

An Analysis of The Relationship Between Associate Vocational Technical Education and Employment Specific To Aircraft Technology Program

(Mesleki Teknik Eğitimin Genç Nüfusun İstihdamına Etkisinin Uçak Teknolojisi Programı Özelinde İncelenmesi)

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Abstract

Associate programs centered upon vocational and technical education bear significant responsibility in the employment of young population. Associate programs intend to equip trainees with knowledge, skills and competence found in the fifth level of Turkey Higher Education Qualifications Framework. That the program goals and the expectations of labor market correspond to one another enables the graduates of these programs to be employed in the right sector. In recent years, our country has become a center in aviation sector. The growing employment opportunities that have been provided for flight crew and aircraft maintenance personnel have led higher education institutions to open up relevant programs. This study aims to discuss the problems the graduates of vocational technical education, which is carried out in associate level, face and the solutions to these problems. Through an analysis of the associate programs that provide training in the field of Aircraft Maintenance, the relevance of educational content and the goals of knowledge-skill-competence to market expectations will be evaluated.

Keywords: Employment, Vocational Education, Aircraft Maintenance.

Özet

Genç nüfusun istihdamında mesleki ve teknik eğitime odaklanmış önlisans programlarının önemli bir sorumluluğu bulunmaktadır. Önlisans programları Türkiye Yükseköğretim Yeterlilikler Çerçevesi kapsamında Beşinci düzeyde yer alan bilgi, beceri ve yetkinlikleri eğitilenlere kazandırmayı hedeflemektedir. Program hedefleri ile işgücü piyasalarının beklentilerinin paralel olması bu programlardan mezun olanların doğru alanda istihdam edilmelerine de ortam sağlamaktadır. Son yıllarda ülkemiz havacılık sektöründe önemli bir merkez olma yolundadır. Konunun hem uçuş ekibi, hem de uçak bakım personeli yönünden her yıl artan oranda yeni istihdama imkan sağlaması yükseköğretim kurumlarının bu alana yönelik programları açmasına sebep olmuştur. Bu bildiri çerçevesinde ülkemizde halihazırda önlisans düzeyinde sürdürülen mesleki teknik eğitimlerden mezunların istihdam ile ilgili karşılaştıkları sorunlar ve bu sorunlara yönelik çözüm yollarının tartışılması amaçlanmıştır. Bu kapsamda havacılık alanında Bakım Onarım Yenileme (uçak bakımı) alanında eğitim veren önlisans programları incelenerek, eğitim içerikleri, bilgi-beceri-yetkinlik hedefleri ile piyasa beklentileri konusu değerlendirilmeye çalışılacaktır.

Anahtar Kelimeler: İstihdam, Mesleki Eğitim, Uçak Bakım.

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Introduction

Human's struggle of life, going back to the first eras and lasting so far, has been carried out by the transition from the masters to the apprentices and from the fathers to sons. With the arrival of Industrial Revolution, standardizing the production stages, mass production on different science-based stages all together has introduced a necessity to employees in line with the needs of industry.

Today, the concept of growing up the people for which industry needs with an appropriate job and the concept of learning an occupation, play an important role which both our country and the world focuses for us.

It is explained in this study that the change in the employee's situations in their institutions and the progress of the sense of the occupational education is argued throughout our country and the world. Also, the inland power of Turkey and the aviation sector in the markets of labor force in Turkey is discussed, the opportunities of changes which enables to our country are tried to explain, the ration of our country has acquired in the rivalry environment in the world and the capacity of employment has increased in the portion of aviation in the World.

Globalization and rasing rivalry have required a rapid change for societies and individuals in every field. In our age, workers and managers have to know elasticity and how to take responsibilities about making their works perfect and arising the quality of the work all together with other workers. Changes in the information and communication sector make necessary for sectoral specialization of countries and businesses to compete on a global level, the increasing level of education and skills of its employees, and becoming it as perpetual for lifelong. It has been aimed by all over the world that the aspect of the vocational training system is to be flexible and have a structure that allows the passage and the reasoning of those who trained in the basic skills to have, in order to be used in life information daily, and make it possible to establish the cause-and-effect relationships in a healthy way by observing (Mesleki Eđitimin Yeniden Yapılandırılması alıřma Grubu Raporu, 2014). Therefore, the main element of competition is seem to be as increasing of information, the skills and competencies of labor (Demir ve diđerleri, 2013).

This case have been carried out in two dimensions in public and private education institutions and in sectors to be able to find opportunities of work continuously with on-going courses in the field of education of labor force. As a result of this, as much as the individual's level of education, interm education related with the occupation also effects the employment. This procedure is applied unilaterally in the developing countries and power of labor is desired to have formal education. So, global economic fluctuation has caused more people to be unemployed in developing countries. In developed countries, power of labor has been able to manage to save themselves with the least damage with formal education.

Although needs, traditions, social and economic structures show differences from each other all around the World ,vocational education systems of countries, are considered as a three-dimensional process which consists of individual, occupation and education (Saraođlu, 2007). Reaching of this system at the global standards is provided with International Standart

Classification of Education (ISCED) which was completed by UNESCO in 1976 (UNESCO, 2016). ISCED aimed to make international vocational education concept and its descriptions as a standard condition with the purpose of processing of global economic system in a healthy way constituting vocational educated workforce which has been needed for, and to be created occupational classification system as based on education, and to be turned vocational educations into active models in terms of management, content and practice. By this way, the studies conducted at European Union level were concreted with Bologna Declaration in 1999 (YÖK, 2016).

Our country conducts studies for both in development plans scope and international cooperation scope for the development of vocational and technical education, and makes arrangements for the benefit of the education of young people in employment is made. In this scope, at first, by emphasising on the concept of vocational training, the studies which are conducted will be expressed, after then the relationship of employment between vocational and technical education given at the associate degree will be discussed in specific to flight technology program.

Relationship Between Education and Employment in Global Competition

Our country, in global economy which is experienced competition in all areas, is in a struggle for the maintenance of his development by means of production, consumption, workforce and fund.

Vocational and technical education has become an important tool for the solution of problem in economic crises which are often encountered with globalization, and reduction of employment or differentiation as a result of these conditions. Today, in the association of education and employment, manpower qualifications which is required by globalization and exceed the national economic requirements are effective. Also, training effectiveness of employment, the quality and criteria of employment affect the education. With this aspect, crises in the global or regional level have revealed requirement of a dynamic vocational training system in which key skills acquisition of individuals are carried out. That commercial activities are a large quantity and worldwide, in a World where 29 companies from 18 countries even work jointly by gathering for a cup of coffee which is ready for consuming in our table everyday (Dinçşahin, 2009; akt. Akçetin, 2010), generally practicing the stages of production for final production in different country or production facilities, necessitate the common efforts in education implementations which are for employees. Thus, structured in accordance with the expectations of local, national and international labor markets, vocational and technical education become a target in order to provide our young population to attain essential information, ability, and competence.

On this subject, “Turkey Vocational and Technical Education Strategy Document and Action Plan (2014-2018)” in which with the aim of supplying Turkey's skilled manpower needs, developed strategies and policies are evaluated all together for increasing quality of vocational and technical education was prepared by the Ministry of Education. Supporting of vocational and technical education to economic development, giving a learning opportunity which is appropriate for needs of all segments of society, ensuring the effective participation

of shareholders and bringing up young people in accordance with the requirements of employment fields are aimed in the relevant Action Plan (MEB, 2014).

Vocational and technical education has been a topic which is also assessed in the development plan. In the Ninth Development Plan (2007-2013), in this field, passing to modular and flexible system, the establishment of a vocational qualification system which bases on professional standards with testing and certification, and the development of a vocational education structure which is susceptible to this system, providing work sharing and cooperation which bases on program integrity between secondary and tertiary education institutions, popularizing and strengthening practical training of these institutions with the cooperation of industry are aimed.

Vocational Qualifications Authority which was established with 5544 Vocational Qualifications Authority Act in 2006, also conducts the activities by constituting national occupational standards, the preparation of vocational and technical education and training programs according to these standards, certification of professional qualifications of the workforce, providing the comparableness of the received documents in the national and international levels, and with the aim of providing active participation of representatives of businessworld in all decisions regarding the process.

In the Tenth Development Plan (2014-2018) also, the harmony between the education system and labor market, in consideration of the matter of lifelong learning gaining the skills and competencies required of business life, the adoption of an entrepreneurial culture, strengthening arrestingly the medium and long term industry projections of school-business relationship in vocational and technical education, recognition of prior learning, the development of the certification system, ensuring program integrity in vocational and technical education at the secondary and tertiary levels and emphasising on practical training in educating a skilled workforce are determined as aim.

Education consistently included in the agenda as a separate component in development plans and in this concept despite of qualified manpower training aims, an important change hasn't occured in international competitiveness of our contry yet. Qualified human source have become more important than ever before due to rapid developments lived. The ability of competing of the countries have been examined according to different criteria by International Institute for Management Development (IMD) and it allows to international comparisons. The evaluations of 2015 in this annual document, our country has become 40th country in the list of "The World of Competitiveness" between 60 countries (IMD, 2016). According to the assessments of the same center for the year 2010, our country is 48th in "Global competitiveness" ranking, 42nd in "Labor market" ranking and has the 49th rows in "Employment ranking " among 60 countries (TÜSİAD, 2010).

In this respect, within the preparations for the 10th Development Plan, in the report prepared by Restructuring of Vocational Training Working Group, too, it is implied in terms of our country's qualified labor force and productivity, by stating the performance of it in the vocational and technical education has been able to increase just a level between the positions of countries since 1975, in ranking qualified workforce, ranked the 37th in the World, and

countries such as Eastern European countries and Colombia are located on Turkey (Kıraç, 2011; akt. Mesleki Eğitimin Yeniden Yapılandırılması Çalışma Grubu Raporu, 2014).

Also, in another report prepared by World Economic Forum for 2015 year, Turkey is 51st in Global Competitiveness Index, 56th in Innovation index, and 55th in higher education among 140 countries (World Economic Forum, 2015). It is beneficial to handle the results with both sides. First one is our country's market of power and the second one is lack of competent productive power of employment that composes an important obstacle in global economy in taking an effective role.

Occupational and technical education which are in the education system of developed countries at the level of middle and high school are given special care in order to supply the necessities of global rivalry. Occupational and technical supplies are shown in order to supply qualified productive power needed for a stronger economy and a faster social development in the developing countries (Adıgüzel ve Berk, 2009).

Studies Carried Out to Enhance The Vocational Training in Our Country

Our country enables to make the transportation net among Europe, Asia and Africa easily with the position of a bridge between continents. With a flight of 3,5 hours, it is easy to be able to reach 1,5 billion people, an item produced in Turkey can be offered to sell and there are over 400 million people living in our neighborhood which have a budget that is over a billion dollars (Kulga ve Akçetin, 2010).

It makes our country necessary to educate its citizens about vocational training to a great extent because the most of the population of our country composes of people who are at the age of work and many people are unemployed and unqualified.

The matter of employment in our country is totally different from other countries' matter of employment. The fact that the ration of the participation of population ready to work is low, the majority of the working population are in the agriculture sector, the lack of vocational schools aren't enough in terms of number and opportunities are the main components of matter of unemployment in our country. The necessary of giving importance to labor-intensive sectors in order to compete at the global level is suggested when considering young population in Turkey. The technological infrastructure must be combined with the labor force to have a competitive position in the world.

In addition, development of intensive pension sectors will be able to provide a positive development to many inter-related sectors in our country. Thus; our country will increase the effectiveness of competition in sectors where they have the power. Moreover, permanent job opportunities and continuous growth potential will be used efficiently in the labor markets.

The developing industry, the improvements in science and technology, the rising of the need of qualified people continuously require the qualified human force who are suitable to these conditions; so the process of the membership to European Union has improved our country about the vocational training in terms of taking important steps.

The practicality of the policies of vocational education in European Union and spreading of the policies are aimed with the planning of different projects and applying them

to life in the process of which legal regulations and institutional change and innovations occur (Anapa, 2008). In the national programme prepared in 2001, the changes which are taken over European Union requirements related with vocational training, innovations and plans are established. Pilot projects are put into practice in our country with the Reinforcement of the Vocational Training and Formal Education (MEGEP), the Project of Modernization of Vocational and Technical Training (MTEM), the Project of Development of Human Resources via Vocational Training (İKMEP), which are all supported by European Union. So, it is considered that needed studies and arrangements which will reach to the standards of European Union in a very short time, existent vocational high schools will train qualified instructors, physical structure and solve the staff's problems will be followed.

Generally, first hopeful steps have been taken for the healing of the vocational training. Problematic fields have been determined, the pilot projects have started to be put into practice. But, our country needs to speed up the studies about the relationship of the industry and school, desire to the vocational training, the profiles of teachers and the students, the concept of basic training and education all life long as reforms which both developed and developing countries have done are taken into consideration.

Fast Growth Of Aviation Sector And Employment

When the development which will be ensured about the geographical location of our country and air transport are evaluated together, it is commented that delivery services are the high reliability and in a quick way, freight and air cargo transportation will considerably develop in the coming period.

Today, goods, equipments, and staff have gained the mobility so that they can reach anywhere in the World within 24 hours thanks to air transport (Atik, Atak ve Konyalı, 2013). The aviation sector makes a great contribution to the countries in areas of the employment of young people which is an important problem for development of the country, and increasing exports of goods and services. Both sector reports which are prepared for the development of the aviation industry in our country and ICAO (International Civil Aviation Organization) data, and as well as the reports which contain estimates for future by the aviation industry's leading organizations such as Boeing and Airbus state that the growth rate of this sector will take place at the very top of the world's average growth rate in the coming period, and predict the need of educated labor will constantly increase. (Boeing, 2012), (Airbus, 2014).

There are rules which are determined by World and European aviation authorities about the self for the sector, being able to work in the sector for the personnel growing in our country depends on their growth from the education programs which are accepted by the authorities and licensed in content. Possession of high quality standards of the aviation industry, being indispensable of procedures, regulations and documents for the sector and due to recording of every transaction, in the section of The International Civil Aviation Convention "Personnel Licenses" it is stated that being able to work in the sector for pilots, navigators, flight engineers and radio operators, aircraft maintenance personnel, air traffic controllers, dispatchers, station operators and meteorology personnel may be possible only with the licenses they have. In our country, General Directorate of Civil Aviation (DGCA) is the sole responsible organization.

In particular, the aircraft in the aviation sector "Maintenance, Repair and Replacement" (MMR) activities are the field which is most affected from the trained human resource. This field generally includes;

- * Line maintenance for aircraft and heavy maintenance that requires hangar,
- * Maintenance for motor ve component,
- * Non-destructive testing,
- * Cleaning, structural repairs,
- * Maintenance for cab internal,
- * Maintenance for outstanding ground equipment.

MRR activities are increasing in accordance with the rapid development in the aviation sector. While the business volume in the global market is close to 50 billion US dollars in 2011, it is expected that it will reach 70 billion US dollars over next ten years. It means that requirement for technicians who will be able to work in the sector will increase rapidly (Erel, 2012). Therefore, requirement will increase for education institutions which are able to train personnels appropriate for needs of the aviation industry.

Investigating and Analysing Associate's Degree Aviation Programs Practised in Turkey

Regarding aviaition sector as having significant influence on both increasing employment and lowering current deficit for Turkey, it is expected to identify content, implementation and student capacity of formal aviaition education curriculum in compliance with internationally recognised regulations.

Career processes of sector employees are designed considering task and task teams requiring knowledge, skill and competence at different levels together with education level, working hours and age determined by competent authorities.

At all these stages, General Directorate of Civil Aviation is the sole responsible organization, and all requirements and regulations concerning knowledge, skill and competence that personnel needs to bear are stated in its published guidelines. By these guidelines, personnel graduating from authorized educational institutions are tested, and achievers deserve to get the licence of related category. Within this framework, associate's degree graduates educated in the field of "Maintenance, Repair and Replacement" are certified with "A" (Mechanic) category licence.

In 2015-2016 Academic Year, in Aviaition Colleges throughout Turkey, the quotas for aviation programs are as follows: 1252 for Aircraft Technology, 1325 /(face to face) and 1515 (distant education) for Civil Air Transportation Management, 1951 for Civil Aviation Cabin Services, 372 (face to face) and 2020 (distant education) for Aviation Ground Services, 50 for Air Logistics and 20 for Non-Destructive Testing. There are totally 8505 student quotas (4970 for face to face and 3535 for distant education) in 6 Aviaition Programs (ÖSYS Yükseköğretim Programları ve Kontenjanları Kılavuzu, 2015). When compared with 2014-2015 Academic Year, it is clearly seen that while student population was 8494 last year, there is an increase of %30,96 this year. Especially Aircraft Technology associate's degree

program which is related to Maintenance, Repair and Replacement area and accredited by Higher Education Institution has totally 1252 student quotas. When compared with last years numbers, there is an increase of % 31,65.

Taking lessons of Aircraft Technology associate's degree programs given at Aviation Colleges into consideration, it is clearly seen that majority of such lessons as Maths, Physics, Basic Electric, Electronic Circuits, Digital Technics, Materials and Equipment, Maintenance Practises, Basic Aerodynamics, Human Factors, Aviation Laws, Aircraft Aerodynamic, Helicopter Aerodynamic, Air Vehicle Aerodynamic, Thrust, Gas Turbine Engine, Piston Engine and Propeller in the program show parallelism with "A" category training module licenced by General Directorate of Civil Aviation.

In order to ensure standard learning contents of "the Council of Higher Education (CoHE) of Republic of Turkey" and in this context, to discover effective solutions for common problems of both aviation sector and educational institutions in terms of instructor, lecture documents and internship activities, Civil Aviation Commission was founded by CoHE within the scope of a protocol signed between CoHE and GDCA in 2012. The commission carried out a comprehensive "Sector-Labor Analysis" for aviation institutions in Turkey. Aiming to uncover fundamental problems of aviation sector; in this survey, important results have been received regarding the personnel to be engaged particularly in Maintenance, Repair and Replacement process.

In Turkey, it is observed that while majority of institutions giving education on the basis of Maintenance, Repair and Replacement have greater student quotas as a result of not providing work licence for program graduates, there is an increasing need for licenced personnel that companies look for every passing year (Sivil Havacılık Komisyonu Dördüncü Toplantısı, 2014). On this point, educational institutions bearing determined competences are certified by GDCA for the trainings of certificate of competency required personnel for civil aviation sector such as pilots, maintenance technicians, flight dispatchers, flight attendants, aviation safety staff. In this regard, as presented in Table 1, in an effort to pave the way for engaging aircraft maintenance graduates in aviation sector, Civil Aviation Colleges/Academies providing education at bachelor's or associate's degree level need to be certified within the context of Civil Aviation Regulation-147. Otherwise, despite having completed two or four year long training, as they don't bear any vocational competency licence, there will be no distinction between them and any vocational high school graduates. In this case, sector representatives provide graduates with certification trainings spending extra resources, nad this causes waste of resources (Akkaya, 2014).

Table 1

Comparison of Sector Needs With Higher Education Quotas As Part Of MRR Throughout Turkey

	2018	2023
1.MRR personnel who will work in the sector	8100	9289
2.Extra personnel to be employed	4401	6031
3.All Maintenance personnel who will graduate regardless of certification	6520	13040
4.Unemployed maintenance personnel numbers who will graduate from all Higher Education Institutions regardless of certification	-2119	-7009
5.Maintenance personnel who will graduate from certified Higher Education Institutions	2105	4210
6.Certified extra personnel numbers that sector needs	-2296	-1821

Source: Sivil Havacılık Komisyonu Dördüncü Toplantısı, 2014.

Therefore it has been emphasised that Higher Education Institutions founded with the intent of training qualified personnel for aviation sector need to design learning contents meeting the measures determined by not only Bologna Process, but also Turkey Higher Education Qualifications Framework and General Directorate of Civil Aviation.

Accordingly, in 2014, taking concrete steps, General Directorate of Civil Aviation declared in a notice to give “Certified School” document to the institutions who met determined requirements and to provide Maintenance, Repair and Replacement personnel who graduated from these institutions with exemptions from all modules in appropriate categories.

In terms of sector needs and right employment of trainees, while providing quotas for these programs by CoHE, it is inevitable to structure curriculums in compliance with the related regulations of national and international authorities (GDCA, ICAO, EASA, etc.). It is also essential to restructure them so as to train qualified work force bearing vocational competency licence necessary for country and region. To the institutions which are lack of these responsibilities mustn't be given any quotas, and the ones which intend to set up any field or program without meeting these requirements mustn't be taken into consideration.

Conclusion and Suggestions

In this international competition arena where countries compete with similar technology and infrastructure capabilities, opportunities for progress depend on having wide knowledge, skill, competence levels and qualified workforce. On the way of meeting these requirements, vocational and technical training institutions, development plans and national education policy are in prominent factors. As a result of conducted investigations and obtained outcomes;

- It is not enough to structure learning contents in the light of Turkey Higher Education Qualifications Framework, it is also necessary to create a content which meets the needs of both sector and authority institutions in order to reach international levels on vocational and technical training.

- Aviation, a sector developing faster than nations' growth rates, is one of the areas on which countries need to focus not only for providing added value but also for increasing employment.
- With the purpose of training intermediate staff, higher vocational schools are established, and every year rising number of students are accepted. However, as these schools aren't certified by General Directorate of Civil Aviation, an additional training turns out to be an inevitable reality.
- In order for turning our country's young population profile into an opportunity in the competition world, providing international accreditation for vocational training, evaluating sector needs in the right way, founding new educational institutions and increasing quotas need to be taken into account.

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