

Experiences of Vocational Education to Students

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Gül GUMUS¹

ABSTRACT

One of the values given to the individual by society is for the vocational training of individuals. The employment-oriented approach in vocational education will contribute to the more usefulness of individuals in society as productive individuals. In order for Turkey to achieve its forward-looking goals, it needs to increase its share in production with innovative technology in order to gain a competitive advantage in the global market. Vocational education plays a critical role in this regard. It is possible for the studies to be carried out within the scope of vocational education to show its effect in economic growth and development more quickly. In this respect, the studies that the Ministry of National Education, which continues its activities with the vision of 2023, have taken a holistic approach to the vocational education of the students and will be important. In this article, the importance of vocational and technical education is examined in the context of vocational education in Turkey and the experiences gained by students in the context of ampric researches. The article is expected to contribute to the work to be done in the field going forward.

INTRODUCTION

The emergence of new professions with rapidly developing technology, the use of technology in all kinds of fields requires a constant change in knowledge and skills. Vocational education needs to adapt to this continuous change. For this reason, structural reforms are needed to create a structure that is constantly dynamic and open to change in the vocational education system.


It is very important for Turkey to achieve its long-term goals and to include young people in this sense. This is only possible when the right policies are implemented. It is necessary to focus on increasing the skills of young people and making them suitable for structural transformation in the business world.

According to the Turkish Statistical Institute (TUIK) Labor Force Statistics, Turkey's unemployment rate was 10.3% in October 2017. The problem of youth unemployment has reached an important level and the youth unemployment rate between the ages of 15 and 24 has been 19.3%.

Considering the statistics, it is only possible for individuals to acquire skills that will make them easier to employ with a qualified education policy. Considering that education at the sub-undergraduate levels is the most important stage in the transition to the labor market, it is clear that the quality of education at this level should be improved (Torun, et al., 2017).

In this context, vocational training is increasingly focused on harmonizing skills and demands in the labour market.

Vocational education should not only transfer technical information suitable for specific tasks to students, but also aim to provide the requested social skills. For this purpose, the vocational education

¹  gulgumus77@gmail.com, Principal of School, Altındağ Şehit Yıldız Gürsoy Vocational and Technical Anatolian High School, Ankara/ TURKEY

system should be reviewed in a restructuring process that ensures sustainability and active participation of all stakeholders.

With advances in technologies such as artificial intelligence, robotics, 3D printing, nanotechnology and biotechnology, not only our daily lives, but also the way things are done are changing. (WEF, 2016).

As advances in technology increase the work that can be done by automation rather than humans, employees who can generate added value using technology, have the technical and social skills required by these technologies, and offer innovative solutions will have an advantage. In this context, learning models should be developed in order for students to adapt to new technologies in the focus of efforts to increase the quality of vocational education.

Vocational and technical education is one of the important factors in the social and economic progress of a country.

Vocational and technical training can be defined as a learning path that aims to equip people with the knowledge, technical expertise, skills and/or skills needed in certain professions or, more broadly, in the labor market. Cedefop (European Centre for the Development of Vocational Training), European Training Thesaurus <http://www.cedefop.europa.eu/EN/publications/20031.aspx>

A needs analysis or similar study by ManpowerGroup for labour markets reveals that employers are "struggling to find staff with the qualifications they are looking for." The ManpowerGroup Skills Shortage survey provides real-time data and insights that companies and people need to respond to today's trends.



Figure 1. Mind the Gap: What Employers Are Planning Compared to What Workers Want

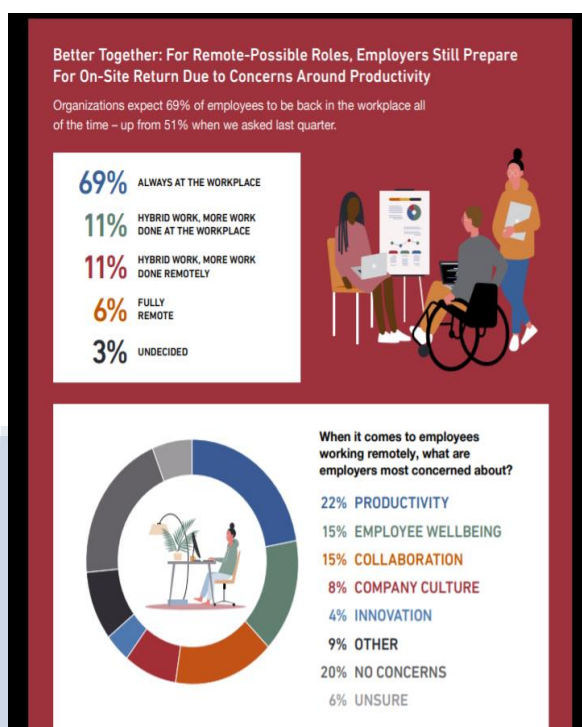


Figure 2. Better Together: for Remote-Possible Roles, Employers Still Prepare for on-Site Return Due to Concerns Around Productivity

Source: https://go.manpowergroup.com/hubfs/Talent%20Shortage%202021/MPG_2021_Outlook_Survey-Global.pdf

Looking at ISKUR's IPA 2017 results, it shows that approximately one in five businesses in Turkey has difficulty in providing staff (IPA, 2017). In the context of the results, 18.5% of the 1,111,226 workplaces stated that they had difficulty in providing staff.

Based on the research, it can be commented that there are not enough personnel with professional skills and there are also no qualified work experience personnel.

As of the end of 2017, a significant numerical size has been reached in Vocational and Technical Education. Table 1 contains basic statistics on vocational and technical education.

Table 1. Vocational and Technical Training at a Glance

Indicator	Level
Number of Students	1.668.660
Number of Teachers	132.054
Number of Schools and Institutions	3.581
Number of Classrooms	60.848
Number of Students per Classroom	27
Number of Students per Teacher	13
Share of Vocational Education in Secondary Education	%42
Budget for 2017 (investment, equipment and current)	12.5 Billion Turkish Liras
Number of Private Vocational High Schools	381

Number of Students of Private Vocational High School	109.121
Number of Official Vocational High Schools Opened in OSBs	32
Number of Private Vocational High Schools Opened Inside and Outside OSB Using Support	71 (35 in OSB)
Number of Fields and Branches Studied	54 Areas – 200 Branches

Source: General Directorate of Vocational and Technical Education, Summary Annual Report for 2017, January 2018

According to Table 1, 1.6 million students in 3,581 schools are given vocational and technical education within the framework of 54 fields and 200 branches. 6.5% of the students in vocational and technical education attend private vocational high schools. The share of private vocational high schools in total vocational high schools is 10.6%.

With the policy changes implemented in the 2000s, the schooling rate in vocational and technical education has increased. During the 2005/2006 – 2014/2015 academic year, the share of general high schools in secondary education decreased, while the share of vocational and technical high schools increased. In the 2016/2017 academic year, there are approximately 4 million students studying in secondary education institutions except open education. When religiously educated and open education students are excluded, the share of vocational high school students in secondary education is 43%.

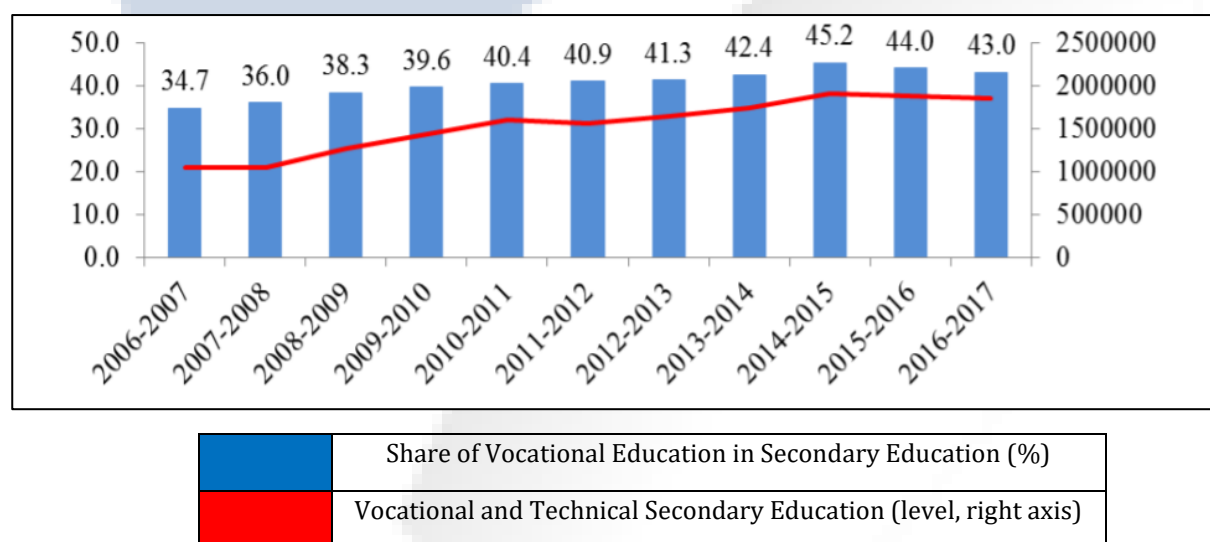


Figure 3. Share of vocational high school students in secondary education (%)

Source: MEB Statistics, Formal Education

Note: Open education and religious education for students in vocational education. Open education is not included in the total secondary education.

The number of vocational and technical secondary education institutions established in order to train the qualified workforce needed by the sectors reached a total of 4,399 as of the 2016/2017 academic year. As in general high schools, the number of private schools is increasing in vocational and technical high schools. Despite the decrease in the number of students in recent years, the number of vocational high schools has increased.

In the 2017/2018 academic year, the number of official vocational high schools in OSBs did not change.

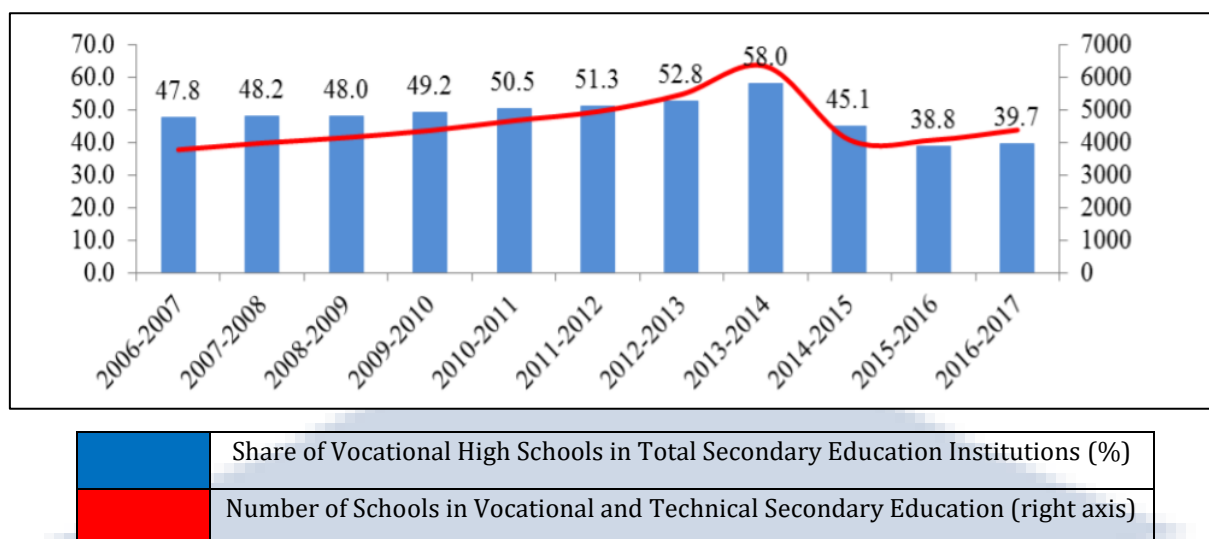


Figure 4. Share of vocational and technical education high schools in secondary education (%)

Source: MEB Statistics, Formal Education

Note: Open education and religious education to high schools providing vocational and technical education. Open education is not included in the total secondary education.

Of the 974 vocational schools in Turkey, 870 are located in public universities, 99 are in foundation universities and 5 are in foundation vocational schools.

Source: Unit Numbers by YOK Types Report, as of February 23, 2018, <https://istatistik.yok.gov.tr/>

According to 2016/2017 data, the number of students studying in vocational schools is more than 1 million and 39% of them are women. There are approximately 342,000 students who have just enrolled in vocational schools in 2016/2017. Forty-four percent of them are women. In previous periods, the same rate was around 42 percent.

What Vocational Education Brings/Gains to Students?

(Çalışkan Maya, 2008) In the study "Vocational and Technical Education in Turkey", the objectives of promoting vocational and technical education with the question "Why vocational and technical education?" were laid out as follows:

- To be able to compete with other countries,
- To increase production in the economic field,
- To be a country that not only buys and uses, but also produces and sells,
- To develop a vocational and technical education system that gives opportunities to lifelong learning principles that take into account the supply-demand balance in the job market,
- To ensure the participation of stakeholders at national and local levels in the decision-making, implementation and monitoring processes of the vocational and technical education system, it has been stated that the secondary education system needs to be restructured predominantly for vocational and technical education.

In the Lifelong Learning Strategy Document approved by the High Planning Board on 5.6.2009, for vocational education:

- a) Harmonization of the physical infrastructure and quality of educational institutions with the needs of educational institutions,

- b) Continuous updating of teaching programs in line with changing needs,
- c) Strengthening vocational guidance services within the scope of lifelong learning,
- c) Establishing a quality assurance system by activating the vocational qualification system,
- d) Facilitating the transitions between teaching programs and from school to work,
- e) The nature of the workforce action plan has been prepared for the delivery of competitive level, priorities and these priorities.

Factors that Promote Vocational Education

- Continuous training
- Vocational training consultancy
- Recruitment by graduation score
- Workplace safety measures are also included in the training programs
- Priority in employment
- Diploma and certificate requirement in employment • Entrance exam for vocational high schools
- Promotion of higher education in the field
- Support from the unemployment insurance fund
- Private entrepreneurship support
- School insurance
- Gaining status for all vocational school graduates (Musubeyli, 2010).

Vocational Qualification System

The standard and adequacy are determined by the Board of Directors, which is the National Europass Center and European Qualifications Framework National Coordination Point, taking into account priorities such as occupation capacity in our country, the priority needs of the job market and educational institutions in our country and the recommendations of sector committees, the availability of willing organizations that can prepare standards and occupational health and safety.

Within the framework of the established professional standards, exam and certification activities are carried out by internationally accredited examination and certification bodies authorized by the board in accordance with the provisions of the "Vocational Qualifications Authority, Examination, Measurement, Evaluation and Certification Regulation".

With the enactment of the decree on the organization and duties of meb No. 652, the types of schools that implemented various programs since the 2014-2015 academic year were combined and these schools were named vocational and technical Anatolian high schools. After enrolling students in 9th grades in vocational high schools since the 2020-2021 academic year, field introductions are made to 9th grade students in September in line with the calendar announced by the Ministry of National Education.

In the 9th grade, the vocational development workshop course is taught for all fields and the courses related to the field selected by the students are given according to the courses and course hours specified in the weekly course schedules of the Ministry of National Education.

In addition to the knowledge and skills for the profession, mathematics, physics, chemistry, and biology courses are given more predominantly for four years in the Anatolian Technical Program. In both

programs, vocational field training is given in the 10th grade and vocational branch education in the 11th and 12th grades after the joint education in the 9th grade. There are 54 fields and 200 branches in vocational and technical secondary education institutions (Field Transition, Preference and Placement e-Guide in Anatolian Technical/Anatolian Vocational Programs). From the beginning of the 2020-2021 academic year, it seems to have been reported to branches from the end of the 9th grade.

When the prepared professional standards are examined, it is seen that the tasks, procedures and performance criteria of the professional profiles are defined respectively. In general, it is possible to collect the tasks defined for professions under the following headings:

- Occupational health and safety
- Dominance and compliance with environmental protection legislation
- Compliance with quality standards
- General business discipline
- Maintenance of work equipment
- Pre-work preparation
- Technical issues

When the contents of the tasks defined for the professions are examined through performance criteria, it is seen that these performance criteria can be collected in two areas: "knowledge and skill" and "attitude and behavior". The performance criteria set for professions indicate that motor skills (physical skills) and cognitive skills (mental skills such as decision making, detection, evaluation, control and selection) must be intertwined in order to meet professional expectations.

The learning outcomes determined within the framework of the mandatory units of proficiency and the performance criteria below this are "(A wide range of knowledge and skills such as current technology knowledge, material knowledge, knowledge of mathematics and geometry, workpiece binding knowledge and skill, dexterity, drawing skills, ability to convey learning and learning, problem solving skills, technical drawing knowledge and skills, ability to use time well,

(Being planned and organized, being calm and calm in emergency and stressful situations, passing accurate and timely information to their supervisors, taking care of the quality of the process, taking care of the safety of himself and others, determining negative environmental impacts, being sensitive about risk factors, adopting the regulations in environmental, quality and occupational health and safety legislation, making decisions within his knowledge and experience, cleaning, to take care of order and workplace assembly, to know their responsibilities and to fulfill them" should have a large number of attitudes and behaviors.

Within the framework of this classification, it is seen that professional skills and behaviors are not independent of mental processes, and all professional qualifications are related to mental/cognitive skills. Based on the assumption that people who can be CNC programmers should be trained in machine technologies, high school vocational training for this field can be summarized as follows.

In the 9th grade, students take courses such as language and expression, mathematics, biology, foreign language, which are common to all secondary education institutions, and take vocational courses related to the fields they have selected 9 hours a week for 2 hours of professional development workshop courses related to their professions.

In the 10th grade, students who start to see field courses such as machine drawing and basic manufacturing processes continue their education after the 10th grade by choosing one of the branches of computerized machine manufacturing, industrial mold, computer aided machine painting, machine maintenance repair, marble processing and computer aided industrial modeling.

The courses in the 11th and 12th grade curriculum are aimed entirely at the selected class. Computer Aided Design and manufacturing (CAD and Computer Aided Manufacturing - CAM), CNC, hydraulic

pneumatic, solid modeling and animation, manufacturing methods, mechanics, etc. courses, branch courses can be included.

Students in the 12th grade are also required to do internships three days a week. As it can be understood from here, students do not have the opportunity to experience the ideas, designs, programming, and production stages that are expected to be interacted with in the process of the emergence of a product in business life as a whole at any point in their education life.

This can cause students to not be able to position their professions correctly in their minds, and therefore to lose interest in the profession, as well as to have difficulty converting the knowledge they have theoretically learned.

Data showing the knowledge/skill levels of vocational students reveal that vocational education is not sufficient to meet the needs of the job market in its current form. In the PISA study, anatolian high school and vocational and technical anatolian high school students represented the majority of the Turkish sample.

Table 2 shows the scores students receive by school type in the fields of science, mathematics and reading skills. Accordingly, it is seen that vocational and technical anatolian high school students are well behind the Turkish average in all three score types.

Table 2. PISA Scores by School Types

School Type	Science Literacy	Reading Skills	Mathematics Literacy
Secondary School	338	332	348
Multi-Program Anatolian High School	388	385	373
Vocational and Technical Anatolian High School	392	396	379
Fine Arts High School	405	408	391
Anatolian Imam Hatip Highschool	407	413	398
Anatolian High School	461	464	454
Social Sciences High School	518	523	504
Science High School	534	524	537
Average in Turkey	425	428	420
OECD Average	493	493	490

Source: Ministry of National Education PISA 2015 National Assessment Report, OECD

According to PIAAC 2015 results, the skills of adults with vocational high school, general high school and MYO graduates in Turkey are at similar levels. However, the data show that there is a very serious difference between being a 2-year MYO graduate and a 4-year faculty graduate in all three skill types.

Table 3. PIAAC 2015 Results by Education and Gender in Turkey

	Problem Solving		Numerical Skills		Verbal Skills	
	Male	Female	Male	Female	Male	Female
Primary and ↓	230.6	242.7	205.9	184.1	212.0	205.9
Vocational High School	255.9	255.9	249.6	273.3	245.9	242.2
General High School	253.5	257.7	246.2	245.8	242.8	249.6
MYP	253.6	256.7	247.7	245.9	244.5	246.9
4 Year Faculty	273.8	274.2	272.8	268.2	260.9	258.7
Master's and above	288.0	310.9	288.2	281.2	275.9	270.6

Source: OECD, Ministry of Development Calculation

Vocational and technical education does not only cover education in schools. Vocational training can be continued with in-house trainings in line with the needs of the workplaces, or it may be possible to benefit from vocational training within the framework of vocational training courses that individuals who have not completed their education within the scope of lifelong learning and/or who want to gain new skills can participate in.

Given that the transformation in the economy and social life will be continuous, it is also clear that the skills that adults have will need to be constantly updated. Therefore, it is necessary to raise awareness about the importance of lifelong learning and in-house education.

Factors such as technological transformation in developing countries and the high youth population require the design and follow-up of new methods in acquiring the skills necessary to meet economic and social needs. In this sense, vocational and technical education should be demand-based, learning-oriented, inclusive, accessible and flexible, beyond providing knowledge and skills specific to certain professions/jobs.

When the employment indicators are examined according to the education situation, it is seen that the labor force participation and employment rates increase as the level of education increases.

TUIK Labor Force Statistics show that vocational or technical high school graduates have higher labor force participation and employment rates compared to general high school graduates, which applies to both men and women.

According to the data, women who graduate from vocational and technical high schools have about 9 percentage points higher labor force participation rates than women with general high school degrees.

The unemployment rate is similar for vocational or technical high school graduates and general high school graduates. Based on the data, it can be said that vocational and technical education motivates people more to be involved in the labor market than general high school education.

Table 4. Employment Indicators by Education Status and Gender

Education Status	Labor Force Participation Rate (%)			Employment Rate (%)			Unemployment Rate (%)		
	Sum	Male	Female	Sum	Male	Female	Sum	Male	Female
the illiterate	19.5	32.1	17.0	18.5	28.9	16.4	5.2	10.0	3.3
under-High School Educated	49.9	70.3	28.8	45.5	64.5	25.7	8.9	8.2	10.5
High School	55.0	72.5	33.4	48.4	65.8	26.8	12.1	9.2	19.8
Vocational or Technical High School	66.2	80.8	42.8	58.1	73.8	33.1	12.2	8.7	22.7
Higher Education	80.0	85.9	73.1	68.9	78.4	57.7	13.9	8.8	21.1

Source: TUIK Labor Force Statistics Periodic Results, September 2017

It is a common problem in field studies that students in vocational and technical high school do not want to work in the fields where they are educated due to difficult working conditions. Although 32.7 percent of vocational high school graduates graduate from the field of "engineering and jobs", it is seen that service and sales staff rank highest with 26.4 percent of unemployed vocational high school graduates looking for work as mentioned above.

However, it should be noted that vocational high school graduates are employed in the industrial sector at a higher rate than general high school graduates.

As of 2016, 27 percent of vocational high school graduates and 18 percent of general high school graduates work in industrial sector jobs. The share of vocational high school graduates working in the industrial sector in the total employment of the industrial sector is 14.4 percent and the same rate is 9.1 percent for general high school graduates.

Table 5. Distribution of the Department Completed by Vocational High School Graduates

Section	Ratio (%)
About Engineering and Engineering Affairs	32.7
Business and Management	20.4
Humanities Sciences	12.5
Manufacturing and Business	9.2
Social Services	6.1
Computer	4.1
Art	3.7

Personal Services	3.5
Health	3.5
Architecture and Construction	3.0
Teacher Education and Educational Sciences	0.5
Transportation Services and Environmental Protection	0.4
Agriculture Forestry and Fishing	0.3
Veterinary	0.1

Source: TUIK - Workforce Survey Micro Data Set, 2016, TEPAV Calculation

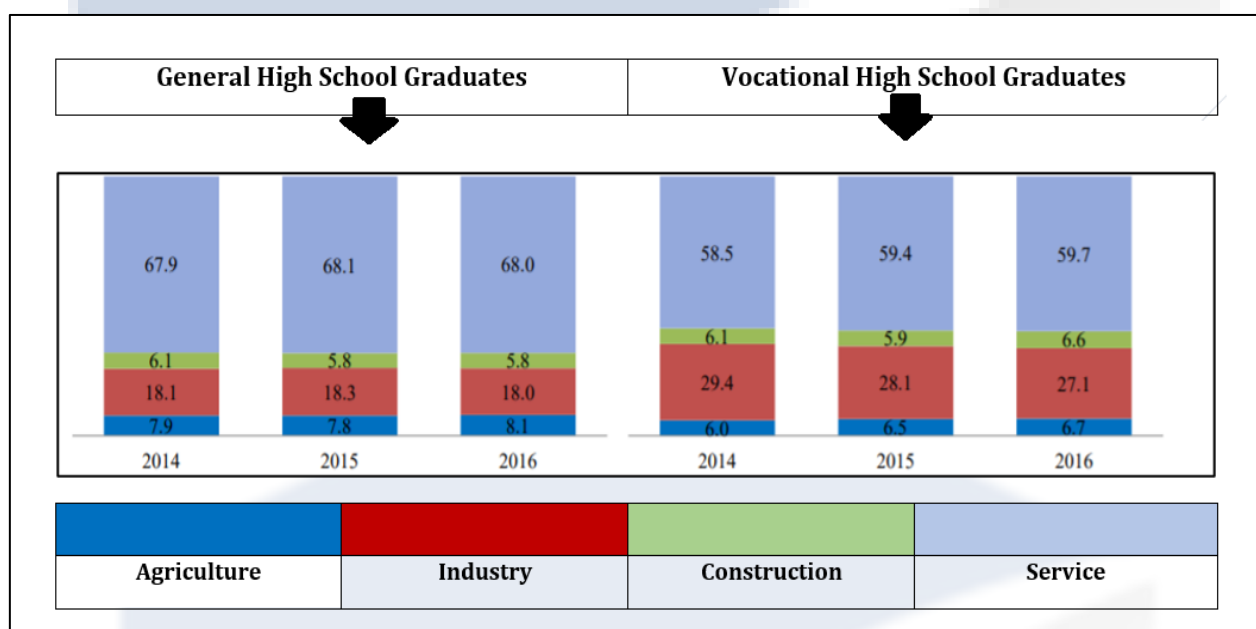


Figure 5. Sectoral Employment Shares of General High School and Vocational High School Graduates (%)

Source: TUIK Household Labor Force Survey Micro Data Set, 2016, TEPAV calculation

Perception of Vocational Education in Society

PISA 2015 data reveals that parents of students who prefer vocational high school have lower levels of education than overall high school students. The proportion of students whose father (mother) has a higher education at the vocational high school level is 21 percent (16.5 percent), compared to 29 percent (19 percent) for general high school students.

It is noted that the rate of students with vocational high school graduate parents going to vocational high school is higher than the rate of students with general high school graduate parents going to vocational high school. 42 percent of the students whose fathers graduated from vocational high school and 26 percent of the students whose fathers graduated from the general high school go to vocational high school.

Table 6. Education Status

	Students in General High School		Students at Vocational High School	
	Mother Education Status (%)	Father Education Status(%)	Mother Education Status (%)	Father Education Status(%)
Not Received any Training	12.8	5.2	13.8	6.2
Primary and ↓	53.0	50.4	55.4	61.0
Vocational High School	4.1	7.5	11.9	7.9
General High School	10.9	7.6	2.4	3.9
MYO	8.7	12.2	10.9	12.6
4-Year Faculty and above	10.4	17.0	5.6	8.5

Source: OECD PISA 2015 Micro Data Set, Ministry of Development Calculation

In the studies carried out for vocational education, it is stated that social status is significantly related to employability and earnings.

According to the analysis of the TUIK Household Workforce Survey 2016 micro-data, the average gain gained increases as the level of education increases. Graduates of master's or doctorate earn an average of TL 4,739.1 per month, while 2-3-4 year faculty graduates earn TL 2,778.9, vocational high school graduates earn TL 1,790.1, and general high school graduates earn TL 1,786.6. At the lower education levels of high school, average earnings may fall below the minimum wage.

According to the Household Workforce Survey data, one of the reasons that vocational high school and general high school graduates earn similar levels of income is that students who receive vocational education prefer jobs that are not related to the fields in which they are educated, and therefore work in the same jobs as general high school graduates. Students in vocational education are moving away from their fields because they think they can find work on minimum wage in professions that are less dangerous than industry, especially in the services sector.

Vocational education students think that the education they receive in school does not prepare them enough for business life. In TEPAV's previously mentioned 2016 labor market survey, 45 percent of MYO students said that the education they received did not adequately prepare them for business life, and 33 percent said they prepared themselves at a moderate level. These rates decline to 25 percent and 29 percent, respectively, among engineering faculty students who participated in the same study.

Although field research is useful, panel data studies that can establish a cause-and-effect relationship and reveal the effect of the policies applied should also be carried out. Studies that will affect the practices in vocational and technical education are usually focused on employer demands and are designed within the framework of the opinions of stakeholders consisting of private sector representatives, teachers, school administrators, researchers and experts in related institutions and organizations, and the opinions of children who are the main beneficiaries of the system are not consulted.

However, in accordance with the Convention on the Rights of the Child (CPC), it should be taken into account that the child has the right to participate in the policy design, implementation and supervision processes related to vocational education (CPC, m.12).

Another important component of learning environments is the physical infrastructure of schools. However, it is not always possible to have all the machines, machines and tools that students will use in business life after graduation, especially in schools that provide education for the industrial sector. This situation causes the student to graduate from the school with insufficient technical and practical knowledge, as well as to decrease his/her interest in his/her profession qualified vocational and technical education should be able to gain practical knowledge and skills as well as theory.

In this sense, it is also important to include the work of a career guidance system that will enable students to make their professional/field choices consciously in Turkey.

For this reason, Turkey needs a career guidance system that can enable students to be equipped with knowledge, skills and values that will enable them to make informed decisions at every stage of education, allowing students to evaluate all professions and how they can contribute to social well-being by doing these professions. Accuracy of the choice of profession is possible by recognizing the individual's own interests and abilities and the qualities required by the job (Kıraç, 2011).

In order to contribute positively to the perception of vocational and technical education in society with thematic vocational and technical education application, to train the qualified workforce needed by the sector in cooperation with the sector, to create a model of exemplary school in terms of cooperation with the sector, to increase the interest and support of the sector in vocational and technical education, to establish the basis for successful students to specialize in higher education, only in these centers where a certain sector stands out and intensifies. Thematic vocational and technical Anatolian high schools, which are trained in "a profession" in order to train the qualified workforce needed by the sector, have been opened.

There are currently 19 thematic high schools in 12 provinces. Vocational and technical education school boards have been established in all provinces and districts. To strengthen school-sector cooperation in application, vocational and technical education, to contribute to the development of vocational and technical education at the local level of the sector and all relevant stakeholders, to facilitate the employment of graduates, to increase the skills training and internship opportunities of students in enterprises, to receive the support of local organizations in improving educational environments, to increase in-service training opportunities in the form of on-the-job training in enterprises for the professional development of teachers started.

Industry Cooperation, Privatisation and Labour Market

Education activities should be encouraged to shift the weight to private education institutions, ensuring that the private sector is more and more in the field of education. The weight of private education institutions in developed countries is in the range of 30%-50%. Thus, it has enabled the education sector to become dynamic in these countries.

Today, the weight of the private sector in our country is much lower than these levels (Özyilmaz, 2013:12). With the spread of private schools, competition will improve, quality will increase, and the cost of education allocated by the state to individuals will decrease (Uygun, 2013:66).

In order to open "Special Vocational and Technical Education" institutions, the state should determine and implement an incentive mechanism. In addition, these schools should be established in industrial zones (MEBa, 2012:28-36).

RESULT

Today, vocational and technical education is important in preventing job reduction due to the problems that have become one of the biggest problems of global economies. Due to the different nature of vocational and technical education, the necessity of coexistence of practice and theory has come to the forefront of the need to structure based on knowledge, skills and competencies.

Ensuring that it can acquire new skills, supporting and promoting innovation and entrepreneurship, ensuring transitions between professions is only possible with a qualified vocational and technical education system. In recent years, important steps have been taken both to increase the schooling rates in vocational and technical education and to increase the quality of vocational education.

Lifelong learning should be seen as a continuous and planned activity that promotes the gain of knowledge, understanding and skills in a way that leads to the professional and social success of individuals, communities and the whole society. The field of vocational and technical education is constantly developing and changing due to technological developments. For this reason, it is necessary to constantly update their knowledge and skills in the job market.

It is important for the country's development that vocational education increases to the expected level in Turkey, which has adopted the growth model with production and exports. By making legal arrangements, vocational and technical education schools should be given a more flexible structure and cooperation with industry should be developed. In order to increase the function of vocational and technical education schools graduates, the problems experienced in job applications to the sector should be eliminated.

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