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**TEACHING STRATEGIES FOR VOCATIONAL AND TECHNICAL EDUCATION
STUDENTS TOWARD PROVIDING INDUSTRIAL NEEDS IN PALESTINE**

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ABSTRACT

The major purpose of this study is to discuss the teaching strategies that can deploy or positively influence the Vocational and Technical Education students (VTE), towards improving the industrial needs in Palestine. It would be a correct suggestion and conclusion for the management of VTE to highlight the methods or strategies to be deployed to improve various industrial needs and create a platform for all modern skills. The study addresses how the VTE sector could provide and handle contemporary labour market needs (especially industrial needs). Statistical and descriptive-analytical approaches were adopted in the study. The study suggested that VTE teaching methods, learning approaches and training initiatives should be reviewed towards improving the industrial sector. The study recommended that curriculum, infrastructure, institutions, human capital and human resources need to be prepared and developed toward improving and providing industrial needs that will fulfil the emerging state of Palestinian industries.

Keywords: Teaching strategies, industrial needs, modern skills, training initiatives.



INTRODUCTION

It is fundamental to understand that formal education differs from vocational and technical education. While formal education provides theoretical knowledge to students, vocational and technical education equips students with adequate practical skills to cope with global advancement. Vocational and technical education could prepare students with skills, training, education and knowledge suitable for a variety of jobs (UNESCO, 2015; IGI Global, 2021; INEE, 2021; Ministry of Education, Youth & Information, 2021; Jens, 2021).

In recent times, it has been so scary for industrialists to employ students who graduated from formal educational settings (universities and colleges). Industrialists' belief on those kinds of students is that their level of attitude, knowledge, experience and skills required by companies and industries will be largely limited, and will be more theoretical than practical. Besides, re-coaching the formal education graduates for the urgently needed industrial task would indeed be of expensive and harmful to industries than beneficial. Lately, employers across the world prefer employing vocational and technical graduates to formal education graduates since the speedy delivery of the former is quite faster than the latter (Jens, 2021 & NACE, 2021). Globalization and hyper-competition have increased the industry's priority toward wanting graduates with technical and creative skills to solve industry issues and control problematic circumstances (Deanna, 2020).

In a developing nation like Palestine, several factors, skills, competencies and preparations may determine VTE success. For instance, vocational education and technical institutions need cyber-based infrastructures and facilities to succeed and remain among others (Kim et al., 2020; Apriansyah, Fransinatra & Ririen, 2020).

All these skills and competencies required of VTE learners can largely be facilitated by vocational and technical training providers. These training providers must possess the highest level of competence in being familiar with these skills, understand the skills deeply, capable of



teaching the skills, creative enough to solve industrial and labor market problems with these skills. In this regard, there is a need for appropriate skills that can provide meaningful and productive solutions to industrial and labor market demands.

Toward developing the VTE sector, learning methods and approaches must be structured as per trending skills, competencies and technologies. Learners and the providers of VTE training are expected to possess 21st-century skills including digital technology skills (Adnan et al., et, al., 2020; Bayles et al., 2021) to enhance and transform the sector because building human beings with training and education is the real investment that supports the production and development process of any country, as educational planning is one of the most important tools of human development. Human development has become a weight on the shoulders of educational institutions, which have to develop their performance to contribute effectively to building the human being. The importance of perfecting teaching strategies through the increase in population is linked with the need to achieve a balance between the increasing social demand for education and the available educational possibilities while maintaining the quality of education. One of the most important reasons that led to the execution of this research is the low degree of responsiveness of the Palestinian educational system toward meeting labor market requirements and the suitability of these educational curriculums and teaching strategies to those needs.

Toward ensuring the graduation of qualified cadres that contribute to filling the existing deficit in the marketplace, it is imperative to restructure vocational and technical education. For this education to become a mainstay of the educational system, it must be based on a process based on thinking, planning and creativity.

Therefore, this study aims at addressing the following:

- I. Explaining teachers' responsibilities in preparing students for labor market needs;
- II. Analyzing the role of teaching strategies in achieving the needs of the labor market; and



RESEARCH PROBLEM

Human resource is the backbone on which economic and social development policy is based, as a human being is the maker and goals of development. The indicators related to human resource development are considered realistic indicators to indicate the stage of growth in any society more than any other measure, and these indicators are related to technical education in general and vocational training in particular, as it is concerned with providing the productive process in any society with skills and different productive capabilities in various fields. Therefore, it has become a feature of knowledge and technical explosion that the world is witnessing in all fields, and the resulting rapid changes in the methods of work and production make the rehabilitation process the main challenge facing and confronting all social and economic systems. The necessity of integrating the national economy into the global economy imposes the necessity of providing work and production institutions with sufficient ability to compete and adhere to the controls of the economic development process.

The research problem emerges as the Palestinian government, with all it has done to develop human resources and advance the development process, has not given vocational and technical training its appropriate educational position in keeping economic transformations and social developments. Palestinian government must advance technical education and vocational training; expand its base; develop the quality of its teaching strategies and link it directly to the needs of labor market at the local, regional and national levels.

RESEARCH SIGNIFICANCE

The importance of the research lies in the following points:

- 1- Emphasizing the importance of teaching strategies in formulating policies and plans for vocational and technical education programs by creating a real partnership with the private sector and the labor market.



2 - Drawing the attention of officials in the various ministries to the importance of vocational and technical education in providing the labor market with competencies and experiences that can supply work and production in various economic sectors.

3- Drawing the attention of officials to the necessity of labor market participation or its representatives in the various activities related to the stages of preparing and discussing the strategy related to vocational and technical education to meet the needs of development plans and labor market.

4- Drawing the attention of officials to the necessity of involving the private sector and the labor market in evaluating the outputs of vocational and technical education in an effort to develop and consolidate mechanisms and standards that guarantee the quality of these outputs and their suitability to meet labor market needs, especially in terms of quality, in addition to strengthening the link between training institutions and labor market through teaching strategies.

5- The study would serve as a framework for the management of VTE to consider and create a platform for all modern skills in Palestine. Digital technology skills, for example, would indeed help the providers of vocational and technical training move more digital, faster and more efficient than the traditional systems, thereby, accelerating and increasing the availability of skilled labour in Palestine.

6- Its importance also includes improving the quality of skills and learning curriculum among teachers and learners.

TEACHING STRATEGIES IN VOCATIONAL AND TECHNICAL EDUCATION (VTE)

Many studies dealt with the concept of teaching strategies, which started from an organized method carried out by educational instructors and coordinators to determine decisions important for educational survival, vitality and continuity in the long term. These factors and decisions form the basis for all plans developed for any subsequent period. Teaching strategy is concerned with designing the long-term strategy for carrying out dynamic-educational goals.



Teaching strategies for VTE could be defined as working to develop the strategic alignment between the educational organization and the changing market opportunities, and aims to develop the organization's role to achieve its path. Teaching strategies are planning that leads to enhancing the process of adaptation and harmony between the educational institution and the environment, which is characterized by the nature of change, through the development of an adjustable model that can be applied to achieve the future of the educational organization and to develop strategies to facilitate adaptation and fulfil industrial needs. It is an organized mental analysis of educational development processes that aims to make education more effective and efficient in response to the needs and goals of its students, industries and society.

Teaching strategies for VTE can give individuals increased opportunities so that their talents and abilities are revealed, and thus these talents and capabilities are exploited in community service, which leads to the development of the economy and contributes to economic development. As for the teaching strategies for educational institutions, it can be considered a participatory effort of teamwork to improve the decision-making process that leads to the realization of the vision and the achievement of the mission in marketplaces and industries.

CHALLENGES IN THE PALESTINIAN VOCATIONAL AND TECHNICAL EDUCATIONAL SYSTEM

There is a widespread agreement that coherence has been an absent mechanism in the structural composition of many vocational and technical education systems. Hiim (2017) argued that distance between practice and theory and inconsistency between workplace needs and educational graduates denied VTE from producing salutary results, most especially, in Palestine communities. Hiim (2016) contended that vocational and technical training is mostly considered irrelevant alongside recognized professions at formal institutions. Dahlback et al. (2018) observed that there is disunity, conflict and inconsistency between the education offered at formal schools and the skills needed at workplaces. Education and teaching have been quite



broad in focus, but lack the essential content needed and expected in industries (Dahlback et al., 2018). These challenges remain global and have no exceptional consideration for Palestine.

The formal educational system mostly emphasized creating scientific and analytical thinkers rather than complex practical work solvers. Continuous societal changes proclaim diversifying the importance and functions of vocational and technical education. Hiim (2016) corroborated the fact that VTE would significantly and appreciably promote workplace performances. However, Guile & Unwin (2019a) indicated and established that the effectiveness of vocational and technical education is increasingly staggering in many nations, as their roles and functions have been lately difficult to be perceived and identified. VTE may drastically lose relevance and become ineffective if its programs are not merged with work-life changes. Work-life is growingly transforming and advancing beyond most existing formal institutional contents, structure, curriculum, focus and setting. Apart from VTE training, the contemporary educational setting is expected to concentrate on producing students possessing innovative skills, creative skills, problem-solving skills, critical thinking skills, developmental skills and managerial skills beyond academic scholars and experts (Sylte, 2020).

Technological advancement raises wider challenges for developing nations like Palestine, as it changes traditional educational approaches to modern 21st-century patterns (Helyn Kim, Esther Care & Alvin Vista, 2019). These changes imply that the implementation and integration of 21st-century methods and skills in learning and teaching will become challenging. Teachers and professionals may find it punishing and burdensome to bear the expenses of attending workshops and training exercises. Meanwhile, 21st-century global competitors and industrial players are increasingly daring every sector including the VTE sector for trending demands.

Another ongoing and steadily growing concern in the field of vocational and technical education is the sector's capacity to cope with the characteristics of the fourth industrial revolution (4IR) such as Quantum computing, Big Data, Robotics, Artificial Intelligence (AI), 3D printings and Internet of things (Kayembe & Nel, 2019). The existing structure in the



Palestinian VTE sector is yet to upgrade the human resources department for designing necessary measures, frameworks and guidelines for understanding the skills useful for these technologies in the 21st century.

Developing and underdeveloped countries like Palestine might also find it challenging to constantly review and update VTE contents and courses, as the process may incur an unbearable cost and eventually affects the income and expenses of the sector. In other words, it might be somehow difficult to improve the subsisting VTE system in Palestine since it may involve protocols and processes. Although, stakeholders may financially and by proposing suggestions as regards industrial and labour market demands, assist meaningfully in the curriculum update, however, connecting these stakeholders might not be as simpler as envisaged.

TEACHERS' RESPONSIBILITIES IN REALIZING THE POTENTIAL OF VOCATIONAL AND TECHNICAL EDUCATION

It is important and appropriate to constitute a competent management team including the teachers who can collaborate with local businesses and industries. Simone (2020) submitted that the potential effect of such collaboration between local industries and vocational and technical institutions is that the unemployment rate will drastically decline. A significant responsibility that can feature and expose the effectiveness and productivity of the teachers is the ability to design and point out the required attitudes, skills, experience and knowledge expected of vocational and technical graduates. It would be a plausible honour for the teachers to ensure that indigenous manpower replaces foreign expatriates and occupies major and essential sectors of the Palestinian economy in a short time. The indispensable role of the teachers is to frequently engage with the labour market on their urgent needs and link vocational and technical education (VTE) programs with societal wants and challenges.

Palestinian government should not just focus on preparing individuals and students per international requirements, but also address the imbalances between local industries and



vocational and technical education through the teaching strategies designed by the teachers. The economic and social development of the nation must be stressed by VTE teachers and instructors. The issue of reducing the heavy dependence of the nation on expatriates should particularly be listed on the priority list. Several measures must be put in place by the teachers toward responding to business needs and industrial requirements.

STRATEGIC DEVELOPMENT OF VTE TOWARD INDUSTRIAL NEEDS

Many countries like Argentina, Brazil, Chile, China, Colombia, India, Malaysia, Kenya and Egypt among others have taken active steps to forge stronger links between their academics and industrial sectors (Nwachukwu, 2012). Wahidin (2018) argued and affirmed that technology literacy, data literacy and human literacy are the main and essential skills to confront the challenges and developments brought by the industrial revolution. These skills would indeed enhance the performance of the VTE sector in Palestine. Vocational and technical education (VTE) graduates will be recognized as 21st-century productive and successful students if they are efficiently and adequately skilled at prioritizing, collaborating, solving problems, making decisions and developing strategies (Nizwardi, et al., 2021). Creative enthusiasm and innovative capacity are fitting skills for professional and personal development. Critical thinking skills will benefit the possessor within and outside the learning environment. Communication skills would enable graduates and individuals to efficiently articulate ideas and thoughts verbally, non-verbally and by writing across diverse communities and societies (Nizwardi, et al., 2021).

The 21st century dares VTE to learn about modern technologies, acquire additional contemporary practical skills and possess occupational-related knowledge to cater for industrial and labour market demands. The demands of this era can never be fulfilled when teachers insist and rely on outdated needs, practices and skills in carrying out their primary duty. Teachers need 21st-century competencies, training and skills to engage 21st-century learners. It might appear unfair if the teachers ignore the idea of enhancing their skills, knowledge, learning techniques and teaching methods as efficiently demanded by the 21st century.



Toward ensuring that the vocational and technical education sector effectively responds to and addresses transformational, sustainable and economic challenges in the 21st century, standardized transformations are needed in the context of governing, funding, organizing and conceptualizing its educational system (Bang & Park, 2021). The Palestinian government needs to develop friendly policies to match VTE training schemes with industrial demands.

RESEARCH HYPOTHESES

- 1 - There is no statistically significant relationship between the efficiency of vocational and technical education and its role in achieving labor market needs.
- 2 - There is no statistically significant relationship between the equipment available in vocational and technical education and its role in achieving labor market needs.
- 3 - There is no statistically significant relationship between financing vocational and technical education and its role in achieving labor market needs.

RESEARCH METHODOLOGY

The research relied on the descriptive analytical approach, where teaching strategies for vocational and technical education were studied by identifying the efficiency of vocational and technical education, the available equipment, and the needed instruments. The statistical analysis method was also used in the field study, where the necessary data was collected using the questionnaire as a tool and means for data collection, and then a set of appropriate statistical tools were used in analyzing the data through the use of the statistical program SPSS.

- Research community and sample

The study community consists of all workers (administrators and teachers), in vocational and technical education schools across the Gaza strip, which includes workers in commercial, industrial and institutions, whose number is (112). To determine the size of the sample to be drawn from the previous population, the study relied on the following relationship:

Where: N: the size of the research community.

N: the size of the research sample.



P: percentage with a value ranging from zero to one dependence $P = 0.5$

A: the permissible percentage of error, which is often equal to $E = 0.05$

Z: Standard score equal to 1.96 at a confidence factor: 95%

By applying the previous law, the sample size to be drawn from the population is (314) individuals.

By distributing the sample size proportionally to the schools, we get the distribution shown in the following table:

Sample size needed	Class Size	Schools
$N1 = 180 \times 314$ divided by 1671 = 34	180	Trade schools
$N2 = 1100 \times 314$ divided by 1671 = 207	1100	Industrial schools
$N3 = 112 \times 314$ divided by 1671 = 21	112	Combined Schools
$N4 = 279 \times 314$ divided by 1671 = 52	279	Vocational and technical education schools
314	1,671	Total

Accordingly, 314 forms were distributed to administrators and teachers according to the previous distribution and using a simple random sample in each class. 298 forms were retrieved, valid and ready for statistical analysis, with a response rate of 94.90%.

- Validity and reliability of the study tool

To judge the validity of the content, that is, the suitability of the questions of the questionnaire and its formulation to what information is needed by presenting the scale in its initial form on a set of data at some institutions in Gaza, Palestine. To know the opinions of the respondents in terms of the suitability of the scale for its purpose; the validity of each phrase in relation to its axis; clarity of statements in front of the research sample members, which ensures the accuracy and validity of the answers; the validity of an estimate of the degrees of each response; orientation of letters attached to the scale that included the definition of the research

topic and the objective, the arbitrators were asked to write down their observations on the scientific formulation of the statements, and to give an opinion on the suitability of the scale for its purpose, and the clarity of the statements for the members of the research sample to ensure the accuracy and validity of the answers.

- Stability of the tool:

Calculation of the stability coefficient using: To reach the significance of the tool's stability and its effectiveness, the stability coefficient was calculated using the "Alpha-Cronbach" equation as the following table shows:

A. coefficient	Number of questions	Axles
0.869	23	The efficiency of vocational and technical education
0.844	8	Available equipment
0.882	6	Funding sources
0.807	8	The role of vocational and technical education in achieving the needs of the labor market
0.853	-	Overall stability

From the previous table, it is noted that all the values of the stability coefficients are statistically acceptable, and this indicates that the study tool has the properties of validity and reliability.

RESULTS AND DISCUSSION

Arithmetic averages, standard deviations, and the relative importance of each question of the questionnaire were calculated, according to each axis, to know the teaching strategies for vocational and technical education, whether concerning its efficiency, the equipment available for it, the financing mechanism, and its role in achieving the needs of the labor market, and then

comparing the value of the arithmetic average according to its occurrence within (1) (one of the following areas):

Degree of approval	The field
At all	1-1.8
Rarely	1.81-2.60
Sometimes	2.61-3.40
Often	3.41-4.20
Always	4.21-5

Accordingly, if the arithmetic-mean value of the responses of the individual sample falls within the range (1-1.8), then it corresponds to the intensity of the response “at all”, and if it falls within the range (1.81- 2.60), it corresponds to the intensity of the response “rarely”, and if it falls within the range (2.61-3.40), it corresponds to the intensity of the response “sometimes”, and if it falls within the range (3.41-4.20), it corresponds to the intensity of the response “often”, and if it falls within the range (4.21-5), it corresponds to the intensity of the response “always”.

THE ROLE OF VOCATIONAL EDUCATION IN ACHIEVING THE NEEDS OF THE LABOR MARKET:

The below table shows arithmetic averages, relative importance and results of the arithmetic mean test of the answers of the sample members to the questions of the role of vocational education in achieving the needs of the labor market.

The	Prospect	Freedo	Indicato	Importan	Deviation	Average	Expressions	Number
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decision	Significance	m Degree	r t. test	ce Relativity	Normative	Arithmetic		
D	.000	297	20.89	72.88	0.532	3.644	Legislations and laws are put in place for vocational and technical education to qualify it to play its role in developing work skills and keeping pace with modern technologies	1
D	.000	297	4.49	63.3	0.635	3.165	Vocational and Technical education curricula are developed and updated in line with market requirements and rapid developments in technical	2



							knowledge and applied curricula	
D	.000	297	-35.13	28.5	0.774	1.425	The private sector is encouraged to set up technical education and vocational training projects	3
D	.000	297	-35.44	27.48	0.792	1.374	The participation of the local community is enhanced in the management and financing of vocational and technical education to achieve twinning between training curricula and programs and the requirements of economic development	4

							plans	
D	.000	297	-21.14	42.46	0.716	2.123	Standards for professional classification and description systems are set and developed to keep pace with developments in the labour market	5
D	.000	297	-3.30	57.5	0.654	2.875	An information system for technical education and vocational training shall be established based on the characteristics of supply and demand in the labor market	6
D	.000	297	-19.27	44.48	0.695	2.224	The application of the cooperative	7

							training system shall be expanded in coordination between labor institutions and technical education and vocational training institutions	
D	.000	297	9.93	66.94	0.603	3.347	The technical, educational and administrative human competencies are prepared to keep pace with developments and technical development	8
D	.000	297	-12.22	50.442	0.675	2.522	Average weighted	9

Source: Prepared by the researcher based on the outputs of the statistical program (SPSS)



The above table shows that the arithmetic mean of the two paragraphs (3,4) is lower than the average of the Likert scale (3), with a significant difference, and it corresponds to the severity of the answer absolutely and with relative importance (27.48%, 28.5%). The study believes that private sector administrators and teachers are not encouraged to set up technical education and vocational training projects, and the participation of the local community in managing and financing vocational and technical education is not being promoted to achieve twinning between training curricula and programs and the requirements of economic development plans. The study also notes that the arithmetic mean of the two paragraphs (5 and 7) is lower than the average of 3 Likert and with relative importance (44.48%, 42.46%). This indicates that the sample of the members of administrators and teachers believe that standards for the classification and occupational description system are rarely set and developed to keep pace with developments in the labor market, and the application of the cooperative training system is rarely expanded in coordination between labor institutions and vocational education and technical training institutions.

The table notes that the arithmetic averages of the paragraphs (2, 6, 8) are higher than the average Likert scale (3), with a significant difference, and they correspond to the intensity of the answer “sometimes” and with relative importance (66.94%, 57.5%, 63.3%). This indicates that the sample of the members of the administrators and teachers believe that sometimes (vocational and technical education curricula are developed and updated in line with market requirements and rapid developments in technical knowledge and applied curricula; an information system for technical education and vocational training is established based on the characteristics of supply and demand in the labor market; technical, educational and administrative human competencies are prepared to keep pace with developments and technical development. The table also notes that the arithmetic mean of paragraph (1) is higher than the average of the Likert scale (3), with a significant difference, and it corresponds to the intensity of the answer “often” and with relative importance (72.88%). This indicates that the sample members such as administrators and teachers believe that legislation and laws are often put in place for vocational and technical



education to qualify it to play its role in developing work skills and keeping pace with modern technologies. In general, the value of the arithmetic mean in all paragraphs on the role of vocational and technical education in achieving the needs of the labor markets is (2.896), which is lower than the average Likert scale (3), with a significant difference, and corresponds to the severity of the answer “sometimes”, and with relative importance (50.44%). This indicates the weak role of vocational and technical education in achieving the needs of the labor market.

CONCLUSION

The study discovers that there is weakness in the sources of funding for vocational and technical education, as the Ministry does not give proper attention to public and private institutions in financing vocational education. This is in addition to the fact that employers do not contribute to the financing of the vocational education system. Aside from that, there is a clear weakness in the role of vocational and technical education in achieving the needs of labor market, despite the presence of legislation and laws that qualify the sector to play its role in developing work skills. This is demonstrated by not encouraging the private sector to establish technical education and vocational training projects, and not enhancing the participation of the local community in the management and financing of technical education. The lack of interest in developing and modernizing technical and vocational education curricula in line with market requirements and rapid developments in technical knowledge and applied curricula is likewise included. There is a failure in establishing an information system for technical education and vocational training systems from the characteristics of supply and demand in the labor market. Another responsible factor is the weak qualification of technical, educational and administrative human competencies to keep pace with the latest developments and technical development.

Although, there is a direct and strong relationship between the efficiency of vocational education and its role in achieving the needs of labor market, i.e the higher the efficiency of vocational and technical education, the greater its role in meeting the needs of the labor market. There is a positive and strong correlation between the necessary preparation for vocational and



technical education and its role in achieving the needs of labor market, that is, the more necessary equipment is available for vocational and technical education, the greater its role in achieving the needs of labor market. Similarly, there is a direct and strong correlation between the sources of funding for vocational and technical education and its role in achieving the needs of the labor market, that is, the greater the sources of funding for vocational and technical education, the greater its role in achieving labor market needs.

Towards improving VTE sector through teaching strategies, there is need for providing material and moral support to students in schools and vocational institutes by increasing incentives and rewards; scholarships for outstanding students and certificates of appreciation in their honor; increasing the practical section of the curriculum by providing special days for practical training in educational centers in order to link the practical training of the student directly to labor market; strengthening scientific, technical and electronic training courses for teachers of vocational education and supervision; increasing the material incentives for teachers of vocational education by granting them bonuses or improving their monthly wage; applying educational quality standards in evaluating the inputs, processes and outputs of vocational and technical education, in order to achieve the desired scientific development; providing an accident insurance system for the teacher trainers and the students trained in the workshops; increasing the number of workshops, professional and technical laboratories; providing the workshops and laboratories with modern and advanced equipment to give the trainee experience. Ultimately, it is of great importance to constantly update the VTE sector with modern teaching strategies, and increase VTE credits at relevant ministries, the private sector or business owners interested in this type of education across Palestine.

The study identified the teaching strategies to be adopted in VTE for sustainable industrial needs in Palestine. Changes in industry and workplace could easily be addressed in VTE educational structure rather than in the formal educational setting. The inability of knowledge-based curricula to meet industrial needs in Palestine gives an avenue for VTE



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programs to be expanded, supported and planned alongside labour market demands. A crucial suggestion for the teachers in Gaza, Palestine, is to research how modernized teaching strategies can be introduced, developed and be of benefit to the VTE sector and the country at large. On that account, it would be discerning to address the aforementioned initiatives for progression in Palestinian VTE sector.



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