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The Development of the Egyptian Technical Secondary Education Considering Some Contemporary Global Trends: An Analytical Study

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Abstract

Technical education is the base for all development efforts in society. It plays an important role in pushing up the development wheel and in achieving its maximum rates. Whatever the development plans quality, they couldn't achieve their goals and targeted rates without the availability of scientifically and technically qualified human cadre in all work and production fields. Studies clarified that Egyptian technical secondary education suffers from many problems as the weak of its programs leading to negative effects on the proficiency of their students and their outcomes, their inconvenience to the labor market and making gap between the educational outcomes and technical education institutions and leading to the inferiority of the social status of this sort of education considering its relationship with hand work. Thus, reinforcement of the positive social sight towards vocational and technical education in Egypt represents a challenge. This study attempted through using the analytical method, through analyzing the educational literature to identify the contemporary global trends in developing technical education, how to apply every trend in the other world countries and to identify the positive and negative sides of applying every trend. Thus, the development of Egyptian technical secondary education could be identified and its requirements and means.

Keywords: Technical education- Secondary schools- Global trends- Education development

Introduction

The Technical education is the base for all development efforts in any society. It plays an important role in pushing up the development wheel and in achieving its maximum rates. Whatever the development plans quality is, they couldn't achieve their goals and their targeted rates without the availability of scientifically and technically qualified human cadres in all production fields.

The increasing numbers of pupils completing primary education in developing countries will increase the demand for secondary education, including secondary vocational education. (Marope, Chakroun and Holmes, 2015: 41).

In developed countries, the aging workforce is likely to increase the need for vocational education to upgrade the skills of existing workers. And, priorities in low and middle-income countries are shifting to go beyond basic education to equip the population with the skills needed for participation in the 'global knowledge economy'. In all economies, vocational education will have an important role in equipping workers to develop new skills and adapt to changing needs.

The secondary school education system in Egypt offers two main tracks: one that is academic and the other that is technical. The former typically leads to university via general secondary school, and the vocational route usually via technical

secondary school level. Around 63% of those leaving basic education enter the latter system, the dead-end label for those who are pushed away from general academic education because of their lower test scores.

The Egyptian economy has not been able to create enough jobs for more than 2.5 million students currently attending university² or the more than 285,375 graduates of the Technical Vocational Education and Training (TVET) system in 2013. The unemployment problem in Egypt is hitting new heights, with a current estimate of 850,000 new entrants to the labor market per year, from a total labor force of 27.7 million in 2011. According to official figures, which are regarded by experts as substantially lower than reality, unemployment increased from 9.4% in 2009 to 13% in 2012. This unemployment is in large part a result of a wide skill mismatch between what is demanded by the labor market and what is provided by the education and training systems.

(World Bank, 2012), (Kazem,2010, p.3)

There is an urgent need to develop the technical education in Egypt and to deal with all its accumulated problems in light of the high social demand on all Egyptian educational stages and to achieve the required development plans.

Problem of the study

Studies clarified that Egyptian technical secondary education suffers from many problems and deficits as:

(Sakran,2103, p.11), (Ahmed, 2015, p.3), (Hassanin,2016, p.67),(Chammas,2009)

- 1-The weak of its programs leading to negative effects on the proficiency of their students and their outcomes.
- 2- Their inconvenience the educational outcomes of the technical education institutions to leading to gaps with the labor market needs.
- 3- The inferiority of the social status of this sort of education in comparison with

the other types of education. This inferior social status is resulting from its relationship with hand work. Thus, reinforcement of the positive social sight towards vocational and technical education in Egypt represents a challenge.

Thus, the present study attempted to answer the following question:

How to develop the Egyptian technical education in light of the global contemporary trends of developing technical education?

The present study attempted to answer the following questions:

- 1- What is the present situation of the Egyptian secondary technical education?
- 2- What are the global contemporary trends in developing technical education all over the world?
- 3- What is the suggested vision to develop the Egyptian secondary technical education in light of the global contemporary trends?

Study objectives:

This study aimed to reach the following objectives:

Diagnosis the disadvantages of the present secondary technical education in Egypt.

Identifying the the other world countries in developing technical education and how to use them in developing the Egyptian technical education.

Providing a vision for developing secondary technical education scools.

Study importance:

The present study importance is due to its problem representing in developing of the secondary technical education in Egypt. Many attempts were made by the Egyptian government, but they did not achieve the required success. Thus, there

is a practical need to put solutions for Egyptian secondary technical education and to make a whole vision providing paths of the developing process using the learned lessons of the global trends and the experiences of the other countries.

Study method and its procedures:

This study used the analytical method through analyzing the educational literature to identify the contemporary global trends of developing technical education, how every trend was applied in the other world countries and what are the positive and negative sides of applying every trend and its requirement.

Theoretical Frame

First- The present situation of the technical secondary education:

Developing secondary technical education in Egypt has become an urgent need, because the high rate of unemployment is a problem, approximately 40 per cent of the population being under the age of 25, Egypt must create every year close to 700,000 new jobs because up to 700,000 new people enter the labor market every year. Egypt need be able to beat global competition through developing its industry. The only way to do that is through developing vocational education and training, as it reflects on the country's industrial capacity, the Egyptian Government is giving special emphasis at present to the upgrading of the quality of vocational education because the current situation show that ratio is 37.7% for students in general secondary education, compared with 62.7% for students in technical secondary. (UNESCO, 2018, p.1)

Many studies indicated the present situation of technical secondary education in Egypt including the poor outcomes of the system, particularly reflected in the relatively high unemployment rate of TVET graduates, the low social rank of this sort of education, the bad quality of its curricula, the decrease number of the qualified teachers working in technical schools, the using of the traditional method depending on memorizing as a basic method of teaching in its schools, the decrease of the facilities, laboratories, libraries and classes and the absence of a clear stable vision for developing it. (Moustafa, 2016, p.57), (UNESCO,2018)

Second- Global trends of developing technical secondary Education:

There are many modern trends in the field of developing education system and linking technical education with the society needs and problems and using it in developing the social and economic sides. The competitiveness increases in technical education to build the progress and to achieve power. (Abo Karn,2012, p.105)

The global trends include:

Building curricula and courses according to competencies approach required for the labor market:

The modern approaches of technical education aiming to develop the human capital and linking it with the society development process, employment process and the increasing of the individual productivity through focusing on modern competencies linked with the labor market. (Moustafa, 2016)

Thus, a global trend emerges toward re-building and designing technical education curricula focusing on high academic and professional skills according to the measures of the labor market and through using programs for discovering the students' professions awareness and using students guiding programs. (Robertson Alastair ,2006):

Technical education in U.S.A is variant from one state to another but at all it is focusing on raising the self-awareness of the personal abilities of the student and it is focusing on developing positive attitudes towards technical work, raising the positive understanding of the social status of the technical work in the daily life, the role of the technicians in all work positions. From school to work law focuses on linking academic with technical classes related with crafts. (Clark, Dayton, David, Tidyman and Alan Weisber, 2007, 6)

German technical education depends on the professions classification frame guide that decided the competencies for every profession. The training and educational programs were decided according the required competencies of those profession by the experts and university staff.

(Lekes, Natasha, Debra D. Bragg, Jane W. Loeb, Catherine A. Oleksiw, Jacob Marszalek, Margaret Brooks-LaRaviere, Rongchun Zhu, Chloe C. Keramidas , and Charles McLaughlin , 2007, p.2)

U.K. technical education depends of the national standards of the professional qualifications for the technical and vocational education specializations. Those standards are called the competency standards. Those standards were prepared according to the requirement of the work in the working places. Those standards are indicators for directing training and education in technical education in all its levels and in preparing its curricula.(ALECSO,2012, p.109)

Applying of the Dual Learning System:

The dual learning is a system of education resulting from the partnership between companies and schools in implementing the study plan for the students to address the needs of those companies and to employ the technical education graduates. The companies provide facilities and labs while schools provide curricula and teachers to achieve the development process of the technical education.

This sort of education requires coordination committees that include companies' representatives, representatives of schools' teachers to assure that participated companies provide the required conditions for partnership. There should be a committee for curricula planning including academic professors and companies' representatives to decide the courses descriptions according to the goals or outcomes or the required competencies. The dual learning system applied in U.S.A, Germany and achieved good results. (ALECSO, 2012, p.108), (Schmidt, 2010, p.281)

The advantages of the dual learning system include the integration between the companies' facilities and schools, addressing the government plan of providing education related with the requirement of labor market and decreasing the cost of providing technical education to students. (ElAnsary, 2005, p.178)

The dual system disadvantages include the difficulty of designing justified programs addressing the needs of labor market especially in The Arab countries culture.

The developing of the technical education management:

There are many modern trends in developing the management of education as:

A- Applying of total quality management in secondary technical education:

The development of any educational system depends on its management efficiency. Thus, many of the educational reforms focus on the education management through using modern management forms and models as total quality management (T.Q.M.) as a path to achieve excellence and the global standards. Deming's models, Joran and Croseby and Ervin's models, European Award of quality are applications of total quality management in education. (Moustafa,2005, p.21)

The technical education quality is the most important component in human resources development systems. They are the inputs that social and economic growth depend on. Their importance increases as the continuous conversion towards knowledge economy in the society. (Seddikm ElAshkar, 2014, p.261)

Many studies referred to the importance of adopting total quality management in the Egyptian technical education considering the present defects of its management and the absence of clear philosophy. (Abd ElGhafar,2010, p.57)

Zidan's study (2016, p.390) indicated need to use modern management theories and models as T.Q.M. Elbana' study (2003) and Abd ElGhafar(2010, p.57) indicated the weakness of the present management of technical education. ElSayed, 2011, p.2220) indicated the urgent need to achieve the quality standards in the Egyptian technical education.

The applying of the T.Q.M in technical education has achieved positive results in many world countries and it has achieved an improvement of the performance of the educational institutions. There are conditions to achieve success of T.Q.M applying as raising the awareness of T.Q.M. importance and providing the facilities to implement its models.

B- Applying the re-engineering approach in the technical education management:

Re-engineering is a concept referred to the redesigning and rethinking about the managerial processes to achieve basic improvement in the performance measurements. (Dahawy, ElMeleigy, 2010)

The management reengineering aimed to:

The qualitative development of the school inputs and outputs to reach the required levels to form the productive learning society.

To adjust the quality levels of the learning process through the evaluation of learning outputs and the teachers' performance. Achieving the school's excellence.'

Dealing with teachers as professionals have their freedom in their professional practices and their rights to express their critical views.

Olumade (2013) referred to importance of reengineering professional and technical education and analyzed the views of (9220) students that indicated the importance of re-engineering process.

Mohamed's study (2007) provided a vision to apply the reengineering approach in technical secondary education and the need to adopt the modern techniques in technical education.

Hassan's study (2017) provided a suggested vision of applying reengineering approach in technical education management in Egypt.

Studies indicated that most important problem of applying reengineering approach represent in misunderstanding of reengineering concept between school individuals. The reengineering approach is not just making some quality improvements or using new computer's programs, but it is based on changes in the common values between the individuals and a change in roles and procedures to improve the outputs as possible.(Soliman, 2005, p.92), (Sabeeh, 2013, p.147), (ElDogany,2010, p.10)

Partnership between businessmen and technical schools:

The financial support of businessmen, non-governmental organizations and companies is so important considering the high social demand of education in all its forms that faces the high cost of providing education. In Japan, the industrial sector provides the most of technical programs while the quarter of them were provided by the government represented in education ministry or the labor ministry. (Assido, 2014, p.217) The Japanese technical graduates are all qualified and all of them find their opportunities in the labor market.

(Abd ElAziz,2004, p.55)

Mohamed's study (2011) indicated the need to link the technical education in Egypt with the economic development. Also, Massoud's study (2011) indicated the role of social participation in developing the technical education.

ElSayed's study (2013) indicated the requirements of social participation building to link secondary industrial schools with labor market. Paul's study analyzed the Canada's experience through addressing the needs of the labor market and through using decentralization in managing those schools. Hosny's study investigated the role of school management in activating social participation to develop the technical industrial schools in Egypt and this study revealed the features of the social participation and its obstacles.

ElDowick's study (2016) diagnosed the reality of technical education in Alexandria governorate and put a suggested model for the participation between businessmen and technical schools.

Ahmed's study (2015) indicated the role of using technological incubators in developing technical education considering some global experiences. This study provides a vision for applying technological incubators in Egyptian technical schools.

All the previous studies indicated the importance of the partnership between businessmen and technical schools.

The Preparation of technical education teacher and his Professional Development programs:

The preparation of Technical education teachers is one of the most important problems of the technical education in Egypt as many studies referred.

(Hasanin,2016, p.137), (ALECSO, 2012, p.13)

There is a variation in preparation program leading to heterogeneity between technical education teachers. Also, there is a gap between what they have studied in their faculties and the real technology used in factories and companies. They were not trained on what they will teach in their school.

(Waiter and Gray's study (2009, p.229) indicated the need to change educational studies to reform teachers' preparation program while, ElRacheed (2011) confirmed to the big gap between teachers' preparation program and the qualification requirement of labor market and the need to open new departments in the faculty of education.

Conclusion

Although all the country's effort of developing Egyptian technical education, but the reality and studies results indicated the need to make a good use of the contemporary global trends in developing technical education and to change our comprehensive vision, to provide all resources, facilities and the requirements of development. The technical education is the base for the development and progress of the society.

Thus, there is an urgent need to put a vision to develop Egyptian technical education considering the global trends and the results of the diagnosis of the Egyptian technical education.

Vision for Developing Egyptian technical education

Principles and Bases

There should be a complete belief with technical education and its important role in the progress of Egyptian society. Thus, there should provide all the necessary resources for developing technical education according to the following principles:

A change of the social culture towards hand work and technical work.

Adopting the social engagement between companies and factories and technical schools as an approach for developing technical education.

Adopting competencies approach for developing teachers' preparation programs and for developing technical curricula and all activities.

Applying the decentralization of technical education schools' management.

Applying reengineering and T.Q.M philosophy and procedures for developing technical education.

Adopting planning approaches for the development of technical education depending on the engagement principle between businessmen and the stakeholders and the ministry of Education.

The requirement of the suggested vision

There will be a need to:

Modifying laws and regulations of education enabling partnership between technical schools, factories and companies.

Developing laws enabling technical schools to administer incubators and small companies.

Providing enough financial allocations for developing laboratories, libraries and classes in technical schools.

Mapping and designing technical teachers' preparation programs in faculties of education according to competencies approach.

Improving the work conditions of the technical education teachers.

Developing curricula of technical education.

Training teachers on new and modern methods of teaching.

Training teachers on labor market's competencies.

Training managers on T.Q.M. and Reengineering approaches.

Increasing the financial budgets allocated for the technical schools.

Means of development of the Egyptian technical education

The steps for developing Egyptian technical education include:

Spreading and instruction of the technical and technological skills in all educational stages especially in the technical education stage. Those skills should be included in courses and curricula either in an independent courses or as inherent skills in different courses.

Shaping experts, businessmen, companies 'representatives committees to determine the different profession frame, their descriptions and the different required levels of the labor forces either skilled or half skilled workforce. According to this frame, the competencies and contents of the curricula will be set. There should be a national qualification frame for each Arab country according to the labor market. Those qualifications should be suitable for all educational stages starting from general education stages till High technical education stage.

Establishing technical schools in all disciplines according to the requirements for each zone. Decentralization of the administration of those schools should be applied, Thus, the technical schools could administer small companies or incubators provide a return to students and schools.

Linking training processes with employment through training and educational paths based on dual learning system and adopted by both technical schools in Arab countries and companies.

Inclusion of some technical courses in secondary education that qualify general secondary stage students to enroll the technical faculties or to enable them to get simple jobs available in the labor market considering integrated study system adjust the relationship and the roles of the institutions in the labor market through focusing on learning through work which enable student to learn his skills and knowledge in the real work environments.

Strengthen basic and individual skills to deal with open international labor market represented in English language skills, computers' skills, technical skills and soft skills as: (Planning- decision making- time management, ...etc.

Providing professional abilities measurements for every available profession based on labor market according to the global trends.

Finding new financial resources of technical education as establishing new Funds depending on the returns of big and middle companies grants.

Expanding the dual learning system schools in partnership with companies and factories.

Modifying laws and regulations enabling schools to establish incubators and small companies.

Activating the social engagement with different social categories in deciding educational curricula and methods of teaching leading to the change of the social status of the technical education.

Spreading the culture of entrepreneurship through technical courses and encouraging creativity through developing curricula and organizing activities as fairs and competitions between technical schools' student.

Adopting decentralization of managing technical schools suiting the variation between those schools and their societies.

Adopting modern management approach as reengineering an T.Q.M and training of teachers and managers.

Spreading quality culture between teachers and managers in technical schools.

Training of teachers on competencies required by labor market.

Studying the future needs of the labor market deciding the required changes in technical education.

Activating the role of media in changing the society look to the social rank of the technical education and raising the individual and social awareness with technical education and its importance.

Study recommendations

The present study recommends to:

Making comparative studies about the applying of the competencies approach in technical education all over the world and how to develop curricula according to the competencies.

Investigating the experiences of the other countries about how to change culture towards the hand work.

Analyzing the National Qualifications frames in the other countries and how to use them in developing technical education.

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