



## Vocational Education and Training as “A Friend in Need” During Coronavirus Pandemic in Turkey

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### Abstract

The vocational education and training (VET) has been critical to Turkey’s well-being in a time of coronavirus pandemic. With increased capacity in production, VET has become one of the main suppliers of society in these days. In this study, developments in production via VET within the scope of coronavirus measures are briefly reviewed. Additionally, improvement areas and steps that need to be taken to strengthen VET are discussed. In these pandemic days, cleaning materials, medical masks, and disposable materials are essential products, which are hard to procure. With the support of Ministry of National Education, 10 million masks are produced in VET high schools monthly. Cleaning material needs of all schools around Turkey can be met with the productions of VET high schools. Face protection shields, disposable materials, and face masks with N95 standard are produced via R&D studies in VET and they are shared with healthcare professionals. This study shows that VET in Turkey can respond to the needs of society quickly in pandemic days with developments in VET in the past two years following the announcement of *2023 Educational Vision*. A strengthened VET system with mentioned points in the study can play a major role in meeting the needs of the society during possible crisis periods.

## Türkiye’de Koronavirüs Salgınında “Kara Gün Dostu” Mesleki ve Teknik Eğitim

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### Öz

Mesleki ve teknik eğitimin (MTE) önemi Türkiye’de koronavirüs salgını sürecinde daha da öne çıkmıştır. Artan üretim kapasitesi ile MTE toplumun bu zor günlerdeki ihtiyaçlarını karşılayan ana aktörlerden biri haline gelmiştir. Bu çalışmada, koronavirüs salgını ile mücadele sürecinde MTE tarafından gerçekleştirilen üretimlerdeki gelişmeler ele alınmıştır. Ayrıca MTE’yi güçlendirmek için atılması gereken adımlar ve gelişim alanları da kısaca değerlendirilmiştir. Salgın günlerinde temizlik malzemeleri, tıbbi maskeler ve tek kullanımlık materyaller temini en zor olan ürünler arasında bulunmaktadır. Milli Eğitim Bakanlığının desteği ile Mesleki ve Teknik Anadolu Liselerinde (MTAL) ayda yaklaşık 10 milyon maske üretilmektedir. Türkiye’nin farklı bölgelerinde bulunan tüm okulların temizlik malzemesi ihtiyaçları MTAL’lerde gerçekleştirilen üretimlerle karşılanmaktadır. Ayrıca, yüz koruyucu siperler, tek kullanımlık malzemeler ve N95 standardında yüz maskeleri de MTE kapsamındaki Ar-Ge çalışmaları desteğiyle üretilmekte ve sağlık çalışanlarıyla paylaşılmaktadır. Bu çalışma *2023 Eğitim Vizyonu’nun* açıklanması sonrasındaki iyileştirmelerle birlikte MTE’nin salgın günlerinde toplumun ihtiyaçlarına hızla cevap verebildiğini göstermektedir. Çalışmada açıklanan unsurlarla güçlendirilmesi durumunda MTE sistemi kriz dönemlerinde toplumun ihtiyaçlarını karşılayan ana unsurlardan biri haline gelecektir.

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## Introduction

Vocational education and training (VET) has been one of the most discussed type of education in Turkey for years. Expectations from VET have always been high, but finding solutions to the problems and systematic solution approaches have always been lacking (Ozer, 2018; Ozer, 2019a; Ozer, 2019b; Ozer & Suna, 2019; Ozer & Suna, 2020). The interventions in the past such as 'coefficient regulation', which prevented access to higher education, brought VET to the point of paralysis (Ozer, 2018). The steps taken later by the Ministry of National Education (MoNE) to reduce the effects of this negative intervention could not completely solve the problem because of the fact that the coefficient regulation has significantly reduced the tendency and selection of successful students to VET. In the following years, the practice of placing students in all schools by exam in transition to high school, similar to the coefficient regulation, led to the clustering of comparatively low-achieving students in VET. On the other hand, although very important projects regarding the improvement of VET have been carried out, not enough arrangements have been made in the labor market to improve the personal rights and conditions of VET graduates (Ozer & Suna, 2020).

Despite all these problems, MoNE followed a holistic approach for the solutions of VET-related problems, especially after announcing the *2023 Education Vision*, and addressing VET and its problems as a whole, and serious improvements appeared in diverse areas within a short time (Ozer, 2018; Ozer, 2019a; Ozer, 2019b; Ozer & Suna, 2019; Ozer & Suna, 2020). Especially the steps taken jointly with the sectors that are involved in cooperation in employment throughout the entire education process spread rapidly throughout Turkey. The right steps soon began to produce positive and solid results in a short while. The number of students enrolled in VET increased by 17% and the number of students enrolled in vocational training centers (VTCs) increased by 62%. Tendency and selection of high-achieving students to VET also increased in the same time interval, and students from the top 1% of achievement rankings are placed to VET high schools for the first time. Now, VET becomes an important option for academically high-achieving students, too. MoNE has made intensive efforts to increase production capacity, especially in VET. Necessary arrangements were made by MoNE and production in VET institutions increased by 40% a year. Although all these steps did not solve all the problems in VET, they showed that if right steps are taken towards the solution, the positive results are seen immediately and hopes for the future of VET increase.

Nowadays, we have been going through extraordinary days due to coronavirus pandemic. In this context, MoNE has activated the production capacity of VET in Turkey, and VET high schools has begun to produce the materials to prevent the spread of pandemic. They produced materials in diverse areas from cleaning materials to mask production, disposable aprons and overalls to face protection shields. Thus, it is seen that VET immediately produces the products, which are hard to supply otherwise, for society and presents them to the service of society. The R&D studies are also intensified to increase the variety of products produced in VET. The devoted teachers and students of VET have always prioritized the demands of society in such difficult conditions, have activated their production capacity and supported Turkey with their services. This behavior has increased the respectability of VET community, coming right after the healthcare professionals, among all segments of society have become thankful to staff and students of VET in Turkey.

Beyond these praises, it is useful to think once again about the problems of VET at such a time. The importance of strengthening VET and raising the human resources demanded by the labor market are accepted by all segments. All public institutions and organizations, business world, and non-governmental organizations have carried out important studies on solutions to the problematic areas of VET. However, VET has been perceived as a chronic problem for years in Turkey. Why are the desired results not achieved even though there is such a strong agreement regarding the strengthening of VET?

Like all countries, Turkey is going through a difficult process due to coronavirus. On the one hand, MoNE improves the large-scale service regarding distance education in this process by continuously improving the quality, and on the other hand, a different production move in VET by focusing on the products that are difficult to procure is realized. Today, the VET community has been mobilizing all its opportunities and facilities for Turkey. For this reason, this short article summarizes the production moves in VET within the scope of coronavirus measures and briefly reviews the areas of improvement that need to be handled in a short time in order to further strengthen VET, which functions as a protective shield in difficult days.

### **Background on Turkish VET**

The period in which VET was remembered with gratitude more than today is 30-40 years ago. In this period, the government undertook almost all of the production and service sectors, therefore, the main source of employment was the government. On the other hand, VET schools were public schools, too. Therefore, planning was relatively easy when the source of employment and education were the same. Since the number of students especially in VET was compatible with the employment demand of government, the demand for VET was above the capacity and most schools accepted students according to their examination scores. Accordingly, VET graduates were also able to find jobs in public institutions easily. Therefore, this period maintains its place in memories as a period when there is no widespread problem related to the employment of VET graduates.

The strong relationship between education and employment has started to weaken with the growth of the education system. On the one hand, with the increasing demand for education, the education system is constantly growing, on the other hand, the government has gradually withdrawn from the production and service sectors and private sector has taken the place of government. In other words, the main source of employment for VET graduates is now the private sector, not the public institutions. The share of the private sector in VET stands out as an important parameter in country comparisons in this transition phase, which is experienced in parallel with the developments in the world. In particular, when looking at Continental Europe, the governments withdraw from the production and service sectors, while the private sector has also undertaken the burden of VET.

On the contrary, the private sector has not taken the burden of VET when entering the production and service sectors and the VET has continued to remain on the shoulders of the government in Turkey. By 2012, the share of the private sector in VET was below 1%. However, in the countries which are in the forefront of VET in Continental Europe, the share of the private sector in VET is well above 50%. Although incentive mechanisms have been generated to encourage the private sector to be deeply inclined to VET, share of private sectors in VET is approximately 6% in 2020 in Turkey, and it is still quite low compared to Continental Europe countries. Unlike the general trend in the world, the low share of private sector in VET services in Turkey has negatively affected the education-employment relationship and has made it difficult to VET graduates to work in their fields of education.

Increasing the scale and capacity of VET, without thinking or ignoring the employment capacity, has worked against the VET in the long term and has led to the supply of VET graduates more than that demanded by the labor market, which necessarily forced the VET graduates to be employed outside of their education areas (Ozer, 2019a; Ozer, 2019b; Ozer & Suna, 2020). As a result, skills mismatches in the labor market have now become a chronic problem. On the other hand, external interventions such as “coefficient regulation” shocked VET, which already had a problematic situation, and all the effort was put to take VET out of shock with the developments, however, previous experiences left in society traces of trauma (Ozer, 2018). This situation disrupted the flow of high achieving students towards VET, thereby reducing the likelihood of meeting expectations from VET graduates.

It is obvious that improving the quality of VET is quite important. However, the main parameter in re-strengthening VET is the matching capacity of employment and the labor market with VET. Otherwise, the steps to be taken to strengthen VET will be insufficient and permanent solutions will not be produced.

MoNE also intensified its efforts to pull the supply-demand relationship into a rational ground in order to strengthen the education-employment relationship. The relationship between levels of VET institutions and industry locations and capacities of VET is determined by plotting the Turkish VET Map (MEB, 2018). The current capacity is restructured within the framework of this map. Thus, both the employment rates of VET graduates in their field of education will improve and skill mismatch in the labor market and its cost will decrease.

MoNE in Turkey has taken very important steps to strengthen VET in recent years and it is still implementing these efforts with a systematic approach and determination. MoNE has developed a new approach especially in cooperation with sectors. In this collaborative approach, it is determined jointly to carry out training processes, to update the curriculum together, to support the students' skills training and teachers' on-the-job and professional development training, to give scholarships to successful students and to give priority to the employment of graduates. These efforts started to be productive and give tangible results in a short time. VET has become an important option for high-achieving students and students from the top 1% achievement rank are placed to VET high schools for the first time for many years.

## Significant Productions by VET in a Time of Crisis

### **The Target is to Meet the Cleaning Material Needs of All Schools and Institutions**

MoNE has focused on the production in VET high schools in order to maintain the hygiene, cleaning and disinfection works of all schools within the scope of coronavirus measures. While those products were being produced in 28 vocational and technical Anatolian high schools (VTAHs) before, this number has increased to 44 high schools now by making the necessary investments to meet the needs of all schools. MoNE made the necessary investments and increased the number of schools producing cleaning materials to 100 in April in order to meet the needs of other institutions beyond the schools. In addition, MoNE provided the raw material needs of VET high schools and delivered them to the schools. At present, VET high schools have reached a production capacity to meet all cleaning material needs of approximately 54 thousand schools in 81 provinces.

### **10 Million Masks will be Produced Monthly**

The medical mask is the most needed product due to the coronavirus epidemic in these days. It is difficult to provide the necessary supply of masks and prices are constantly increasing. MoNE has taken a quick step in this regard. The necessary investments have been made to produce medical/surgical masks in 37 vocational high schools in 21 provinces and the first masks started to be produced. One million masks were produced in a very short time and delivered primarily to healthcare workers. The capacity to produce 10 million masks per month has been created. On the other hand, seven provinces are chosen to produce masks in N95 standard. Production is proceeding as it is planned. VET high schools are constantly working to meet the demands.

### **Priority was given to Production of Disposable Materials**

In this process, the demand for disposable products has increased due to the importance of hygiene. In this regard, MoNE has invested in VET and started to produce products such as disposable gowns and overalls especially for healthcare workers. Production continues intensively in almost all provinces. On the other hand, manufacturing of products such as disposable forks and knives is started in selected pilot VET schools in Istanbul.

### **500 Thousand Face Protection Shields are Produced per Month**

In order to contribute to the solution of the troubles in the production of face protection shields, which are especially important for healthcare workers, R&D studies have been completed and the production of face protection shields has started. In VET high schools, 500 thousand face shields can be produced per month. Face shields are produced both with an automated production line and by using 3-D (three-dimensional) printers. In addition, the molds of the face shields are created beyond the 3-D printer, and mass production of face shields started in the field of plastic technology of VET high schools.

### **Ultrasonic Surgical Mask Machine is Manufactured**

R&D studies that have been going on for months have yielded results and an 'Automatic 3-Layer Wire Ultrasonic Surgical Mask Machine' was produced. The machine started to produce about 200 thousand masks per day. The machines are produced in Istanbul and they will be installed in other VET high schools and the monthly production will reach 10 million surgical mask capacity soon.

### **MoNE will Manufacture the Machine which Produces Masks in N95 standard**

MoNE took a very important step while accelerating its production in VET high schools within the scope of coronavirus measures and began preparations for producing the machine that produces masks in N95 standard. While there is no problem in getting the equipment related to the production of surgical masks in the market, machines producing N95 masks are either very few or not accessible. For this purpose, MoNE started R&D for machinery production. The development process continues successfully and the first machine is set to be produced in April 2020. The purpose of this attempt is to have the 'know-how' of all stages of production and to contribute to the increase of production capacity by sharing this know-how with the companies producing in this field in Turkey.

### **Production-oriented R&D Studies are Emphasized**

R&D studies focusing on the production of biomedical products are needed in the field of healthcare. In this context, an intensive R&D study was performed in order to produce the machine producing the surgical mask and the machines producing the mask in N95 standard. In addition, R&D studies are ongoing to produce respirators.

### **Produced Materials are Given Free of Charge to those in Need**

MoNE tried to meet the needs of the market reliably, and on the other hand, launched a new social service project. The '*VET High School Students Meet Our Families*' project has been successfully implemented by the Ministry together with VET students and teachers for years. For example, in 2018-2019 academic year, 13.217 teachers and 39.197 students in 1.889 schools in 81 provinces participated in the project and 54.000 families are supported (Ozer, 2019a). Within the scope of the project, small maintenance and repairs, paint-whitewashing, furniture repairs, small repairs of the unusable or obsolete items at homes belonging to the elderly and needy families were taken care of. In addition, care and cleaning services, personal care and life-facilitating aids were provided for the elderly people who need personal care.

In this context, MoNE changed the scope of this project to fight with coronavirus pandemic in a more effective way. Within the new scope of project, the cleaning and disinfectant materials, and surgical masks have been produced and delivered to the elderly and needy families free of charge in 81 provinces with the coordination of Governorships. In addition, the face shields and masks have been delivered to healthcare workers free of charge with the coordination of Ministry of Health.

### **Discussion and Conclusion**

Nowadays, millions of people struggle from coronavirus pandemic and it is effective on any aspect of our daily lives (Callaway et al, 2020; Gibney, 2020; Ting et al., 2020, UNESCO, 2020). Several precaution steps are taken against spreading the coronavirus to a larger extent by governmental authorities in diverse countries (Ting et al., 2020; ETF, 2020). Due to the scale and impact of pandemic, it is not possible to consider coronavirus pandemic just as a matter of public health (OECD, 2020). As a consequence of this precautions, education is one the most affected fields by coronavirus pandemic (UNESCO, 2020). In the last week of March 2020, it is estimated that 1.3 billion of children and youth, which is close to 80% of the student population of the world is affected by school closures in 138 countries (UNESCO, 2020). This huge effect of coronavirus on access to education created a big pressure on educational authorities all around the world. Most countries spend effort to establish and update distanced education platforms to sustain their educational processes (ETF, 2020; OECD, 2020). Concurrently, educational activities has started which aim to enlighten all educational stakeholders about the coronavirus pandemic (OECD, 2020).

Although there is a big crisis in education in global scale, vocational education and training (VET) has a great potential to contribute to the fight with coronavirus pandemic. A strong VET system can support the needs of society especially in the times of crisis by means of its production and adaptation capacity. Based to its importance and potential, VET continues to be an education path where intense discussions are concentrated all over the world (Ozer & Perc, 2020). With widespread use of automation, especially supported by artificial intelligence technologies, in the production and service sectors, the skills gained by VET have brought into question (Perc et al, 2019). In a new era of autonomy and artificial intelligence, VET systems around the world are restructured in a way that VET students can gain more general skills and train in broader vocational fields (Hanushek et al., 2017; Solga et al., 2014). Problem solving and adaptation skills of VET students according to changes in labor market will increase with restructuring. In times of crisis like today, it is apparently seen that needs of society and labor market can change dramatically within a short time. VET system can support the society with its production and adaptation capacity. To increase the production and adaptation capacity of VET and support R&D studies, it is quite important to equip students with general skills along with vocational skills and provide them flexible educational opportunities (Hanushek et al., 2017; Ozer & Suna, 2020; Solga et al., 2014).

A strong VET system can support the society with both its production capacity and social inclusion projects. As can be seen in this brief study, VET becomes an important source in the manufacturing of highly-demanded products in times of crisis. Using the R&D and diverse vocational skills of VET students and teachers, VET has

the power to adapt its processes in a quite short time to meet the need of the society. Additionally, VET has the capacity to support the people, especially those who need, with social inclusion projects based on vocational skills of students and teachers. In this manner, support of VET system for society is multidimensional and it becomes even important in times of crisis.

Considering the experience of these crisis days, the quick steps that need to be taken for removing the VET from being a problematic area have been mentioned briefly. The weakness of the relation between VET and employment is still at the center of many problems related to VET in Turkey (Ozer & Suna, 2020). Therefore, the main step to be taken in strengthening VET again is dependent on strengthening the education-employment relationship.

This study briefly shows how quickly the VET has responded to society in meeting the needs during the coronavirus pandemic in just two years after the Turkey's 2023 Educational Vision was declared. The points mentioned in this study underline how the strengthened VET can quickly respond to social demands especially in the days of crisis.

In sum, while MoNE successfully conducts this process by mobilizing all its facilities, it activates the production capacity of VET and makes a modest contribution on its own scale in the manufacturing of the products that are needed in Turkey now. Thus, while VET high schools are mobilized for the Turkey's urgent needs and support the society, they get out of the shadows of labeling such as coefficient regulation and "type of school that is not preferred" and become more and more normalized. MoNE aims to save the VET high schools from their historical burdens, to establish a genuine relationship with the production chain and to make VET high schools more respected in the society. All of devoted executives, teachers and students in VET are currently doing R&D studies in all provinces of Turkey in order to increase the production capacity and diversity. All other units of MoNE also provide all kinds of support to VET high schools. In addition to diversifying production and placing products on the market, it is essential to continue efforts to attract high-achieving students to VET and to increase employment of VET graduates in their field of education.

In order to strengthen the VET-employment relationship and further align the supply of graduates with the demands of the business world, steps towards the labor market are also needed. When incentive mechanisms are created in the salaries of VET graduates working in their field of education and when the labor market has the appropriate mechanisms, this upside trend in VET will be sustainable and it will be discussed how VET can be higher quality rather than being remembered with old problems.

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