

Problems Encountered In Educating Qualified Workforce In Vocational High Schools And Solution Seeking

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ABSTRACT

In this century, in which technological development proceeds, it is seen that manpower to work within production sector can not satisfy the expectations of sector. As a result, competition opportunities of companies decrease and their need in educated work force increases that much. The purpose of this study is to research the reasons why qualified work force to satisfy expectations of production sector can not be trained in vocational schools in Turkey and to propose a solution. The machines working with advanced technology are not used efficiently and safely in production sector; this situation poses an obstacle before the aim of providing high quality product at low cost. The resolution is that trained and qualified employees should use the machines within production sector and then quality education should be provided in vocational high schools.

Keywords: Vocational Schools, Skilled Manpower, Quality Education

1. INTRODUCTION

With the developing technology in the manufacturing sector profit margins decreased and, at the same rate, competition increased. Firms aim to do most work with least people by minimizing the skilled manpower investment which is the most important cost to fight with increased competitive conditions. Understanding of education which can meet expectations manufacturing sector is not given in junior technical college of our country. Being a serious harmony problems between equipment of vocational colleges, educational staff, academics and developing technology is the one of the most important reason.

In our day, there is an intense competition in global market. It's gaining more and more importance to grow man power has the quality to meet expectations of business world in this competition. If education system will fail at growing qualified man power, the price for this failure shall be paid either by enterprises thereby training their available employees with a very high cost, or by society thereby standing for purchasing of goods and services of poor quality (Dahil and Karabulut, 2013).

In the current economic conditions and the labor market becoming increasingly competitive, people must change their job, constantly renew and develop their abilities when they want or has to all over their work life. Thus, Programs of vocational and technical education institutions should give broad and transferable skills to students besides the occupation-specific skills.

Education; it is systematic progress which provides specific improvements and developments on people's thinking, attitudes and behaviors, their lives in the direction of predetermined aims (Barutçugil, 2002). Teaching can be accepted as regulation of learning environment for the realization of learning. Environment, known not only as places of education, but also methods, tools and materials used for transferring the knowledge and guiding the work of students (Gelişli, 2007). Five types of teaching for different purposes. These direct training, remedial education, learning skills facilitation, social skills facilitation and idea width (Hartley, 2007). Especially in industrialized countries, education in today's social structure is examined as preparation of human resources or workforce in the context of societal needs. Educational technology and teaching technology terminologies are often considered as equivalent expressions. Recognizing the distinction between each other as terminology is very important. Many proficient think that educational technology is comprehensive concept which is used in every aspect of education initiatives but learning technology is not a comprehensive concept which is used for using strategies for a particular purpose and specifying teaching and learning process through the media of communication (Donald, 2008). In general the most important natural resources for the development of a country is manpower. It is fundamental to provide high-level production by taking advantage of manpower and natural resources as required. This is possible only through

education. Taking advantage of the natural resources in the best way depends on training of manpower about this issue. The purpose of vocational and technical education is to provide needed basic behaviors for an individual to get a job and progress in that area (Sezgin, 2000). The fact of having a profession which has an important place in people's social lives and practicing the best profession through education effect the life of humans and societies. When you from this point, it is obviously seen that vocational and technical education have an important part in lives of people and communities (Kazu and Demirli, 2004). If the education system does not adapt to the developments in the industry in time, a disconnection between the two systems occurs and the skills imparted in the educational system is becoming invalid in the industry (Ulusoy, 1993). Consistent and attentive content should be regulated with academic standards and the relevant technical knowledge and required skills should be prepared in applicable expertise field for further education and professional life (Donnelly, 2008). To capture contemporary technology, even to give it direct, it is required to give talent of creativity, problem solving and using information along with the handcraft should be taught. Success of vocational education which prepares individuals to life and business area depends on effectiveness and efficiency of cooperation of industry and school. By reflecting this collaboration with the contemporary technological changes and developments to the vocational training programs as soon as possible, there will be an education according to requirements and needs of business life (Kaya, 2005). Vocational and technical education which generally aims to meet the intermediate members of the industry and business area exhibits a dynamic structure to respond the need of rapidly changing technological knowledge, production methods and industry (Ercin, 2004).

In a study conducted within the scope of this article, source of the current problems is found by analyzing the situation of Vocational and Technical Education system at the tertiary level. At the end of the study, suggestions contributing to the solution of the problem come up and information about how these recommendations should be implemented are given.

2. VOCATIONAL AND TECHNICAL EDUCATION PROCESS

2.1 The Historical Development

Vocational education in pre-industrial societies was walking with a structure of master-apprentice relationship rather than a formal education (Şahin and Fındık, 2008). Until the 18 century, vocational training was carried out as Ahilik in Selçuklu period, as the Guild organization in the Ottoman period in a system based on conventional methods. In this structure, children given over to a master by mothers and fathers to learn the profession firstly promote to headworker and later mastery in a period of time working here. In addition, large organizations bound to the state were training qualified personnel they needed by opening courses and schools (Semiz and Kuş, 2004). While principles of professional qualification were determined and at the same time it was based on the protection of commercial morality. With the effect of industrial revolution on Turkish society, vocational education must be carried out in school discipline (<http://etogm.meb.gov.tr>).

In accordance with the directives of Atatürk after the Republic, work of more modern Vocational and Technical Education was accelerated. In 1937 year, provinces were divided into nine region with Law No. 1867 and in every region, art schools which were managed and funded by provinces was activated. Thus, art schools were turned into "Regional Art Schools". (<http://etogm.meb.gov.tr>).

2.2 Qualified workforce and Vocational Technical Education

In sectorial areas of developed countries, while the need of skilled manpower can respond to the expectations and demands of businesses, many of the developing and underdeveloped countries has a serious problem to educate human resources which they need. One of the most important indicator of the nature and impact of human resources is country's productivity figures. When you look at the statistics regarding the efficiency, Turkey has not got a good performance about this topic. For example, while China has increased its efficiency 5 times increasing in the last 20 years, Turkey has stagnated (Saygılı, Cihan, Yavan, 2006).

2.3 The Current State

Vocational education has a structure in secondary, undergraduate and graduate level. In higher education, vocational technical education is given by two-year Vocational Schools and four-year vocational and technical education faculties. Two-year vocational schools are established to ensure needs of intermediate member (Technician) which is needed by industry. The main purpose of the four-year vocational and technical education faculties is to contribute the skilled manpower in the manufacturing and service sectors of businesses with meeting the needs of the teachers to vocational secondary schools.

Vocational schools is one of the most important steps of the 'Vocational and Technical Education System'. Vocational Schools has been established to train qualified interim person who has sufficient knowledge and skills for industry, trade and services sectors. Vocational schools fill the gap between Vocational and Technical Education

institutions providing education at the undergraduate level and employment areas targeted by secondary institutions. As shown in Table 1, vocational and technical education programs are implemented in 48 fields and 247 departments in our country according to 2012 data of Higher Education Council. Based on the same data, 777,741 students studying in 777 in Vocational High School in Turkey and 14,985 faculty members are serving. These figures Show that the number of vocational schools and consequently the number of students increased 2times in the last 5 years. Number of students is 51.9 per instructor. This number is about 2.5 times of all higher education average.

Table 1. Number of Vocational Training School & Undergraduate Students

	INSTITUTIONS		NEW ADMISSIONS	TOTAL NUMBER OF STUDENTS	TEACHING STAFF
	NAME	NUMBER			
TOTAL FOR TURKEY	TWO - YEAR VOCATIONAL TRAINING SCHOOLS	777	290945	777741	14985
TOTAL FOR THE UNIVERSITIES	TWO - YEAR VOCATIONAL TRAINING SCHOOLS	745	279924	755789	13197
TOTAL FOR THE OTHER INSTITUTIONS	TWO - YEAR VOCATIONAL TRAINING SCHOOLS	32	11021	21952	1788

The majority of the students in vocational colleges are provided by vocational and technical high schools. According to statistics from the year 2012, 70% of students in vocational colleges come from vocational and technical high schools. While the number of the students who enrolled to vocational colleges was 190291 in 2008, it was 290945 in 2013. Although the number of the students in vocational colleges increased, infrastructure, the physical space, equipment and staff needs of these institutions were not met at the same rate. So, application decreased quality of vocational colleges' education and the system was paralyzed. Because the students was not taken in vocational colleges basing on serious and scientific criteria, vocational colleges was not the education center which meet the need of qualified people to labor market and turned into the last education stop of the unsuccessful students. Despite all this negativity, current education is hindered because existing workshop and laboratory technology is mostly away from to meet the needs of today's technology. Vocational school's graduates who does not meet the need of technology school's graduates who does not meet the need of technology become not meeting the need of sector. Graduates try to get technologically advanced professional skills by the help of courses because they can't get it from the school. Not meeting the rising need of teacher with the enactment of the passing without examination system is one of the important reason which causes decreasing of education quality. Problem of teaching staff lived in vocational schools is revealed by the figures. According to data from 2005-2006, while there are 68.07 students per instructor in vocational schools in our country, it is 5 in Germany, 9 in Japan, 10 in Belgium (Eşme, 2007).

As a result of the phasing out of the system to pass without examination of student and faculty data to pass without examination after two years have taken their final form and after the passage of examination system by looking at the number of students to be assessed in a more tangible.

According to the work conducted by Ministry of National Education, Higher Education, Ministry of Development and the Union of Chambers and Commodity Exchanges of Turkey together, the number of vocational colleges will be decreased. A part of this schools will be closed, some will be converted into some vocational schools, and others will be merged. Thus, the number of vocational schools showing an excessive rise in recent years will be controlled.

The level of the quality of labor in Middle and Eastern European countries is higher than in Turkey. This situation shows that Turkey has a serious problem to train qualified labor (CEUT, 2004). Educating qualified manpower which can realize the social development is the duty of the education system in a large extent. While education system is carrying out this duty, it sees students as a productive citizen and prepares them to community life, profession world or further education. When indicators are examined, it is seen that the importance is given to

vocational education which train qualified labor in EU countries, in developed countries like the U.S. and Japan. Both students and public administration doesn't show enough interest to Vocational Training Institutions in Turkey where the industry is developing and this is why there is "Qualified person" person.

3. VOCATIONAL AND TECHNICAL EDUCATION IN TURKEY WITH DATA IN THE DEFINITION OF THE PROBLEM

Data in figure 1 shows the professional competency assessments of graduates with vocational education who are working manufacturing and service sectors businesses. Many employers find professional knowledge, skills, attitudes and work habits of graduates inadequate. As a result of the inadequate education of students who are coming from this negativity in technical education, they must produce with educated people instead of skilled labor. Because skilled manpower wanted by Professional organizations is based on "now knowing people but a person who can do" when you look at the table, vocational colleges which must be revised according to the conditions face to serious problems.

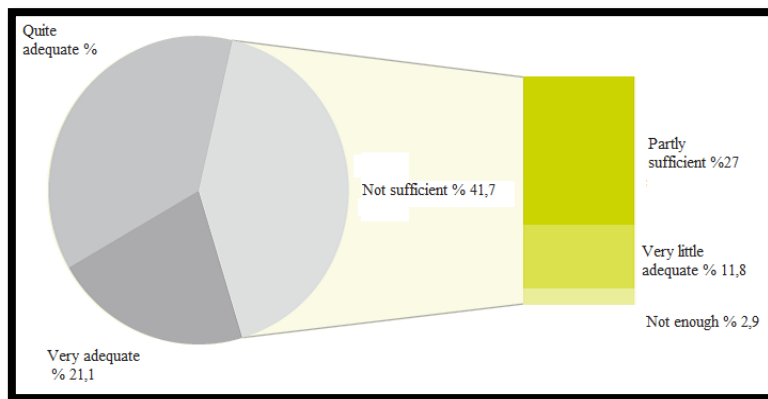


Figure 1. Finding condition adequate for the work which includes career information

(Ministry of Education Educational Research and Development Department-2010)

Vocational and technical education given in current vocational colleges does not graduate qualified person to meet the labor market and so enterprises of manufacturing and service sector must train the graduates again. This is a serious problem for small and medium-sized enterprises who uses new production technology and need for the qualified person. Improving the quality of vocational and technical education has a serious place in National Employment Strategy Paper. One of them is on the development of education-employment relationship. Works in this field are started to be applied especially with the start of Specialized Vocational Training Centers (KOÇ, ERI). Machinery equipment and hardware needs for implementation of vocational and technical education programs in secondary education are met to a great extent with this application, vocational training back of manufacturing sector form ant years, becomes stronger. Because the students are educated with the same technology which is used in industries, they are able to meet the need of qualified labor after they graduate from vocational colleges. Employment and Training Relations Strengthening Action Plan that is prepared by the collaboration of Ministry of Education, Labour and Social Security, Ministry of Industry and Trade, Higher Education board, Institution of Vocational Qualifications and Turkey Job Institution and finalized by taking opinions of relevant civil society organizations, labor, employers' organizations, professional organizations published in July 2010. Ministries, public institutions and organizations and the private sector are moving together within 60 action plan (KOÇ, ERI).

3.1 Problems Arising From Vocational Guidance

Orientation and attention to vocational schools in our country is less than orientation and attention to vocational schools in developed countries. Harmony between interest and the ability of individuals and specifications required by the work in training the qualified labor is the most important factor on practice of individual's work motivation and profession. Individual himself, interests and abilities, the qualifications required by the job must be very good examined to choose the right job. Even though vocational guidance is being done from secondary in our country, many shortcomings and malfunctions occur of vocational guidance services and promotion conferences in schools are inadequate to choice appropriate career. Needs of social and economic conditions that we are in, family's request, income levels and environmental factors are determinative, rather than individual's ability in vocational guidance. Families who want their children to enter university insist on having a university degree rather than getting vocation. When the lack of the current examination system and guidance service is added to this situation, a conscious

vocational guidance can not be done and the problem of vocational education is relocated from secondary to college.

3.2 Problems Arising From Educational Curriculum

Programs whose names are different but the content is same in both secondary and colleges are opened. This situation reveal the programs which are each other again. Especially in higher education, programs which seems disciplines of different faculties are opened. This situation prevents efficient use of resources and causes graduates to gain different qualifications (Fer, 2000). Sufficient qualified manpower needs could not be identified in our country and as a result, more employment of labor occurs in local level.

3.3 The Problems Experienced with the Manufacturing and Service Sectors

Because of the mismatch between vocational schools and enterprises, education of qualified manpower responding the expectations of businesses can not be done. This incompatibility is one the fundamental cause listlessness to vocational and technical education in both secondary and colleges level. Determination of this question has a very big importance for both eliminating the problem of skilled manpower and solution of problems. The efficiency of vocational and technical education institutions is proportional with the suitability in terms of quality and quantity with demands of trained workforce and labor market. With the advancing technology, demands of enterprises show a continuous change and expectations to labor change. There is big serious problem between organizations giving vocational education and businesses especially in applications. Educational institutions do not follow real sector, real sector does not take educational institutions into them directly. The main reason for this is that training of professional staff with the needs of industry is not created by regional needs are taking into account. Because vocational education is an expensive and a long-term education, the supply-demand balance requires to be handled carefully. All these discrepancies happened with the manufacturing and service sectors bring employment problem together.

3.4 The Adaptation Problems Inadequate Infrastructure and Developing Technology

Vocational and technical education institutions providing secondary and tertiary education in our country struggle very big problems to provide professional equipment required both for keeping pace with infrastructure and evolving technology. Vocational and technical education is expensive and at the same time long-term and risk-based education. Vocational education institutions are required to follow progressing technology. The modernization of vocational and technical education is being done especially with the projects developed by using European Union funds recently. Moreover, resources are transferred to vocational and technical training by using the resources of the general budget. The part shared to education from general budget in Turkey is the half of the shared part in OECD countries and this emerges that sources transferred are inadequate. According to the data's from 2006, average part shared to the education from public in OECD countries is %5,9 while it is %3,7 in our country (OECD, 2006). Vocational schools are excluded from campus area by the university. Thus, this causes that vocational schools are seen separate from vocational colleges and prevents students to feel as a university student.

4. CONCLUSION

Vocational and technical education faces with very serious problems at the level of vocational schools. The current status of vocational education have been identified and problems tried to be determined and solutions are tried to be found. The rate of vocational and technical training to all secondary is %35 in developed counties but it is %70 in our country.

As well as the large number of students and lack of academic staff in vocational and technical education institutions, the most important problem is lack of infrastructure, technological equipment, laboratories and workshops. Furthermore, these are problems that students from vocational schools have not got the capacity to get adequate professional knowledge and skills, coming from areas with insufficient economically and socially status, their expectations and goals from profession do not overlap with evolving technology, vocational schools do not have the education programs meeting employment expectation. It is not possible to meet the expectations of real sector with these deficiencies and defects of Vocational and technical education institutions. As a result of that Vocational and technical education institutions has a physical structure away from business and at the same time businesses can not create enough communication and relationships in terms of time and economic, required manpower profile can not be created for both educational institutions and business. When role in creating skilled manpower of the purpose of vocational education colleges is considered, graduated students should lecturer who have knowledge and skills to educate them and practice them and show students machinery and equipment for industry when students need application and to take an active role in business. For the realization of that teaching staff providing training in vocational colleges are required to have originated educational background not engineering background. As result of the National Education Policy Implemented in recent years, the number of students in vocational schools significantly

decreased and Number of Faculty of Technical Education and Faculty of Technology and vocational colleges increased. When the structure of Turkey's skilled labor force and productivity viewed, success in vocational and technical education is revealed. The Eastern European countries and Colombia are located on Turkey in the ranking of skilled labor. Public and private sector apathy to vocational and technical education institutions, the places where skilled labor force are educated, opening vocational school in every county by making national education policies internal political material and attempting to appoint teaching staff with non-adequate training and experience in these institutions are important results of this conclusion. In addition to these, that local expectations are based not on country's economy and productivity but on personal interests and passing this in front of the strategies of vocational and technical education institutions causes that problem of the inter professional pointless competition, conflict will grow instead of decrease. That vocational schools are opened together with lack of unplanned and infrastructure outside of vocational colleges and also opened in private universities led to labor graduations which is far below as quality but above as number of market's expectations. It is evidently seen that students coming to vocational schools are in a trend to have a diploma rather than having a specific aim. Since private universities increased and these universities does not have a disciplined and practical education, tending towards these institutions rather than state institutions has increased. Quotas in state-owned vocational schools has become substantially vacant. Because the students coming to vocational colleges can not find the expectations from the environment of university and social life, they has a serious problem in understanding the importance of their profession and school life. Student who are educated in province vocational schools complete their education by living in province and doing daily commute to solve their problems in their social life and spend time in this environment. When this situation's economic and physical conditions are forced, students can not have sufficient knowledge and skills for the future. So, students prefer going to private universities which are more relax and have approximately the same economic costs. Because the same problem applies to faculty members who work in the town, vocational schools become a place where the individuals want to get rid of neighborhood and family pressure. Because recruitment of teaching staff in vocational schools is not applied according to objective criteria, high school education which is very remote from application logic is given by people not having sufficient knowledge and skills and just striving for social status.

5. RECOMMENDATIONS

1- Promotion and definition of vocational schools was reorganized and these schools of negative thought should be changed. Required importance should be given this school, technological support should be provided and this schools should be tried to be charming in the preferences of students and their families by bringing to the level of developed countries.

2- Newly opened vocational schools should be opened in accordance with regional and national needs and economic conditions. It is clear that there is a serious need for planning and government policies about this topic.

3- Vocational schools should be scheduled to allow qualified manpower training and providing to find jobs which has adequate economic level by rescuing of opening of vocational colleges from being the internal politics material.

4- The programs which will be applied in vocational schools should be planned long-term according to the needs of the region and the country. There should be continuous movement in accordance with this plan

5- Vocational schools which has parallel investments in manufacturing and service sectors should be opened and existing institutions should be modernized in accordance with the new technology to meet the needs of developing technology.

6- That the vocational schools give education bound to universities and getting an enough share from scientific incentives will have a big contribution to realize aims of individuals getting education.

7- The modernization of vocational and technical education to keep pace with the rapidly developing technology should be considered, projects should be increased, share allocated to vocational and technical education from the general budget should be remarkably increased.

8- Teaching staff who has sufficient number and knowledge should be taken to bring the number of students per instructor to level of developed countries.

9- Vocational schools open within private universities should have their ability to produce adequate machinery, equipment and services controlled and it is vital to educate qualified labor that department which can not keep pace with technological developments should not be opened and the ones not modernized should be closed.

10- Vocational and technical education institutions buildings, facilities, implementation units, workshops and laboratories should run in cooperation with the private sector and students studying in the private or public sector should take practical training outside of practice.

11- Vocational schools have an aim to get a job and bring changes about individual's professional ethics and their social life. Vocational schools far away from residential areas isolated location decrease the efficiency.

12- There should be enough equipment and staff within the organization to eliminate the problems which is emerged by the obligation of provided practical courses in the curriculum.

13- Students' practical training should be in enterprises having appropriate technological and physical conditions at least 2 terms with the subject of students being in education period.

14- The department wanted to be opened with in vocational schools should be opened in cooperation with Ministry of National Education (MONE), Turkey Business Association (TEO) and the Turkey Statistical Institute (TSI) to do workforce analysis needed as Vocational and technical education across the country and regional.

15- Vocational Qualifications Authority (VQA) should develop occupational standards in prior sectors, standard of Vocational Qualifications System in active practice and training should be shaped in accordance with needs of the labor market.

16- Ministry of National Education tries to eliminate the complication by gathering the many units under one roof which completed the work of reducing the type of school and restructuring of ministerial departments through both projects and changes in legislation recently. However, the denominator allocated for vocational and technical education declined seriously and addressing the issues within the scope of these changes has a big contribution in education qualified labor.

17- Teaching staff who will give education and practice in vocational schools should have sufficient history and should be recruited by doing practice interview.

18- Vocational Schools should have sufficient number of technical staff and preparation of environment should be provided in terms of cost and functionality.

19- The right of absenteeism of students in the period of education should be decreased, especially participation to practice classes should be provided.

20- Fields entered by the direct passing exam should be expanded and the coefficient related to graduation grade in the exams made central system should be increased.

21- There should be a priority to Vocational School graduates among the employees in public sector.

22- Due to the expiration of the transition system without examination both the quality of the student will increase and students who has better ability to get information and skill will enter the vocational schools.

23- Graduates monitoring unit should be created by the universities to held in the employment of the students graduated from vocational schools and this unit should show way by referencing the businesses.

24- Government funding for the students who choose vocational schools should be increased and these schools should be turned into preferable schools.

6. REFERENCES

- Barutçugil İ. Education of Educational, Publishing Kariyer, İstanbul, 2002.
- Dahil L. and Karabulut A. Effects of Total Quality Management On Teachers And Students. 4th International Conference on New Horizons in Education. Italy. 2013.
- Donald E. Frameworks of Educational Technology. British Journal of Educational Technology. 39, 2, 2008.
- Donnelly, M. Vocational Education, EBSCO Research Starters EBSCO Publishing, 2008.
- Ercin Ö. Principles of Management of Vocational Training in size Comparison with Total Quality Approach <http://perweb.firat.edu.tr>
- Eşme İ. Vocational and Technical Education and the Challenges of the Current Situation. Council of Higher Education International Conference on Technical and Vocational Education. Ankara. 2007.
- Fer S. Modular Programming Approach and a Proposal. National Education. <http://yayim.meb.gov.tr>
- Gelişli Y. Using Instructional Technology Perspective Evaluation of Educational Institutions: Red Cedar Elementary School. Journal of Turkish Educational Sciences. 5, 1, 2007.
- Hartley J. Teaching, Learning and New Technology: A Review for Teachers, British Journal of Educational Technology. 38, 1, 2007.

- Kaya H. Businesses in Vocational Education and Training Institutions Current Problems and Proposed Solutions. (CEUT) Confederation of Employers' Unions of Turkey Journal Employer. 42, 8, 2004.

- Şahin İ. and Fındık T. Vocational and Technical Education in Turkey: Present Situation, Problems and Solutions. TSR Turkey journal of Social Research.12, 3, 2008.

- Saygılı Ş. Cihan C. and Yavan Z.A Education and Sustainable Growth: Turkey's Experience Risks and Opportunities, <http://www.tusiad.org.tr>

- Semiz Y. and Kuş R. Vocational and Technical Education in the Ottoman Empire. (Istanbul Industrial School 1869-1930) Selçuk University Journal of Turkish Studies, 15, 2004.

- Sezgin İ. Program Development in Vocational and Technical Education, Publishing Nobel, Ankara, 2000

- Kazu Y. and Demirli C. Developments in Technical and Vocational Secondary Education Institutions, Journal of Education. No: 155-156. 2002.

- Ulusoy A. Educating Teachers in Vocational Education and Training.1th Congress of Education. Izmir, 1993.

- Vocational and technical education (ERI) Education Reform Initiative of the updated situation analysis of Koç Holding. 2012.

Abbreviations:

ERI: Education reform initiative.

CEUT: Confederation of Employers' Unions of Turkey

TSR: Turkey Social Research.