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Review of Finnish and Turkish Education Systems: PISA Sample

ABSTRACT

In recent world communities reserve significant budgets for their educational activities in order to maintain their continuities and to reach certain welfare level. In this regard success of educational systems must be measured. This measuring process is performed through examinations conducted on national and international level. In this study education systems of Turkey and Finland were reviewed and assessments were conducted over PISA 2013, for which Turkey has attended for the first time. Purpose in this study is to indicate that the country like Turkey, aiming continuous development in education, can develop its education system to certain level through transfer of information and systems, by working under the education systems of the country like Finland that has proven itself in educational aspect.

PISA examination was preferred in this study as comparison measurement due to its scope and attendance level. Literature study was materialized in the scope of this study on the article and official websites of Finnish and Turkish institutions as well as the OECD (Organization of Economical Cooperation and Development) database.

It is determined according to the results obtained in PISA 2003 in mathematics, reading and science fields that Turkey is not in the top thirty countries in success ranking and Finland, according to the study, ranked first on all in these three fields.

Key words: *Finland, Turkey, Educational Systems, PISA.*

1. Giriş

*"If it is the next year you think, plant a seed.
Plant a tree, if it is the next decade you design,
However if you think about next century, then educate people...
If you plant a seed once, you get a crop one time,
If you plant a tree, you get a product ten times,
This product becomes hundred if you educate people.
If you give a man a fish, he will have a single meal;
If you teach him how to fish, he will eat all his life..."*

Kuan Tzu

For centuries education is one of the most important requirements of communities. In recent days countries determine their education systems according to various scientific or traditional methods or adapt any successful education systems that are implemented by other countries. There are examination in which questions are directed to various age groups, that are conducted on national and international levels in different fields in order to perceive if the education system successful or not. Countries act over their

national assessment system and perform comparative assessments on the examination systems in which numerous countries attend on the international level and remedy such relative deficient or incorrect parts in their education systems according to the results. PISA (Programme for International Student Assessment) is one of the International Student Assessment Examination conducted by the OECD (Organization of Economical Cooperation and Development), where Turkey and Finland are also participating, is included to such common examination systems.

In the PISA examination, that is attempted to measure how the 15 years old students coming to the end of mandatory education, have acquired basic knowledge and skills that are required for them to actively join the community, is also focused not on what they have learnt at school, not how they solve the problems they may encounter in daily life that they learnt at school. (OECD, 2004).

PISA that is applied to 4.500-10.000 students that are randomly sampled in every attending country is a paper-pencil test and it takes almost two hours to complete and contain open and close ended questions structured on daily events relating to reading skills, mathematics and science with different weights at each period (OECD, 2004). Also student and school questionnaires are applied for the purpose of gathering information about certain indications (social, cultural, economic and educational) that are considered as having relation to student performance (OECD, 2002). It is also attempted with PISA approach to create a structure that will respond to requirements of governments, that will obtain results from the examination including basic specifications, design and presentation method. (Ministry of National Education Department of Research and Development for Education) (MEB (EARGED), 2005).

In this study, education systems of Finland, which is at the top ranking in the PISA results conducted between 2003 and 2009 years, and Turkey, relatively at the lower ranking, will be reviewed, and shown how these systems reflect on examination results within the framework of relative literature study.

Purpose of this study is not to prove that the education system of Finland is superior to the education system of Turkey. However, the purpose is to review the source of success for the countries that are successful in this examination as compared to less successful countries. As a result of these review, the countries should form education systems according to their different cultural structures.

2.1 Education System of Turkey

(Gür and Çelik, 2009) has described the education system of Turkey as follows: "Education system of Turkey is comprised of two major parts such as "formal education" and "common education". Formal education is a regular training provided under a roof of school with programs prepared in line with the purpose, to individuals at certain age group and with the same level of knowledge. Formal education covers the preschool education institutions, primary school, secondary school and higher education institutions".

"Preschool education is accepted as a level of formal education under the National Education Fundamental Law (1973) No. 1739 and defined as "mandatory education for children not at primary school." Accordingly: preschool education is optional. In this definition the age group addressed by preschool education is not clearly mentioned. Similar definition is made in the Preschool Educational Institutions Regulation. However, according to this regulation, kindergarten is institutions for children between 36-72 months; nursery class is educational institutions that prepare children at the age between 60-72 months for primary school; application classes are opened within the body of education-teaching institutions that apply program relating to pre-school education in connection with MEB for the purpose of education children at the age between 37-72 months. Primary school is mandatory for all citizens, whether female or male, and primary school education is free of charge in the state schools. Primary schools institutions are comprised of eight years schools. Continuous education is performed in these schools and primary school diploma is awarded to those who graduated the school." (MEB, 2009)

Secondary education covers minimum four years of general, occupational and technical education institutions based on primary school. Purpose of the secondary education is to provide minimum common general culture to students, to introduce problems of individuals and communities and to search solutions, to prepare students to higher education, profession or life and occupational fields in line with their interests, skills and abilities by providing consciousness that will contribute to the social-economic and cultural development of the country.

Secondary education is consists of two sections such as general secondary education and occupational and technical secondary education. Secondary education is composed of high schools that apply various programs and students are placed in one of these programs in line with their requests and capabilities and they found an opportunity to be trained in accordance with their willing.

Higher education covers all institutions that recruit personnel required by the highest level labour and scientific research fields, which provide minimum two years of higher education based on secondary education. The purpose of general secondary education is to recruit and prepare for the higher education students as individuals having a minimum secondary school general culture, recognizing problems of community, contributing to economic, social and cultural development of the country. General secondary education is comprised of general high schools, Anatolian high schools, science high schools, social sciences high schools, Anatolian teacher high schools, sport high schools, Anatolian fine arts high schools and multi program high schools. Occupational and technical secondary education is comprised of male technical schools, female technical schools, commerce and tourism schools and religious education schools.

Common education is not included to the formal education system and covers all education activities organized outside or with the formal education on the interested and required fields of individuals that are separated from the levels of formal education or available on any level of formal education " (MEB, 2009).

2.2 Education System of Finland

General purposes of Finnish education system is to support life long development of students, to provide them necessary knowledge and abilities in life, to provide equity in education at countrywide and to maintain this equity. (BEAF, 1998).

Mandatory education is carried out under the control of the Ministry of Education and National Education Board and is under responsibility of municipalities; it starts at the age of 7 years and continuous up to 16 years (EURYDICE, 2008). In Finland, as there is no school audit, inspection visits of authorities to schools were ceased; applications of educators are assessed based on regulations and objectives included to the education programs. Internal and external audits are also important in this system; basing on expertise of educators they are determining whether the objectives are reached or not are (EURYDICE, 2008).

After the preschool education, general school period, that will last for 9 years, starts, and this period is divided into two parts,

as lower and senior levels: 1-6th grades and 7- 9th grades (FNBE, 2009). If necessary, in Finland the choice is given to the students at the end of the tenth year, a number of students in the age group between 7-16 years old continuing mandatory education (562.500 according to 2008 data)

(EURYDICE, 2008).

Among the mandatory courses thought in basic education, there are master language (Finnish or Swedish), literature, second national language, foreign language, environment studies, health education, religious or moral knowledge, history, social sciences, mathematics, physics, chemistry, biology, geography, physical education, music, visual arts, handicrafts, home economics and counselling. Education in these schools is given during first 6 years by class teachers, next 3 years by branch teachers and for the first and second grade students, entertaining morning and afternoon activities are organized other than normal courses (FNBE, 2009). In these activities, students may do their homework and direct to fields such as sport, music and art. As a different application, for the first and second grade students, it is mandatory to go out to the school garden between courses. Courses that start between 8 and 10 hours and end between 13 and 16 hours, generally lasting 45 minutes and there are fifteen minutes recesses between courses. Free of charge lunch is provided to students at schools (FNBE, 2009).

“After mandatory general education, students in the age group between 16-19 years may continue education at general secondary education or professional education schools, where the rate of students exceeds 90%. Even though the general secondary school education is defined for three years, students may complete this education in 2 or 4 years as well. In Finland, where education is not organized according to annual courses, students obtain their diplomas when they complete their courses.

Studies in the secondary education is ended with a maturity examination covering the master language, foreign language, social sciences, mathematics and science examination which are mandatory to be passed by students” (EURYDICE, 2008).

In order to receive acceptance, it is necessary to meet different conditions such as results of maturity examination, secondary education success, occupational experience; technical universities are heavily based on application education (polytechnic universities) and universities, where the theoretical education is prominent compose the higher education in Finland (FNBE, 2009).

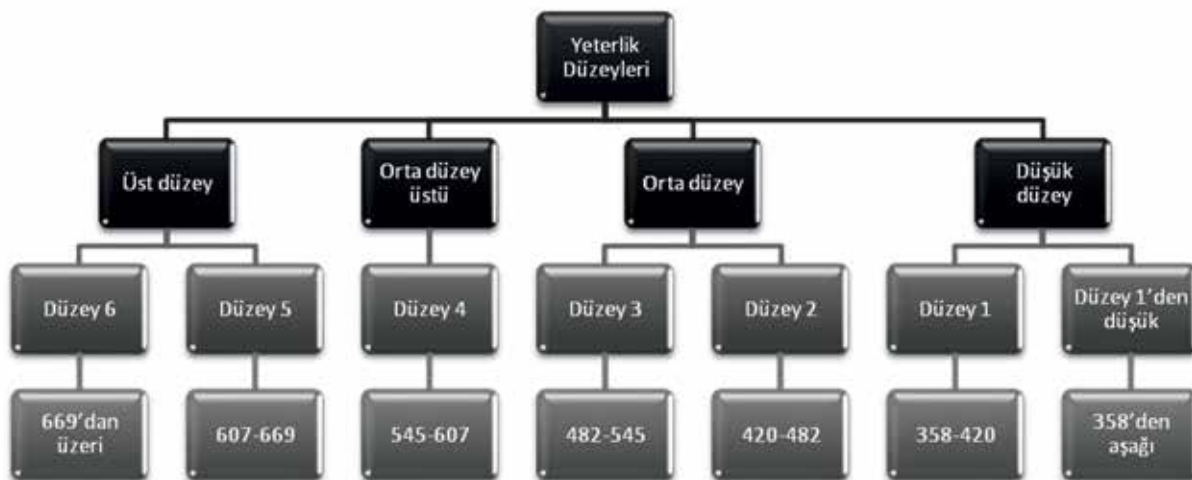
3. Material and Methodology

The PISA examination was preferred as a comparison measure in the study due to its scope and attendance level. Literature study was materialized in the scope of this study on the article and official websites of Finnish and Turkish institutions as well as the OECD (Organization of Economic Cooperation and Development) database. Primarily, Turkish and Finnish education systems were gradually described and appraised by the results, obtained in 2003 PISA examination by the students in 15 age group by OECD member and non-member countries, and the ranking of these countries according to such results were included in the study. The most important reason for selection of PISA conducted in 2003 is that this is the first PISA Turkey has attended. Weight given on the fields is different in PISA according to years; 2003 year is heavily based on mathematics.

3.1 Scoring System

The scoring scale in PISA is divided into levels in order to facilitate the interpretation of student scores. The grading of used test items allowed to define 6 levels of competency (MEB,2012)

Figure 1.
The PISA Score System Competency Levels



Source: Ministry of National Education, 2012, International Student Assessment Program

As seen on the Figure 1, students who got less than 358 points are under the Level 1, students whose scores are between 358-420 are at Level 1, students whose scores are between 420-482 are at Level 2, students whose scores are between 482-545 are at Level 3, students whose scores are between 545-607 are at Level 4, students whose scores are between 607-669 are at Level 5, students who obtained more than 669 are at Level 6.

3.3 The PISA 2003 Student Competency on Mathematics Field

In PISA there is assessing mathematical knowledge of students and how they use these. In this regards assessment is made on adapting mathematics to daily life for to see where these mathematical knowledge will be used in daily life.

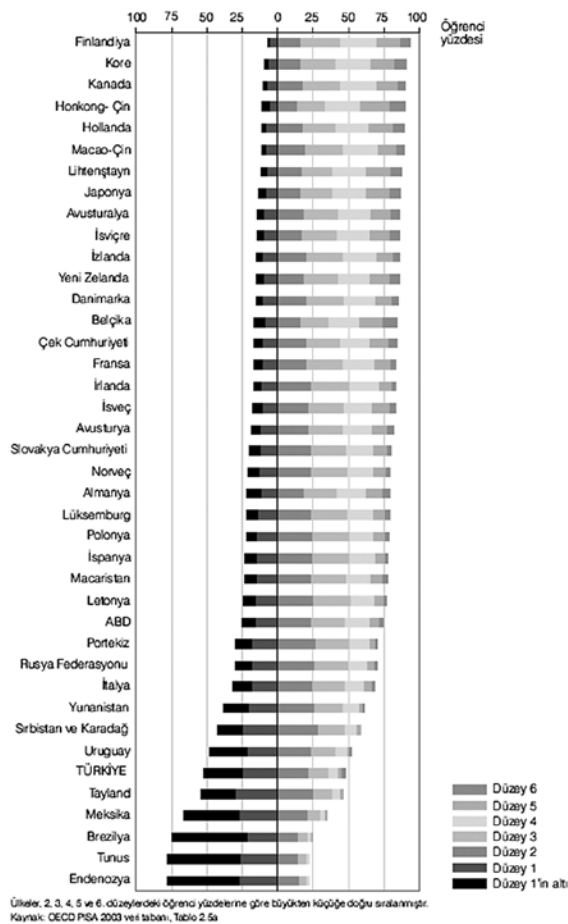


Figure 2.
Distribution of Students on Competency Levels at Mathematics Scale

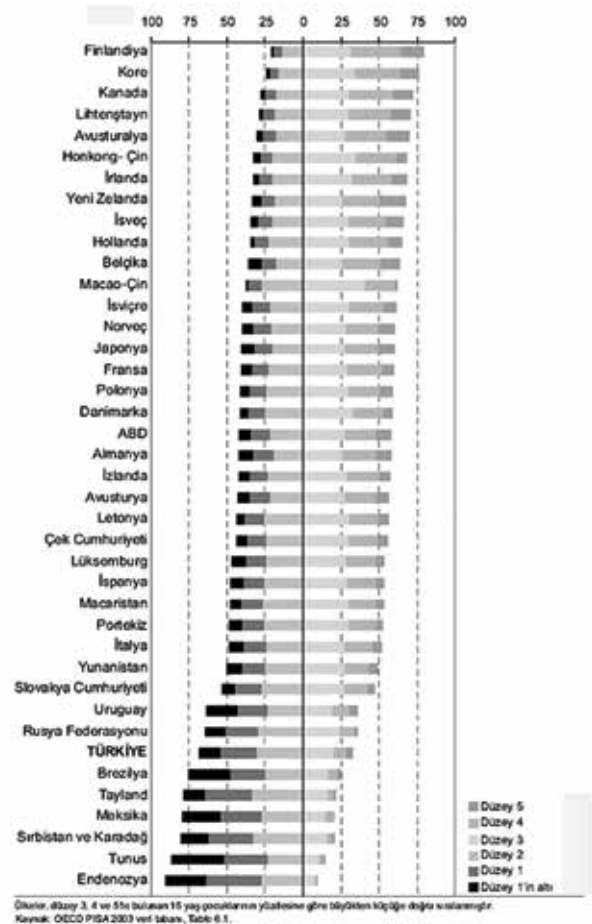


Figure 3.
Student Percentages at Different Levels on Reading Scales in the Countries attending to PISA 2003

Source: OECD PISA 2003 Database, Table 6.1a, referrer: Ministry of National Education, PISA 2003 National Final Report, Figure.64.
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However, there is no point indicating that students have fully knowledge about mathematics or any measure relating that students fully conceived mathematics. According to questions in PISA 2003 competencies of students in four mathematic fields have been measured. These are Space and Shape (Geometry), Variance and Relations (Algebra), Numbers (Arithmetic) and Uncertainties (Possibility). Problems that are encountered by students in daily life were used in the questions relating to PISA Mathematics and therefore it is expected for students to use mathematical solutions for these problems.

Mathematical performance profile of students in the countries attended to PISA 2003 was determined with three measures.

1. Student Competency at Mathematics: To determine the percent of students reaches to international level measures in terms of their perception of problems at different difficulty levels

2. General Student Performance: Average Mathematics score and

3. Variation of performance measures at each country (variance): Difference between students having good and bad performances.

As seen on Figure 1, countries are ranked from best to worst according to student percentages at Levels 2, 3, 4, 5 and 6. While Finland is ranked 1st in here, Turkey is ranked 35th. As indicated on the table, Turkey is remained under Level 1, Finland is placed at Level 5.

3.4. The PISA 2003 Student Competency on Reading Field

As seen on Figure 1, the countries are ranked from best to worst according to student percentages at Levels 2, 3, 4, 5 and 6. While Finland is ranked 1st in here, Turkey is ranked 35th. As indicated on the table, Turkey is remained under Level 1, Finland is placed at Level 5.

In the reading field the students are expected to find information that is explicitly given and to make implications from these and to benefit from the information outside of the text in order to perceive what the text is telling about. As in Mathematics, scores of the countries and the country averages may be seen in reading as well. It is seen that Turkey is placed after Slovakia Republic, Uruguay and the Russian Federation and before Brazil, Thailand, Mexico, Serbia and Montenegro, Tunis and Indonesia. Again the percentages at mathematical field are reviewed, the average score of Finland is lower at reading field and again according to percentages of mathematical field it is seen that Turkey has higher scores in reading field as compared to mathematics. The countries in which 74-80% of students have the level competency three or higher, are: Australia, Canada, Finland, Ireland, Korea, Holland, New Zealand, Sweden, Hong-Kong, China and Lichtenstein. Reading competence of Finland is higher than the average of all other countries. Finland and Korea are not only the best reading competence countries but also they indicate the least variability. Variability in reading competence scores of Canada is less than others when compared, and Canada is among the countries having the highest reading competence average. According to these results, students in Turkey are able to make comparisons between in text and out text information and they are able to solve the text with the assistance of personal experience and by making connections. They are able to make simple connections between the information in scope of the text and the daily information.

3.5 The PISA 2003 Student Competence on Science Field

Table 1. The average successes of countries on Science Scale according to results of PISA 2003

		%95 Olasılıkla Sıra*			
		OECD Ülkeleri İçinde		Tüm Ülkeler İçinde	
		En Üst	En Alt	En Üst	En Alt
OECD ortalamasının istatistiksel açıdan anlamlı olarak üstünde	Finlandiya	1	2	1	3
	Japonya	1	3	1	3
	Honk Kong-Çin	-	-	2	4
	Kore	2	3	2	4
	Lihtestayn	-	-	5	11
	Avustralya	4	7	5	10
	Macao-Çin	-	-	5	10
	Hollanda	4	8	5	11
	Çek Cum.	4	8	5	11
	Yeni Zelanda	4	8	6	11
	Kanada	6	9	8	12
	İsviçre	7	13	10	15
	Fransa	9	13	12	16
	Belçika	9	13	12	16
	İsveç	10	15	13	18
İrlanda	10	15	13	18	
İstatistiksel açıdan OECD ortalamasına eşit sayılabilecek düzeyde	Macaristan	11	16	14	19
	Almanya	11	17	14	21
	Polonya	14	19	17	22
	Slovak Cum	15	21	18	25
OECD ortalamasının istatistiksel açıdan anlamlı olarak altında	İzlanda	16	19	19	23
	ABD	17	23	20	27
	Avusturya	16	23	19	28
	Rusya	-	-	20	30
	Latvia	-	-	20	29
	İspanya	19	24	22	29
	İtalya	19	25	22	30
	Norveç	20	25	24	30
	Lüksemburg	22	25	26	30
	Yunanistan	21	26	25	31
	Danimarka	25	27	30	32
	Portekiz	26	27	31	32
	Uruguay	-	-	33	35
	Sırbistan	-	-	33	36
	TÜRKİYE	28	28	33	36
Tayland	-	-	34	36	
Meksika	29	29	37	37	
Endonezya	-	-	38	39	
Brezilya	-	-	38	40	
Tunus	-	-	39	40	

Source: OECD PISA 2003 Database, referrer: Ministry of National Education, PISA 2003 National Final Report, Table 35.

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It is not possible to notify the position of the countries in the ranking with a single ranking number since they are based on the given samples. It is possible only to mention that the country ranking between other ranks with 95% possibility.

In PISA 2003, the scope of science has become narrower since there was less assessment time. At the PISA science field, it is focused on usage of scientific information and abilities in real life instead of the information thought in schools. Difficult tasks contained in the PISA are related to events and conditions containing scientific information at superior level, requiring more ability in complicated conditions. However, scientific competence levels could not be determined completely since scientific field was not emphasized in this examination.

As seen on Table 1, two countries having the highest average, Finland and Japan, have the ranking between first and third rankings on the science field. However, when this condition is statistically reviewed, they are not different from the performance of Hong Kong – China, which is not the OECD country. The average point of Turkey is 434, percentage of students under 400 score is 38,6%, percentage of students over 600 score is 5,7%. Therefore, Turkey is ranked 28th in the country ranking, it is 32nd at the highest level and 34th at the lowest level.

4. Conclusion and Suggestion

Countries are greatly care advanced education of young population for sustainability of communities and rising generations more deliberately. In this regard, every country organizing its education systems according to its geography, cultural structure and traditions as well as to close gaps in its education system by adapting the positive sides of education systems of modern communities. Therefore, examinations conducted on the international level make a perfect opportunity to compare the education systems.

In the study, Primarily, Turkish and Finnish education systems were gradually described and the results that were obtained in 2003 PISA examination by the students in 15 age group of the OECD member and non-member countries and the ranking of these countries according to their results have been included in the study. The most important reason for selection of PISA conducted in 2003 is that this is the first PISA Turkey has attended. It is determined according to the results obtained in PISA 2003 in mathematics, reading and science fields that Turkey is not in the top thirty countries in success ranking and Finland ranked first in all these three fields under conclusion of the study. In the PISA

2003, which Turkey has attended for the first time, the results Turkey obtained are under the average scores in all three fields; Finland is in the top of three countries. When the scope and attendance levels are considered, PISA, a country like Turkey aiming continuous development in education may have developed its education system to certain level through transfer information and systems by working on the education systems of the country like Finland that has proven itself in educational aspect.

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