

***Building a Skilled Workforce: Navigating Challenges and Opportunities in
Palestine's Vocational and Technical Education System***

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Abstract

The main aim of the research was to evaluate the existing status of vocational and technical education in Palestine, specifically focusing on the challenges and obstacles identified by experts. The study sought to investigate these issues by taking into account various factors, such as educational background, gender, and years of experience. The research aimed to assess the condition of vocational and technical education in Palestine by gathering insights from experts. A survey comprising 80 questions across six categories was developed to delve into different aspects, including the significance of vocational education, societal perceptions, alignment with the job market, school prerequisites, conformity with labor market demands, and institutional backing. The participant pool consisted of 91 experts chosen randomly from university professors in Palestinian educational institutions. Employing a descriptive approach, the study findings revealed that the experts' responses regarding the state of vocational and technical education in Palestine, particularly the challenges and hurdles as perceived by experts, indicated a high level of importance attributed to vocational education and a moderate level of societal perspective, vocational education, labor market alignment, school vocational education prerequisites, alignment of outcomes with labor market needs, and institutional support for vocational education. The results demonstrated no variations in the viewpoints of experts based on educational qualification and gender. At the same time, variances were observed in expert opinions based on experience in terms of societal perception, vocational education, labor market alignment, and the overall score, favoring individuals with five years or more of experience.

Keywords: Challenges, Opportunities, Vocational, Technical, Education

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Introduction

Vocational and technical education plays a crucial role in equipping students with cognitive, educational, and skill-based training, thereby facilitating economic development, enhancing investment opportunities, and providing employment prospects that align with the demands of the labor market. As a pivotal component of human resource development, technical and vocational education significantly contributes to achieving sustainable development in both economic and social spheres.

The Convention on Technical and Vocational Education, established by UNESCO in 1989, provides a comprehensive definition of technical and vocational education as an integrated educational process encompassing a broad spectrum of knowledge, technological studies, scientific skills, practical expertise, and professional attitudes essential for effective engagement in economic and social sectors. Recognized as a pivotal driver of financial advancement, vocational and technical education plays a fundamental role in optimizing workforce utilization within the labor market. To remain abreast of local, regional, and global scientific and technological advancements, it is imperative to enhance and prepare vocational and technical education by prioritizing quality assurance, ensuring the production of highly skilled graduates, and striving to elevate educational standards to meet the evolving demands of the labor market. The primary objective of technical and vocational education is to enhance productivity, enhance job satisfaction, foster self-assurance, and cater to the requirements of stakeholders in production (Halabi, 2012).

Akinlade and Olufayo (2022) and Wibowo and colleagues (2022) underscore that technical and vocational education involves the acquisition of knowledge in sciences, technologies, skills, and practical attitudes relevant to diverse jobs in economic and human sectors. Vocational education programs aim to cultivate foundational skills at lower educational levels, preparing students for progression into higher-level roles.

Ongoing efforts by pertinent ministries to expand and enhance existing vocational institutions, establish new educational entities, and implement contemporary education and vocational training models aligned with market demands are currently underway. These initiatives involve the development of programs and curricula utilizing modern methodologies tailored to market needs, the introduction of new specializations for female students, and the enhancement of employment prospects for vocational program graduates. Employers actively contribute to shaping these initiatives. The strategic vision for vocational and technical education aims to refine and strengthen the technical and vocational education system, nurturing a skilled and motivated workforce. The overarching educational strategy emphasizes the facilitation of educational enrollment, the enhancement of educational quality, and the alignment of educational offerings with market and societal requisites across diverse sectors, as outlined by the Ministry of Education and Higher Education in 2014.

In Palestine, the oversight of technical and vocational education institutions is distributed across various bodies, including the Ministries of Education, Higher Education, Labor, international organizations, governmental bodies, both private and public educational institutions, and other relevant authorities. Despite concerted efforts by the State of Palestine to enhance technical and vocational education, equipping students with the necessary skills and technical knowledge demanded by the labor market, this sector continues to face ongoing challenges and impediments, as highlighted in pertinent research (Hamdan, 2018). Significant contributions of this study encompass: identifying the challenges and barriers confronting

technical and vocational education in Palestine, such as negative societal perceptions, funding constraints, and inadequate infrastructure; emphasizing the pivotal role of technical and vocational education in reducing unemployment rates and bolstering national income in Palestine; providing insights into the current landscape of technical and vocational education in Palestine, including existing strategies and initiatives aimed at enhancing this sector; and gathering expert perspectives on the state of technical and vocational education in Palestine, which can inform future policy and decision-making in this domain. Overall, this study enhances understanding of the challenges and opportunities within Palestine's vocational and technical education system and offers recommendations for enhancing the quality and relevance of this form of education.

Ultimately, the objective of this research is to illuminate the current status of technical and vocational education in Palestine, including the obstacles and challenges perceived by experts.

Technical education plays a vital role in promoting holistic and sustainable development within societies, for citizens, and for individuals. It is fundamental for advancements in technology, information, communication, and technical fields. The enhancement of vocational education and training is essential for individual growth, equipping them with the requisite skills, knowledge, and capabilities to enter the workforce through educational institutions that offer training for skilled workers, professionals, and technicians.

Vocational and technical education is a specialized educational framework tailored to meet the demands of the job market. It provides study programs supported by practical skills and knowledge across various sectors like agriculture, hospitality, industry, and home economics. This system consists of three levels: The Technical Diploma, which serves as a transition from specialized to professional education for secondary education graduates; the Technical Bachelor program, offering specialized studies for Technical Diploma graduates; and Technical postgraduate studies, focusing on practical training to prepare graduates with comprehensive knowledge and skills in scientific and practical aspects (Al-Tamimi, 2010).

The objectives of technical education include staying abreast of the latest developments, enhancing human capital capabilities to meet societal needs, equipping students with advanced technical skills and scientific knowledge for local and regional job market competitiveness, fostering moral values towards work, and preparing skilled individuals to contribute to societal development (Abu Ghazal, 2014).

The formation of the National Commission for Technical Education and Vocational Training in 2021 represents a crucial governmental framework for the governance and supervision of the technical and vocational education field. Its primary objectives encompass enhancing the quality of graduates, creating a responsive and adaptable vocational and technical education framework, fostering socio-economic progress, and adhering to domestic and global benchmarks to elevate the advancement of national human resources (Ministry of Education and Higher Education, 2014).

In the twenty-first century, there has been a growing emphasis on technical and vocational education aligned with sustainable development goals. While interest in technical and vocational education in Palestine is relatively recent, there has been a notable surge in enrollment over recent years, supported by measures implemented by the Ministry of

Education and Higher Education to increase male and female student participation across various vocational branches (Hamdan, 2018).

To address challenges such as low enrollment rates, weak systems, and inadequate curricular content in technical education and vocational training in Arab countries, it is crucial to promote positive attitudes towards these fields among students and parents. This shift in perception can help boost enrollment and encourage individuals to pursue technical and vocational education, thereby meeting the demands of the evolving labor market and technological advancements (Al-Tweissi, 2016).

According to Hamdan (2018), a key concern in vocational and technical education lies in the unfavorable perception held by students who opt for this path, often being viewed as a choice for individuals with lower intellectual capabilities. In Palestine, the economy grapples with significant hurdles, including the economic restrictions imposed by the Israeli occupation, elevated levels of unemployment, and limited financial resources heavily reliant on external aid. Despite these challenges, vocational and technical education centers were established in Palestine thirty years ago to equip graduates with the requisite skills and knowledge demanded by the labor market (Jitawi, 2016).

Al-Sharman (2020) highlights that a mere 2% of students opt for vocational and technical education, while 18% pursue humanities studies and 80% choose scientific disciplines. The author emphasizes a range of barriers impeding technical and vocational education, including traditional educational frameworks, inadequate funding, a shortage of specialized staff, and the absence of policies promoting vocational program enrollment.

Halabi (2012) and Kaliappan and Hamid (2021) have pinpointed notable challenges within vocational and technical education, including the existence of numerous regulatory entities, the deficiency of a holistic labor market information system, unfavorable societal attitudes, and the insufficiency of impactful vocational counseling programs.

Saeed, Gull, and Altaf (2022), Salvador and colleagues (2022), and Lee and fellows (2021) underscore the intrinsic link between a nation's economic development and technical and vocational education. The presence of well-educated and skilled individuals plays a crucial role in societal well-being, underscoring the importance of expanding career and technical education to empower students to excel in a rapidly evolving technological landscape.

Previous research by Andandus and Al-Issa (2019) and Abu Jarad (2019) emphasizes the vital role of vocational and technical education in Palestinian society to boost national income and reduce unemployment rates. However, there is a pressing need to enhance the quality of education to align with labor market demands and technological progress. Despite its significance, technical and vocational education faces various challenges that impede its advancement.

A notable research gap in the existing literature revolves around the lack of a comprehensive understanding of the specific obstacles encountered by technical and vocational education in Palestine, particularly from the perspective of industry experts. This study seeks to address this gap by gathering expert insights to provide a more nuanced understanding of the current landscape of technical and vocational education in Palestine.

Theoretical Framework and Hypotheses Development

A pertinent theoretical framework for this research is the Human Capital Theory, which emphasizes the importance of investing resources in training and education to develop human capital, ultimately leading to economic progress. According to Gary Becker's Human Capital Theory, education and training are viewed as investments in human capital, resulting in increased productivity and earnings. The study titled "The State of Vocational and Technical Education in Palestine: Challenges and Difficulties from The Point of View of Experts" establishes hypotheses based on the idea that experts' viewpoints on vocational and technical education in Palestine are influenced by their educational background, gender, and professional experience, aligning with the principles of the Human Capital Theory. In the context of Palestine's vocational and technical education system, this framework can facilitate an analysis of the relationship between investments in vocational education, the development of a skilled workforce, and the economic implications for the Palestinian economy. The Human Capital Theory is particularly relevant for examining the establishment of a proficient workforce within Palestine's vocational and technical education system. This theory suggests that investing in education and training, including vocational and technical education, enhances individuals' skills and value in the job market. By applying the Human Capital Theory to this study, it is possible to evaluate how investments in vocational and technical education in Palestine can contribute to nurturing a skilled workforce, addressing current challenges, and leveraging opportunities within the system. Additionally, the theory can assist in assessing the potential economic benefits and outcomes resulting from enhancing the quality and relevance of vocational and technical education in Palestine (Rothomi & Rafid, 2023).

Within the Palestinian framework, vocational and technical education serves as a cornerstone for imparting individuals with essential competencies and expertise to bolster their productivity, satisfy labor market requirements, and foster economic and societal progression. This perspective is corroborated by academic inquiries undertaken by Kal-Hammadin (2020), Halabi (2012), and Abu Jarad (2019). A comprehensive review of the existing vocational and technical education landscape, encompassing its strategies, programs, and initiatives, uncovers a range of challenges and obstacles hindering its advancement. As such, this research aims to assess the state of vocational and technical education in Palestine by gathering expert insights into the barriers and intricacies it confronts.

The research posits the following hypotheses:

- Hypothesis 1: Experts' evaluations of the state of vocational and technical education in Palestine, inclusive of challenges and difficulties, exhibit significant disparities at a significance level of $\alpha \leq 0.05$, contingent on their educational background.
- Hypothesis 2: Gender-based significant differences, at a significance level of $\alpha \leq 0.05$, are evident in experts' assessments of vocational and technical education's status in Palestine, taking into account its challenges and difficulties.
- Hypothesis 3: Substantial variances, at a significance level of $\alpha \leq 0.05$, are observed in experts' evaluations of the state of technical and vocational education in Palestine, considering its challenges and difficulties, depending on their professional experience duration.

Methodology

This research employed a descriptive methodology to discern the challenges confronting technical and vocational education in Palestine, as perceived by experts in the field. The study focused on a cohort of 303 specialists, encompassing university faculty from esteemed institutions such as Palestine Technical University Kadoorie - Ramallah branch, University College of Science and Technology/Khan Yunis, and Palestine Technical College/Deir al-Balah. These experts were selected based on their expertise and supervisory roles in vocational and technical education programs, as evidenced by the Statistical Annual Book of Palestinian Higher Education Institutions for the 2020-2021 academic year. The study sample comprised 91 of these identified experts.

Study Tool

In a comprehensive interview series, researchers engaged with 20 professionals specializing in vocational and technical education. This group comprised 10 university professors from vocational and technical institutions, as well as 10 program supervisors from relevant ministries. The objective of these interviews was to formulate a questionnaire for a study that aims to pinpoint the challenges and barriers encountered by technical and vocational education in Palestine. The interview process was meticulously divided into three distinct phases.

1. Initial phase: Researchers posed inquiries to experts to assess the current status of vocational and technical education, with detailed documentation of the interviews.
2. Questionnaire development: Based on insights from experts, a preliminary questionnaire with 100 items across six dimensions was created for expert review and feedback.
3. Final phase: Feedback from experts on the questionnaire items was gathered, leading to the selection of approved items and the finalization of an 80-item questionnaire distributed across six dimensions.

Questionnaire Development: Following expert interviews and a comprehensive literature review, including studies by Hamdan (2018), Al-Sharman (2020), and Al-Hamadin (2020), the researchers designed an 80-item questionnaire to assess the challenges encountered by technical and vocational education in Palestine from the perspective of experts. This questionnaire, structured into six dimensions, utilized a five-point Likert scale for response rating, ranging from strongly agree to strongly disagree (numerically represented as 5, 4, 3, 2, and 1). Additionally, the questionnaire included a section to collect background data on respondents, such as gender, years of experience, and educational qualifications, with response scores categorized as low, average, and high for result interpretation.

Results and Discussion

The study findings indicated a high overall importance score for vocational and technical education, underscoring its pivotal role in enhancing individuals and societies by imparting essential skills for workforce entry and global competitiveness. These results were consistent with Al-Andas and Al-Essa's (2019) study, which highlighted a moderately positive perception among high school graduates toward technical colleges.

From a societal standpoint, the study indicated a moderate level of acceptance, which may be attributed to the community's somewhat indifferent view of technical and vocational

education programs. These results are consistent with the findings of Hamdan (2018), who observed moderate attitudes among general secondary school students towards technical education across different aspects.

The study also found a moderate rating for the alignment of vocational and technical education with labor market needs, indicating insufficient engagement of the labor market in the sector's development. Similarly, the study highlighted a moderate degree of Prerequisites for vocational and technical education, suggesting a lack of interest from relevant authorities. These findings resonated with Affounh and Jitawi's (2017) research on technical and vocational education in Palestine.

Furthermore, the study identified a moderate match between vocational and technical education outputs and labor market demands, attributing this to inadequacies in program outputs that do not fully meet market requirements. This finding was in line with Habib's (2017) research on the impact of technical standards on vocational education and training development.

Lastly, the study indicated a moderate level of institutional support for vocational and technical education, pointing to insufficient backing from governmental, private, and international entities despite their presence. This lack of support hindered the advancement of vocational education. These findings were consistent with Al-Andus and Al-Essa's (2019) and Al-Sharman's (2020) studies, emphasizing the disparity between academic and technical education in universities.

Hypothesis 1 posits that there are significant differences, with a level of significance ($\alpha \leq 0.05$), in the experts' assessments of the status of technical and vocational education in Palestine, encompassing difficulties and challenges, depending on their educational qualifications.

Table 1: Results From Independent Between Two Samples (t-test) Related to Educational Qualifications

Domain	Educational Qualifications	N	Mean	SD	t-value	Sig two-tailed
The significance of vocational and technical education	Undergraduate degree or lower	12	3.70	.532	.710	0.480
	Postgraduate degree or higher	79	3.81	.502		
Public perception of vocational and technical education	Undergraduate degree or lower	12	3.17	.619	1.71	0.090
	Postgraduate degree or higher	79	3.44	.487		
Alignment of vocational and technical education with workforce demands	Undergraduate degree or lower	12	3.36	.674	.630	0.530
	Postgraduate degree or higher	58	3.25	.549		
Prerequisites for vocational and technical education	Undergraduate degree or lower	12	2.98	.416	.364	0.717
	Postgraduate degree or higher	79	3.04	.593		
Alignment of graduates with labor market needs	Undergraduate degree or lower	12	3.15	.609	.752	0.454
	Postgraduate degree or higher	79	3.00	.651		

Institutional support for vocational and technical education	Undergraduate degree or lower	12	3.20	.508	1.200	0.233
	Postgraduate degree or higher	79	2.98	.609		
Total marks	Undergraduate degree or lower	12	3.26	.411	-.053	0.958
	Postgraduate degree or higher	79	3.25	.398		

Note: The mean difference is significant at the $\alpha < 0.05$ level.

The study employed the Independent Samples t-test to compare two distinct groups. The results revealed that the calculated "t" values for all dimensions, as well as the overall score, were below the critical t-value of 1.96. This indicates that there were no statistically significant differences, at a significance level of $\alpha \leq 0.05$, in the average evaluations provided by experts concerning the difficulties and challenges faced by technical and vocational education in Palestine, based on their educational backgrounds. These findings suggest that experts, irrespective of their academic qualifications, share a common understanding of the pivotal role of vocational and technical education in cultivating skilled graduates for the labor market and promoting societal progress.

Hypothesis 2 posits that there are significant differences, with a level of significance ($\alpha \leq 0.05$), in the experts' assessments of the status of technical and vocational education in Palestine, encompassing difficulties and challenges, based on their gender.

Table 2: Results From Independent Between Two Samples (t-test) Related to Gender

Domain	Educational Qualifications	N	Mean	SD	t-value	Sig two-tailed
The significance of technical and vocational education	Male	61	3.81	.475	.364	.716
	Female	30	3.77	.567		
Public perception of vocational and technical education	Male	61	3.36	.538	-1.15	.251
	Female	30	3.49	.445		
Alignment of vocational and technical education with workforce demands	Male	61	3.31	.543	.923	.358
	Female	30	3.19	.606		
Prerequisites for vocational and technical education	Male	61	3.10	.579	1.601	.113
	Female	30	2.90	.539		
Alignment of graduates with labor market needs	Male	61	3.07	.659	1.011	.315
	Female	30	2.93	.614		
Institutional support for vocational and technical education	Male	61	3.05	.594	.913	.364
	Female	30	2.93	.612		
Total marks	Male	61	3.28	.394	.931	.354
	Female	30	3.20	.404		

Note: The mean difference is significant at the $\alpha < 0.05$ level.

Using the independent group's t-test to compare two separate groups based on gender, the study revealed that the "t" values for all dimensions and the total score were below the tabular t value (1.96). This suggests that there were no statistically significant differences, at a significance level of ($\alpha \leq 0.05$), in the perspectives of male and female experts regarding the

challenges of vocational and technical education in Palestine. This implies that male and female experts, possessing similar qualifications and professional roles, share comparable views on the importance of technical and vocational education and its role in fostering employment opportunities. These findings are consistent with the research conducted by Al-Hamadin (2020) but contrast with the study by Al-Sharman (2020) on vocational education in Jordan, which highlighted gender-based differences.

Hypothesis 3 suggests that there are significant differences, with a level of significance ($\alpha \leq 0.05$), in the experts' assessments of the status of technical and vocational education in Palestine, encompassing challenges and difficulties, based on their years of experience.

Table 3: Results From Independent Between Two Samples (t-test) Related to Experience

Domain	Educational Qualifications	N	Mean	SD	t-value	Sig two-tailed
The significance of vocational and technical education	Fewer than 5 years	16	3.68	.632	.973	.333
	Over 5 years	75	3.82	.474		
Public perception of technical and vocational education	Fewer than 5 years	16	3.05	.616	2.58	*.018
	Over 5 years	75	3.47	.457		
Alignment of vocational and technical education with workforce demands	Fewer than 5 years	16	2.94	.592	2.47	*.022
	Over 5 years	75	3.34	.536		
Prerequisites for vocational and technical education	Fewer than 5 years	16	2.94	.648	.714	.477
	Over 5 years	75	3.05	.556		
Alignment of graduates with labor market needs	Fewer than 5 years	16	2.79	.565	1.61	.111
	Over 5 years	75	3.07	.653		
Institutional support for vocational and technical education	Fewer than 5 years	16	2.90	.511	.838	.404
	Over 5 years	75	3.03	.617		
Total marks	Fewer than 5 years	16	3.05	.391	2.30	*.031
	Over 5 years	75	3.30	.387		

Note: The mean difference is significant at the $\alpha < 0.05$ level.

Furthermore, when analyzing the experts' responses based on years of experience, the study found that the calculated "t" values for various dimensions were all below the tabular t value (1.96), indicating no statistically significant differences at the significance level ($\alpha \leq 0.05$). This suggests that the experts' perceptions of technical and vocational education challenges in Palestine do not vary significantly based on their years of experience. These results are consistent with Abu Jarad's (2019) study on guidance and counseling in technical education in Gaza, which also found no differences based on experience levels.

In contrast, the study revealed differences favoring experts with five or more years of service when examining the dimensions related to public perception of technical and vocational education, vocational and technical education, and the labor market. The calculated "t" values for these dimensions exceeded the tabular t value (1.96), indicating significant differences in favor of more experienced professionals. This suggests that increased years of service

contribute to a deeper understanding of the significance of vocational and technical education in societal advancement. These findings contrast with Al-Sharman's (2020) study on vocational education in Jordan, which did not find differences based on years of experience in the context of problems and solutions related to vocational education.

The primary difficulties and challenges faced by technical and vocational education in Palestine encompass:

1. Limited awareness in Palestinian society regarding the importance of technical and vocational education.
2. Limited emphasis on vocational and technical education within the media.
3. Inadequate support for graduates of educational institutions in securing employment opportunities.
4. Inadequate collaboration between the labor market and educational institutions.
5. Inadequate involvement of the private sector in formulating vocational and technical education strategies.
6. A prevailing preference in the labor market for university graduates over those with technical and vocational education credentials.
7. Deficiencies in practical skills among vocational and technical graduates required for the labor market.
8. Lower earning potential for graduates of vocational and technical education programs.
9. Limited societal acceptance of professionals and technicians.

A research study conducted by experts in the field identified the challenges encountered by vocational and technical education in Palestine. The study utilized a descriptive approach and administered a questionnaire to 303 experts, comprising university professors and vocational and technical program supervisors. The questionnaire, comprising 80 items distributed across six dimensions, employed a five-point Likert scale for rating responses from strongly agree to strongly disagree. The researchers analyzed the questionnaire data to pinpoint the key obstacles faced by vocational and technical education in Palestine, presenting the findings in a comprehensive research report.

Conclusion

The research titled "Enhancing Workforce Skills: Addressing Challenges in Palestine's Vocational and Technical Education System" indicated that the challenges faced by technical and vocational education in Palestine were perceived as highly significant by the experts involved. Although there were no notable differences in experts' perspectives based on gender and educational qualifications across various dimensions, variations were evident based on years of experience. Specifically, differences emerged in societal perspectives, the alignment of vocational education with the job market, and overall assessment. Experts with more than five years of experience held more optimistic views compared to those with fewer years of experience.

Additionally, the study put five recommendations to improve vocational and technical education. First, it recommended introducing new specializations that align with the demands of the labor market. Second, initiating media campaigns to increase awareness of the importance of vocational and technical education within the local community. Third, concentrating on enhancing educational infrastructure to strengthen vocational and technical education. Fourth, creating course content that encourages enrollment in vocational and

technical programs. Lastly, improving the quality of outcomes from vocational and technical education programs.

Future research endeavors could address the study's limitations by incorporating a larger and more diverse participant sample, including students, employers, and policymakers. Employing a mixed-methods approach in future studies could offer a more comprehensive understanding by combining quantitative and qualitative data. Additionally, exploring the efficacy of various interventions and policies aimed at enhancing vocational and technical education in Palestine could be a valuable avenue for future research.

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