevant Literature*

Author(s)	Year	Research Topic	Findings
Shakoori & Hassanvand	2024	ineffectiveness of technical and vocational education	Presented findings regarding the mismatch between education and the skills required in the labor market.
Zia et al.	2022	future workforce needs for technical and vocational education in Malaysia	Argued that current technical and vocational education institutions do not sufficiently meet the demand for skilled labor.
Ansari et al.	2023	Proposing a model to improve the quality of technical and vocational education in relation to the labor market	Developed a model aimed at enhancing the quality of vocational education based on labor market needs.
Hosseinzade et al.	2025	Challenges of transitioning from a resource-based industry to a knowledge-based industry: a case study in Khuzestan, Iran	The extracted causal conditions include the absence of owner-operated workshop spaces; Khuzestan Science and Technology Park; the mismatch between the quantitative growth of companies and the physical development of the Science and Technology Park; increased production costs due to limited workshop space; the park's inability to provide basic facilities for technologists; the allocation of industrial and mining halls to intermediaries; the non-implementation of national legislation in Khuzestan; and, ultimately, the deprioritization of research and development in knowledge-based companies.
Malekpour	2021	Assessing the challenges of technical and vocational education in the country (Iran)	Identified the weakness of human resources as the second major structural challenge.
Rahmani-Nezhad et al.	2025	Cultural barriers affecting empowerment derived from employment among women with disabilities in Khorramabad, Iran	The findings indicated that as experiences of oppression, gender stereotypes, and minority status among women with disabilities increase, their ability to find employment diminishes. Structural equation modeling results demonstrated a significant effect of these cultural barriers on the employment opportunities for women with disabilities in Khorramabad.

Table 1. *(Continued)*

Author(s)	Year	Research Topic	Findings
Didehvar et al.	2024	A comparative study of Master's courses in technical and vocational education in selected universities of Australia, Germany, Malaysia and United States of America	The findings of the study indicate similarities among the universities studied in allocating course units to three areas: principles of teaching, curriculum, and philosophy. For example, Tun Hussein Onn University of Malaysia and the Technical University of Munich in Germany show similarity in offering the course "Management of Technical and Vocational Education.
UNESCO	2016	Skills for the Future: A Global Report on Skills in Technical and Vocational Education	A global report mapping out the structural skills necessary for contemporary technical and vocational education.
Jalilian et al.	2017	A study of the match between vocational educational with industries sector educational needs in Khorramshahr city.	Highlighted skill gaps, resource constraints, and deficiencies in vocational education and their impact on job opportunities.
Billett	2014	Workplace participatory research	Proposed a comprehensive approach to workplace participatory practices and workplace learning in vocational education.

Furthermore, several studies point to a shortage of skilled personnel related to VTE (e.g., Jalilian et al., 2017; Malekpour, 2021; Rezvanfar et al., 2026; Zia et al., 2022). Notably, Zia et al. (2022) argued that current VTE institutions are unlikely to meet the future demand for skilled labor. Malekpour (2021), in evaluating challenges in Iranian VTE, ranked workforce deficiencies as a significant impediment. A final theme centers on the detrimental effects of disparate organizational involvement in VTE. A 2021 study by the Iranian Technical and Vocational Training Organization identified issues such as inter-agency overlap, lack of transparency, and subjective decision-making.

This review underscores that prior research, at both national and international levels, has investigated the challenges confronting VTE in relation to employment, labor market demands, and industrial sectors. While these studies provide valuable insights from specific angles and subject areas, a comprehensive investigation into VTE challenges, specifically focused on maximizing efficiency and effectiveness through the perspectives of specialists and experts,

remains absent. This gap in the literature may hinder a deeper understanding of the challenges and opportunities within VTE, highlighting the need for further research. Consequently, a comprehensive study that thoroughly investigates these challenges, along with their theoretical and philosophical bases, is required. A summary of relevant literature is presented in Table 1.

Methods and Data

The present study employs a qualitative research approach, gathering data through a semi-structured interview format. Semi-structured interviews were carried out with a purposively selected sample of 33 specialists and experts within the domain of technical and vocational education. To analyze the data, thematic analysis was employed, whereby concepts were extracted and organized under cohesive semantic categories following the implementation of the interviews (including open, axial, and selective coding).

The data collection process persisted until the point of theoretical saturation was attained, thereby indicating that the interviews were concluded once the emergence of novel insights or findings ceased. Because of restricted access to some specialists, certain interviews were conducted online.

The criteria for participant inclusion in the study included a minimum of 8 years of experience in technical and vocational education, residency in Iran, and possession of a master's degree or higher. To ensure the quality of the research, efforts were made to implement interviews accurately, provide the results of the coding process to participants, and utilize the insights of external reviewers. Two external reviewers, both holding PhDs in social sciences with a specialization in social planning and having more than 10 years of teaching experience at the University of Tehran, contributed to the verification of the research findings. Their comments regarding the findings and the coding process showed a remarkable alignment, with no significant conflicts identified. The demographic characteristics of the study participants are detailed in Table 2.

Table 2. *Demographic Characteristics of Study Participants*

#	Age	Gender	Education	Occupation	Experience
1	30	Male	Master's	Instructor, Technical & Vocational Training Org.	8 years
2	32	Female	Master's	Instructor, Technical & Vocational Training Org.	9 years
3	34	Male	PhD	Academic Researcher	10 years
4	36	Female	Master's	Instructor, Technical & Vocational Training Org.	8 years
5	37	Male	Master's	Director, TVET Center	10 years
6	38	Female	Master's	Instructor, Technical & Vocational Training Org.	11 years
7	39	Male	PhD	Academic Researcher	12 years
8	40	Female	Master's	Instructor, Technical & Vocational Training Org.	10 years
9	41	Male	Master's	Director, TVET Center	11 years
10	42	Male	Master's	Instructor, Technical & Vocational Training Org.	9 years
11	43	Female	PhD	Academic Researcher	13 years
12	44	Male	Master's	Instructor, Technical & Vocational Training Org.	10 years
13	44	Female	Master's	Instructor, Technical & Vocational Training Org.	9 years
14	45	Male	Master's	Director, TVET Center	12 years
15	45	Female	PhD	Academic Researcher	14 years
16	46	Male	Master's	Instructor, Technical & Vocational Training Org.	11 years
17	46	Female	Master's	Instructor, Technical & Vocational Training Org.	8 years
18	47	Male	PhD	Academic Researcher	15 years
19	48	Female	Master's	Instructor, Technical & Vocational Training Org.	12 years
20	48	Male	Master's	Director, TVET Center	11 years
21	49	Female	Master's	Instructor, Technical & Vocational Training Org.	13 years
22	50	Male	Master's	Instructor, Technical & Vocational Training Org.	10 years
23	50	Female	PhD	Academic Researcher	14 years
24	51	Male	Master's	Instructor, Technical & Vocational Training Org.	12 years
25	52	Female	Master's	Instructor, Technical & Vocational Training Org.	10 years
26	53	Male	PhD	Academic Researcher	15 years
27	54	Female	Master's	Instructor, Technical & Vocational Training Org.	11 years

Table 2. *(Continued)*

#	Age	Gender	Education	Occupation	Experience
28	55	Male	Master's	Director, TVET Center	13 years
29	56	Female	Master's	Instructor, Technical & Vocational Training Org.	12 years
30	57	Male	PhD	Academic Researcher	16 years
31	58	Female	Master's	Instructor, Technical & Vocational Training Org.	14 years
32	59	Male	Master's	Instructor, Technical & Vocational Training Org.	15 years
33	60	Female	PhD	Academic Researcher	17 years

Findings

As outlined earlier, this study aimed to conduct an in-depth examination of the multifaceted challenges confronting the efficiency and effectiveness of technical and vocational education (TVE) in Tehran. To achieve this objective, a qualitative methodology was adopted, utilizing semi-structured interviews to elicit comprehensive insights from various stakeholders, including educators, administrators, and industry professionals. The findings indicate that these challenges can be categorized into several prominent themes. Key among these is the misalignment of training programs with the actual requirements of the labor market, which leads to a disconnect between the skills taught and those needed by employers. Additionally, inadequate equipment and facilities in educational centers were highlighted as critical obstacles to effective learning and skill development. Socio-cultural factors were also identified, including negative societal perceptions of vocational education and the stigmatization associated with technical career paths. The subsequent sections present these extracted themes in detail, supplemented by participant quotations that highlight their experiences and perspectives. Ultimately, these findings provide valuable insights to inform future reforms and improvements in vocational education systems.

1. Misalignment of Training with Labor Market Requirements

One of the most salient themes emerging from this study is the pronounced misalignment of training programs with the actual and evolving needs of the labor market. This critical challenge not only minimizes the overall efficiency and effectiveness of the training provided but also introduces a host of structural issues. For instance, it often results in graduates entering unrelated jobs that do not utilize their skills or training adequately. This mismatch leads to

dissatisfaction among both graduates and employers, contributing to a cycle of unemployment or underemployment for individuals and a lack of qualified candidates for industries.

Given these circumstances, a thorough review of the educational content provided to trainees is essential to ensure that curricula remain relevant and effectively prepare students for the realities of the workforce. Rapid technological advancements continue to reshape the landscape of work, and an overreliance on outdated theoretical models in educational programs exacerbates this challenge. The insufficient flexibility in educational curricula further complicates the issue, making it increasingly difficult for programs to adapt dynamically to rapid changes within various industries. In this context, one expert poignantly remarked:

> *"We recognize that our training places an excessive emphasis on theoretical concepts, whereas this field of education necessitates greater attention to practical applications, which are more closely aligned with the demands of the job market."*

This statement underscores the urgent need for curriculum reforms that can bridge the gap between theoretical knowledge and practical skills, ultimately fostering a more robust and relevant educational experience. By rectifying these shortcomings, stakeholders can help ensure that graduates are better equipped to meet the demands of potential employers and contribute meaningfully to the labor market. This finding aligns strongly with the theoretical framework of *skills gap theory*, demonstrating that enhancing the effectiveness of technical and vocational training necessitates precise policies aimed at bridging this systemic gap.

2. Weakness of Equipment and Facilities in Educational Centers

Another salient theme identified in the discussions pertains to the critical insufficiency of equipment and resources in training centers. This concern was highlighted by one specialist, who remarked:

> *"The issue that severely diminishes the overall efficiency and effectiveness of the training process is precisely this lack of adequate educational equipment, in addition to the outdated and worn-out condition of what we do happen to have."*

This statement underscores the gravity of the situation, as insufficient and obsolete tools significantly hinder educational outcomes. Another participant added:

> *"You see, we really have a noticeable deficiency in training that involves the utilization of the equipment; in fact, we don't even possess many of the most basic tools that could be used effectively as teaching aids."*

They emphasized that such basic omissions drastically reduce the effectiveness of educational endeavors because practical training opportunities are severely limited. Inherently, technical and vocational education should be predominantly practical, as hands-on experience is vital for developing essential professional skills.

According to the specialists, this pressing issue ultimately leads to several adverse consequences, including a notable lack of proficiency among both instructors and students with regard to necessary technical tools. It also contributes to a lack of essential teamwork skills and delays adaptation to real-world work environments, preventing individuals from transitioning smoothly from the classroom to the workplace. Finally, a pervasive lack of awareness of soft skills further hinders graduates' employability and overall success. This finding, which highlights resource constraints as a barrier to practical learning, aligns closely with *work-based learning theory*. Fundamentally, resolving infrastructure deficiencies can both enhance the quality of training and improve long-term employment prospects.

3. Socio-Cultural Factors

Socio-cultural factors also emerged as significant barriers in the research findings. According to specialists, cultural issues, such as the undervaluation of training and skill development in technical fields, have led to a decrease in motivation among trainees. Furthermore, gender-based disparities result in women feeling less inclined to pursue vocational education due to negative societal labeling. One participant highlighted this dimension:

> *"The prevalence of erroneous and unfounded gender attitudes regarding technical and vocational education has increased to the point that even my daughter has expressed reluctance to pursue skill development in this area. Society perceives this work as masculine and detached from feminine qualities."*

"Social efficiency theory" serves as the theoretical underpinning for this finding, indicating that cultural and social factors—such as undervaluing vocational education or gender-biased attitudes—can significantly reduce the overall effectiveness of training, hinder the achievement of social objectives, and lower the efficiency of the educational system.

Overall, the specialists indicated that cultural and social factors tend to perpetuate gender inequalities. Accordingly, correcting inaccurate societal discourses surrounding education in technical and vocational fields should be prioritized. This objective can be realized through systematic collaboration with national media, educational institutions, and cultural centers. The inadequate representation of the role of technical and vocational fields in national development has fueled these restrictive societal discourses.

4. Development of Gender Inequalities

The development of gender inequalities emerged as a prominent theme rooted deeply in socio-cultural factors. This theme encompasses issues such as the limited number of vocational fields available to female students, the unequal geographical distribution of technical and vocational schools for girls across the country, the misalignment of curricula with their specific interests, and structural discrimination against female graduates during the hiring process. As one specialist remarked:

> *"Unfortunately, policymakers likely assume that these fields are suitable only for boys, so the diversity available in vocational programs for boys is not comparable to what is offered for girls."*

This gender discrimination undermines the efficiency, effectiveness, and potential growth of vocational education in the country. Restricted educational access for women reflects a reduction in the social efficiency of the educational system and underscores the need for profound policy reforms. This finding is closely aligned with the principles of *social efficiency theory*, which posits that equal access to education across all disciplines is a fundamental indicator of social well-being, and that addressing barriers through targeted social policies is crucial for achieving comprehensive societal welfare.

5. Weak Educational Support for Trainees

Inadequate educational support for trainees stands out as another critical challenge within the technical and vocational sector. According to the specialists, deficiencies in guidance programs and the insufficiency of textbooks and instructional teaching aids are primary components of this theme. One interviewer highlighted this issue, stating:

> *"I don't know if this problem stems from misperceptions or something else, but whatever it is, the issue is that technical and vocational skill trainees do not receive educational support comparable to that of students in theoretical fields. There's a lack of academic advisors, educational materials like books, and such resources."*

The lack of educational support and resources for learners hinders the construction of active knowledge and meaningful learning, a limitation emphasized by *constructivist theory*. This factor, which significantly influences the efficacy of technical and vocational training, could be addressed through strategic engagement with institutions and a reallocation of structural resources. It is essential to recognize the legitimate role of vocational education within educational and social policy frameworks, advocating for its parity with academic disciplines.

6. Lack of Job Opportunities for Graduates

The findings demonstrate a pressing concern regarding the striking dearth of job opportunities available to graduates. This issue resonates strongly among the participants, who collectively attribute it to the misalignment between educational curricula and the actual demands of the labor market. The consequences of this mismatch are particularly evident in the frustrations expressed by graduates during their job search. As one participant insightfully remarked:

> *"The typical concern that our trainees have after graduation is that they find themselves unable to enter the labor market and be successful in securing a position."*

This sentiment reflects a pervasive barrier to employment despite completing formal training. The participant underscored that this predicament does not stem from a lack of individual ability or potential. Instead, it is a direct consequence of the structural disconnect between the training provided at educational institutions and the real-world requirements of the job market.

This misalignment leaves graduates feeling inadequately prepared and contributes to a rising sense of disillusionment regarding the socio-economic value of their education. Many graduates exit their programs with high aspirations, only to encounter labor market dynamics that do not value or align with their acquired skills, creating a critical barrier in the school-to-work transition. Table 3 and Figure 1 provide a comprehensive summary of these themes along with their corresponding subcategories.

Table 3. *Themes and Concepts Extracted from Research Findings*

Theme	Subcategories	Relationship between Themes/Concepts
Misalignment of Training with Labor Market Requirements		
	• Disconnection between training and labor market demands • Outdated and rigid curriculum content	Serves as the fundamental structural cause of several subsequent challenges in TVET.
Weakness of Equipment and Facilities in Educational Centers		
	• Inadequate, outdated, or worn-out instructional tools • Deficiencies in basic teaching aids and materials • Limited institutional capacity to utilize modern teaching equipment	Limits hands-on learning and reduces the effectiveness of skill acquisition.
Socio-Cultural Factors		
	• Undervaluation of technical and vocational education • Social labeling and stigmatization of vocational trainees • Decreased student motivation due to negative public perceptions • Restrictive gender stereotypes regarding technical fields	Reinforces negative perceptions toward vocational education and influences gender participation.
Development of Gender Inequalities		
	• Limited vocational program choices for female students • Uneven geographical distribution of girls' technical schools • Misalignment of curricula with the interests of female trainees • Structural discrimination against female graduates in hiring	Leads to reduced social equity and limits the participation of women in vocational fields.
Weak Educational Support for Trainees		
	• Deficiencies in academic guidance and counselling programs • Insufficiency of updated textbooks and learning resources • Lack of structured academic support systems	Weakens knowledge construction and reduces trainees' preparedness.

Table 3. *(Continued)*

Theme	Subcategories	Relationship between Themes/Concepts
Lack of Job Opportunities for Graduates		
	• Entry of graduates into unrelated fields • Difficulty transitioning from school to work	Emerges as a consequence of the misalignment between training systems and labor market requirements.

Note. Themes and thematic relationships extracted from the qualitative analysis of TVET training systems.

Table 4 illustrates how concepts and categories were derived from participant quotations and interview data.

Table 4. *Examples of Participant Quotations Supporting Identified Themes*

No.	Quotes	Subcategories	Theme
1	*"One of the biggest issues we face is the weak link between what's taught in courses and what the job market actually needs. In simple terms, our trainees aren't picking up the skills they'll really use in their jobs. I'm not saying they learn nothing useful, but the amount of relevant material is pretty low. Classes often focus on topics that are the least applicable to what we see in the industry and the market."*	Disconnection between training and market demands	Misalignment of Training with Labor Market Needs
2	*"Unforunately, our students aren't getting the academic and skills support they need. Very few vocational students have access to consistent educational help throughout their studies, and even fewer get any kind of support once they enter the job market. It's really a shame."*	Deficiencies in academic guidance and counseling programs	Weak Educational Support for Trainees

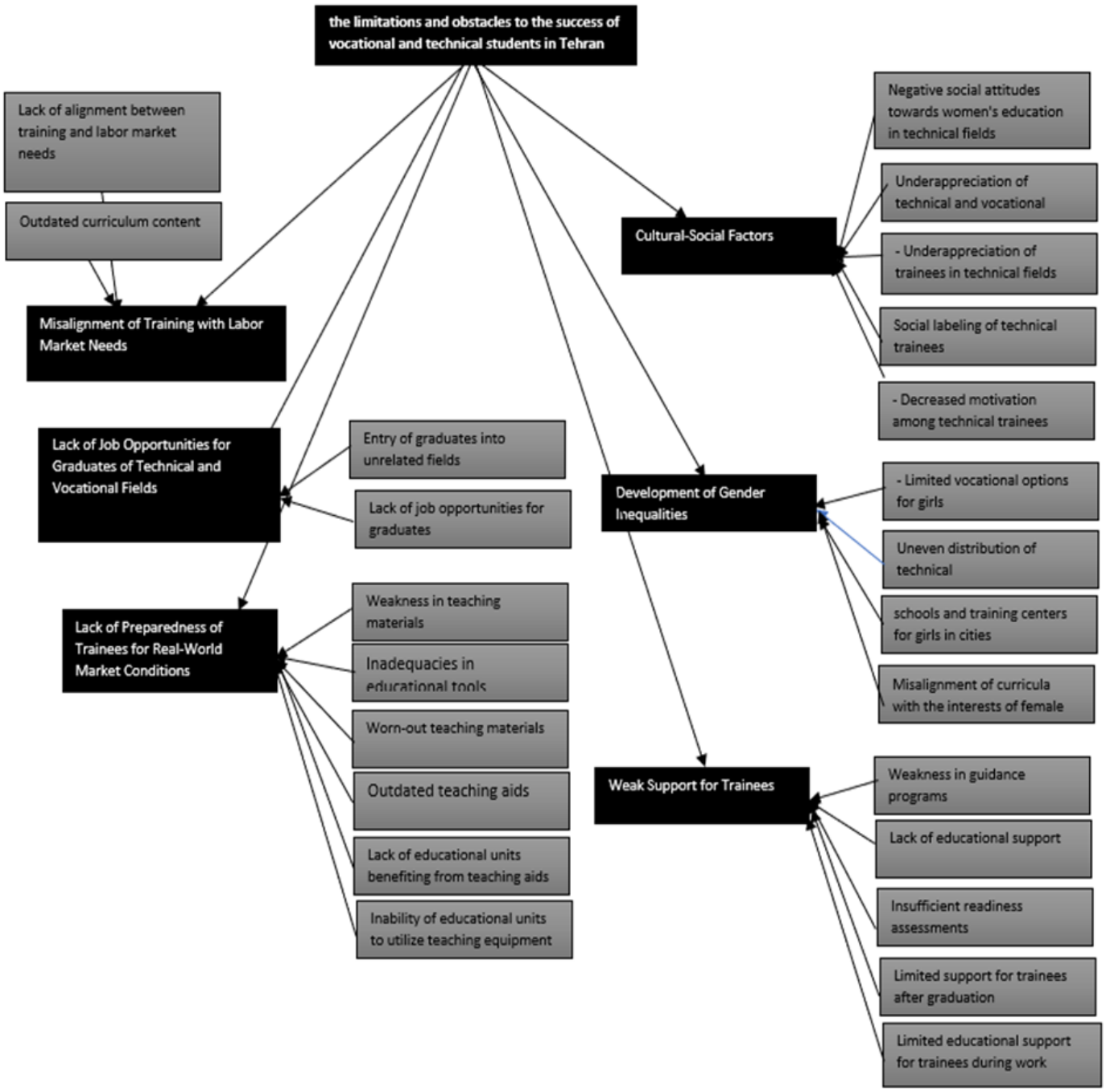

Figure 1. *Thematic Network of Technical and Vocational Education Challenges*

Conclusion and Discussion

This study investigated the challenges impeding the effectiveness and efficiency of technical and vocational education. To achieve this objective, a qualitative research design was employed, utilizing semi-structured interviews and thematic analysis. The findings indicate that technical and vocational education is hindered by multifaceted challenges, prominently including a significant misalignment between training curricula and contemporary labor market demands. As specialists have noted, this disconnect frequently forces graduates into employment sectors unrelated to their fields of study—an issue continuously exacerbated by rapid technological changes. This finding aligns with prior studies by Shakouri and Hasanvand (2024), Khademi Kalalu et al. (2023), and Abbasszadeh et al. (2018). Another challenge identified in this study is the inadequacy of equipment and facilities within vocational training centers. The findings revealed that existing instructional tools and training infrastructure are outdated, largely obsolete, and insufficient. This finding, which is consistent with the results of the research by Shakouri and Hasanvand (2023), Salarvand et al. (2024), and Harafati-Sobhani and Piri (2017), highlights the urgent necessity of updating and equipping educational centers with appropriate teaching aids. Furthermore, socio-cultural factors emerged as another theme, indicate the need for strategic discourse-building and the reformation of misconceptions regarding technical vocational education and their trainees. Participants noted that these negative public perceptions often cultivate personal and psychological barriers among students, ultimately undermining the systemic growth and efficiency of vocational education. Additionally, the perpetuation of gender inequalities was found to substantially reduce institutional effectiveness, corroborating the findings of Shirkarami et al. (2015) and Zinabadi et al. (2007). Finally, weak educational support for trainees in technical and vocational fields is also another finding of the present research. This theme indicates that an inequitable valuation of technical versus theoretical education, leaving vocational students with deficient academic counseling and learning resources compared to their theoretical counterparts. Overall, the findings underscore the necessity for a comprehensive policy overhaul in the vocational education sector. In accordance with these findings, the following recommendations are proposed:

- **Curriculum Alignment:** Refining and harmonizing curriculum content to match evolving labor market dynamics and industrial requirements, thereby ensuring the employability of graduates and augmenting educational outcomes. Within this context, future researchers should prioritize analyzing localized market needs to update course content systematically.

- **Infrastructure Modernization:** Upgrading and equipping training centers with state-of-the-art educational facilities to optimize instructional efficacy and adeptly prepare students to navigate the genuine challenges of the contemporary job market.
- **Socio-Cultural Advocacy:** Elevating the perceived social value of Technical and Vocational Education and Training (TVET) by cultivating constructive public dialogue concerning its role and achievements. . This can be achieved through the strategic deployment of discourse-generating institutions, including national broadcasting corporations and formal or informal educational frameworks, to secure the rightful prominence of TVET within societal consciousness.
- **Equitable Institutional Distribution:** Formulating macro-level policies aimed at the equitable geographical distribution of TVET institutions across urban centers. These policies should prioritize needs-based allocation, incorporating factors such as population density, existing infrastructure, and identified local skill gaps to ensure inclusive access.
- **Trainee-Centered Research:** Prioritizing subsequent empirical studies designed to comprehensively investigate systemic impediments and operational difficulties directly from the unique vantage point of the trainees, who possess invaluable insights into the daily realities of these educational pathways.
- **Collaborative Policy Formulation:** Utilizing the current findings as a foundation upon which future researchers and social policy experts can collaboratively design actionable recommendations aimed at enhancing TVET conditions, ensuring these strategies are firmly grounded within existing legal capacities.

Ethical Considerations

Compliance with Ethical Guidelines

All ethical considerations—including confidentiality, trustworthiness, citation accuracy, respect for participants, adherence to ethical standards in data collection, and the protection of participants' privacy—were fully observed by the researchers. All participants were assured that their information would remain confidential and that their participation was entirely voluntary.

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Authors' Contributions

Ali Shakoori was responsible for conceptualizing the study, gathering theoretical data, supervising qualitative data collection, and performing the final synthesis. Zahra Raji was responsible for conducting the interviews and managing the software-based qualitative data analysis.

Conflicts of Interest

The authors declare no conflicts of interest.

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چالش‌ها و موانع ساختاری در مسیر موفقیت دانش‌آموزان فنی و حرفه‌ای: مطالعه‌ای در تهران

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مقالهٔ پژوهشی

چکیده

زمینه و هدف: آموزش فنی و حرفه‌ای در دوره متوسطه در اسناد راهبردی کلان کشور، مانند نقشه جامع علمی کشور و قوانین مختلف اصلاحات آموزشی، به‌طور مکرر به‌عنوان حوزه‌ای اساسی مورد تأکید قرار گرفته است؛ زیرا بر این فرض استوار است که این مسیر آموزشی تعداد زیادی نیروی کار ماهر را وارد بازار کار می‌کند. با این حال، با وجود این اولویت‌دهی در سطح سیاست‌گذاری، به دلیل تداوم محدودیت‌ها و موانع ساختاری، تردیدهایی درباره اثربخشی و کارایی کلی آموزش فنی و حرفه‌ای همچنان وجود دارد.

روش و داده‌ها: برای درک کامل این موانع، انجام یک بررسی عمیق به‌منظور شناسایی موانع عملیاتی و نهادی مؤثر بر آموزش فنی و حرفه‌ای از دیدگاه خبرگان و متخصصان آموزشی ضروری است. بدین منظور، از رویکرد پژوهش کیفی استفاده شد و داده‌ها از طریق مصاحبه‌های نیمه‌ساختاریافته با ۳۳ نفر از خبرگان و متخصصان حوزه مرتبط گردآوری شد تا دیدگاه‌های جامعی درباره موضوع به دست آید. داده‌های حاصل از مصاحبه‌ها با استفاده از روش تحلیل تماتیک (مضمون) به‌صورت نظام‌مند تحلیل شدند.

یافته‌ها: نتایج پژوهش چالش‌های موجود را در چند محور اصلی طبقه‌بندی کرد که از جمله عدم انطباق آموزش با نیازهای بازار کار، کمبود فرصت‌های شغلی برای فارغ‌التحصیلان رشته‌های فنی و حرفه‌ای، آمادگی ناکافی کارآموزان برای شرایط واقعی بازار کار، ضعف تجهیزات و امکانات آموزشی، عوامل اجتماعی ـــ فرهنگی، گسترش نابرابری‌های جنسیتی و حمایت ناکافی از کارآموزان.

بحث و نتیجه‌گیری: رسیدگی به این مسائل برای ارتقای اثربخشی کلی آموزش فنی و حرفه‌ای ضروری است. به‌گونه‌ای که همسویی ساختاری بهتری با نیازهای بازار کار ایجاد شود و در عین حال دسترسی عادلانه برای همه دانش‌آموزان نیز تقویت گردد.

واژگان کلیدی: آموزش فنی، آموزش حرفه‌ای، تحلیل تماتیک، چالش‌ها، سیاست آموزشی، موانع آموزشی.

پیام کلیدی: آموزش فنی و حرفه‌ای در ایران با چالش‌های عمده‌ای در ابعاد ساختاری، فرهنگی و سیاستی مواجه است که به‌طور قابل توجهی کارایی و اثربخشی نهادی آن را کاهش می‌دهد و مانع از آن می‌شود که این نظام آموزشی بتواند به‌طور موفقیت‌آمیز نیازهای بازار کار را برآورده کرده و به توسعه پایدار کمک کند.

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