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A Comparative Evaluation of Pisa 2003–2006 Results in Reading Literacy Skills: An Example of Top-Five OECD Countries and Turkey

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Abstract

In this study it is aimed to describe and evaluate comparatively the reading literacy exam results, the finance of education and schools, and socio-cultural status of parents inTurkey and the top-five OECD countries, Finland, Korea, Canada, Australia, New Zealand respectively, in the light reports and publications by OECD regarding PISA 2003 and 2006 evaluations. Pisa evaluation studies are helpful to understand the current outcomes of the educational systems and will definetly enhance the quality of future educatioanl policies with the help of comparison between the accomplishments of the rival countries. In this descriptive study, the data regarding Pisa results and country statistics have been obtained from the online OECD publications. It is observed that higher rate of sudents in Turkey has lower level reading skills, and a small rate of its students can accomplish high level reading skills contrary to the situation in the top-five OECD countries. Great majority of Turkish students lacks of advance skills such as working with abstract ideas, critical thinking, making links with the inferred knowledge with daily experiences. On the other hand, Turkish educational system is below the standarts of OECD countries in terms of educational sources because of lower level finance in education and schools, higher number of students per class and teacher, less amount of teacher salaries, which all paralel to its low level economic wealth. Moreover, Turkish citizens have low level of socio-cultural status with respect to other OECD countries in that most of Turkish students do not attend high school level education, and a great majority of parents, both mothers and fathers, have lower level of education.

Key Words

PISA, Turkish Education System, Reading Literacy, Primary School Students, Achievement.

After 90's, there is a convergence of thougths regarding the future life style of 21st century foreseeing a transition from the industrial society to a new knowledge society (Bengshir, 1996; Cerit, 2001; Drucker, 1995; Özdaş, 1999). In this future context, individuals will run after information, and will need the ability to get it and use it effectively, thus they need to learn to learn in a constant and life-long process (Cerit, 2001; Fındıkçı, 1996; Organisation for Economic Co-operation and Development [OECD], 2003b). An educational system then should be able to create a new generation of information-processors, of innovation and creativity, and problem solvers. Thus, investment in education and in human capital is a must for the growth of both high-skilled individuals and nations in a competetive globalized world (Johansson, Karlsson, & Stough, 2001, cited in Cheung & Chan, 2008).

OECD, like other international institutions that produce knowledge and policies for the economic growth and welfare of nations, evaluates educational systems and their educational outcomes in a comparative way, and determines each countries' performance and highlights the good examples for the production of education policies to be put into practice for better education outcomes (Grek, 2009; Rizvi & Lingard, 2006; Rochex, 2006). For this reason, OECD created PISA evaluation program and started to get use of it as a mean to investigate national education systems and to gauge

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the students' skills in reading, math, science and problem solving, most preferable qualities one should have in a new information society. These evaluations determine the level that students meet the requried skills in the information society, exploit their knowledge in their daily life situation, and measure the level of their working with concepts, and their aplication to reality (T.C. Milli Eğitim Bakanlığı Eğitim Araştırma ve Geliştirme Dairesi Başkanlığı [EARGED], 2007; OECD, 2001, 2003). In this sense, it does not measure what they will do with their acquired knowledge, but what they can do in real life with the knowledge acqired in school (Brozo, Shiel, & Topping, 2007, cited in Greg, 2009).

Although some academicians critisize PISA evaluations from different points such as its content, test format, sampling, participation level, its application, data evaluation, reliability of scales (Bracey, 2004; Dohn, 2007; Prais, 2003, 2004), PISA has attracted a great interest all over the world. The first PISA evaluation took place in 2000 and 43 countries, 32 of which are OECD members, participated in this evaluation, and later 41 countries in 2003 when Turkey first participated, 57 countries in 2006 (EARGED, 2007). In these evaluations, the main objective is to determine at which level the students meet the current social requirements and apply their knowledge into the solutions of problems related with their experiences in life, and determine the level of their conceptual comprehension, processing and application skills (EARGED, 2007; OECD, 2003). PISA not only compares the nations' educational outcomes in different domains of achievement but also explains why some nations proceed faster than others dependent on different variables (McGaw, 2004; McEwan & Marshall, 2004 cited in Cheung & Chan, 2008). Thus it offers an opportunity to create a research based education policy for the nations in that it produces data bank for the future researches and reform movements, determine the conceptual indices of schools and their students as well as the level of students' knowledge and skills (OECD, 2003a). At the same time, they help determine the measurements for the increase of performance outcomes and prepare the students for the future in the light of the results obtained by national and international evaluations like PISA (OECD, 2004).

One of OECD's domain of research involves the nations' students' skills in reading. Reading literacy is a key concept in the emerging information society, and it is defined by OECD as the ability to understand, comprehend and get use of a written text in order to reach the necessary knowledge, improve one's knowledge potential, and participate actively in the society (OECD, 2003b). First, reading literacy helps individuals adapt the modern bureaucratic society via the use of and understanding of written texts such as the laws, rules and contracts, and institutional resources. It also affects the individuals' cognitive processes and thus helps shape individual thinking style to adopt to the conditions of the society (OECD, 2003a). Moreover, the findings of the International Adult Literacy Survey [IALS] (OECD & Statistics Canada, 2000, cited in OECD, 2003a), prove that the more reading literacy one has, the more opportunity to get a job and the more comfort to have in his/her life. On the contrary, the less reading literacy one has, the lower quality of life s/he has, and more probability of being dependent on public resources to survive and of plunging into crime. This way costs much for the countries, citizens of which will get less benefit from the facilities the country produces (OECD & Statistics Canada, 1997, cited in OECD, 2003a).

PISA evaluation programme defends two dimensional 15 years-old student efficiency in reading, first of which is the knowledge acquisition techniques based on different text types and the second is the knowledge processing skills such as interpretation, comprehension and exploitation. In its evaluation, therefore, PISA exploits paragraph based *continous texts* – narratives, articles, discussions -, and *non-continous texts* such as lists, forms, graphics and diagrams (OECD, 2003b). PISA evaluations displays reading skills results in a skills scale with five levels. According to that scale, the first level students are expected in the text to reach an explicit knowledge, to find out the theme, and to relate the knowledge to everyday experiences, the second level students to draw konowledge with certain criteria within the text, to determine the main idea, to do some basic classifications, to make simple explanations and inferences, simple comparisons between textual knowledge and experiences. The third level students determine main idea of the text, make analytic analysis of the parts to relate each other and find out new experiantial knowledge in the light of the knowledge given in the text. The fourth level students can make the implicit knowledge explicit, make inferences about the text, work on unusual data and idea to reach a higher level knowledge, critisize the text accurately in spite of its lenght and complicatedness. The highest level students, level five, can work on the implicit ideas in the text, withdraw meaningful

data from the text, interpret and explain and critisize the whole text with a great skill. They also are able to make critical evaluations about the text and create new hyphothesis despite of the leghty and complicated text and of the existence of contradictory piece of knowledge within it (EARGED, 2005; OECD, 2001).

What about Turkey? Is Turkey ready for a new information society? Are Turkish students able to find out the necessary information, process it and get use of it effectively to form a new one that leads to innovation? Various reports that evaluate Turkish educational system reveals negative answers. To those reports (Acar, 2008; Dünya Bankası, 2006; Gültekin, 2007; Maya, 2006), Turkey cannot effectively educate the vast majority of the students but a small amount. Exams such as OSS (Student Selection Exam for Higher Education) and LGS (Student Placement Exam for Secondary Schools) decreases the quality of education, students and teachers. Vocational schools in Turkey cannot achieve its objectives to meet the business requirements, and general high schools similarly fail to reach its objectives. Turkey is not adequately interested in the life-long education with the ratio of 2% where it is 12% in 15 countries of European Union. The Turkish ratio of pre-school education is 15%. In France, Denmark, Japan there is a higher ratio than 80%. 44% of Turkish citizens between 20-24 years old in 2005 has got a secondary school diploma, but where 80% of 15 countries of European Union has got a secondary school diploma. Teacher quality in Turkey is very low, and the system cannot form a framework for teacher training. Finally, Turkish educational system is excessively centered and the schools do not have their own autonomy, power and resources. Furthermore, United Nations Development Programme Turkish Human Developmen Report 2006 (United Nations Development Programme [UNDP], 2006) reveals that Turkey is 92nd in the rank of development out of 177 world countries and adds that Turkish education system do have got many serious problems about quality, schooling and life expectancy.

Turkish literature of educational studies lacks of enough study on PISA evaluations. There are a few studies focus on the evaluation on science and math literacy rather than reading, Anıl (2009) studies the factors that affect the achievment in science literacy and concludes that father's level of education is the most important factor on achievement. The study by Akyüz and Pala (2010) concludes that parents' level of education and their occupation are the most influencial factors that determine the level of achievement in math litaracy and problem-solving skills. Berberoğlu and Kalender (2005) concludes in their study that Turkish students are not successful enough to acquire fundemental skills and to practice these skills into real life. Moreover, Turkish students have low level skills in all domains of evaluation, and school type determines the level of achievement in those skills.

In this study, it has been aimed to make a comparison between the academic achivements in reading literacy of 15 year-old students in Turkey and the most successful five OECD countries, Finland, Korea, Canada, Australia, New Zeland based on the findings of PISA 2003 and 2006. Comparison of the data of the four countries are conducted according to the set of questions below:

1. What is the reading literacy level of Turkish students and top five OECD countries?
2. Is there any difference in reading skills in respect to gender?
3. What is the level of school sources among the countries?
4. What is the level of parents' social, economic and cultural status?

Method

This study involves a descriptive study via document analysis of data that belong to top-five OECD countries (Finland, Korea, Canada, Australia, and New Zealand) and Turkey. The countries are determined based on the ranks resulted from the average scores in reading literacy both in PISA 2003 and 2006. Table 1 shows the ranks and average scores of countries in reading liteacy. Tha data regarding their scores of reading skills, countries' educational investments, parents' social, economic and cultural background is obtained from the PISA 2003 and 2006 evaluation results reported in OECD publications on PISA web site. The data about the OECD countries and Turkey are presented in a comparative way, displayed in comparison tables, evaluated and interpreted by means of percentage rates.

Results

The Reading Performances of Top-five OECD Countries and Turkey in PISA 2003 and 2006

According to Table 1, students in top-five countries on average have got level three scores ranging from

Table 1.
Ranks and Avarege Reading Scores of OECD Countries and Turkey in PISA 2003 and 2006

Countries	PISA Avarege Score	Ranks in PISA 2003 and 2006 Combined	PISA 2003 Avarege Scores	PISA 2003 Ranks	PISA 2006 Avarege Scores	PISA 2006 Ranks
Finland	545,17	1	543,46	1	546,87	2
Korea	545,06	2	534,09	2	556,02	1
Canada	527,46	3	527,91	3	527,01	3
New Zealand	521,29	4	521,55	5	521,03	4
Australia	519,16	5	525,43	4	512,89	6
Ireland	516,39	6	515,48	6	517,31	5
Turkey	444,06	28	440,97	28	447,14	28

Source: PISA Country Profiles (2009)

525 to 556 in both exams where students in all OECD countries are just above the level three bottom line. However, Turkey follows those top-five countries, one level lower as the second level with the average score of 447, which implies that Turkish students can be said to have less reading skills than OECD countries, in other words, top-five countries are far away from Turkey about a level and more. Turkish students can draw information based on some certain criteria within the text, determine the main idea, make some basic classifications, make simple explanations and inferences, simple comparisons between textual knowledge and experiences. On the other hand, third level students of OECD countries are able to determine main idea of the text, make analytic analysis of the parts to relate each other, and find out new experiantial knowledge in the light of the information given in the text.

Reading Skills Levels of Top-five OECD Countries and Turkey in PISA 2003 and 2006

In PISA 2003 and PISA 2006 evaluations, while the

Table 2.
Top-five OECD Countries and Turkey, By Reading Skills Level Delivery in Percentage

		Turkey	Finland	Korea	Canada	Australia	New Zealand	OECD Avarege
Avarege Reading Scores		444,06	545,17	545,06	527,46	519,16	521,29	493,00
PISA 2003	*Below Level 1*	12,48	1,06	1,36	2,26	3,61	4,77	6,66
	Level 1	24,31	4,64	5,41	7,28	8,23	9,73	12,37
	Level 2	30,90	14,59	16,84	18,30	18,28	18,53	22,75
	Level 3	20,85	31,65	33,46	30,95	28,35	26,28	28,67
	Level 4	7,68	33,36	30,78	28,59	26,91	24,35	21,26
	Level 5	3,77	14,69	12,16	12,61	14,61	16,34	8,28
PISA 2006	*Below Level 1*	10,80	0,79	1,44	3,35	3,78	4,68	7,39
	Level 1	21,38	4,02	4,34	7,60	9,62	9,85	12,73
	Level 2	31,02	15,53	12,51	17,99	21,03	18,69	22,74
	Level 3	24,45	31,19	27,23	29,39	30,06	26,42	27,85
	Level 4	10,25	31,76	32,75	27,18	24,90	24,48	20,73
	Level 5	2,10	16,71	21,74	14,49	10,61	15,89	8,56

Source: PISA Country Profiles (2009)

Table 3.
Avarege Reading Scores of Top-five OECD Countries and Turkey, by Gender Differentiation

	PISA 2003		PISA 2006		Male Avarege Score	Female Avarege Score	Differance (F-M)
Countries	***Male***	***Female***	***Male***	***Female***			
Turkey	425,97	459,31	427,35	471,04	426,66	465,17	38,51
Finland	521,39	565,41	521,39	571,99	521,39	568,70	47,31
Korea	525,48	546,73	538,76	573,78	532,12	560,25	28,13
Canada	514,00	545,53	511,14	543,04	512,57	544,28	31,71
New Zealand	506,09	545,43	494,87	531,75	500,48	538,59	38,11
Australia	507,73	535,35	501,74	539,12	504,73	537,23	32,50
OECD average	477,23	511,36	472,99	511,20	475,11	511,28	36,17

Source: PISA Country Profiles (2009)

students in the top-five OECD countries predominantly masses around level 3 and 4 in the reading scale with the percentages ranging from 50 to 65, Turkish students are around level 1, 2, and 3 with the high rate of 66%. From another point of view, 88 percentage of Turkish students clusters around level 3 and below, 57% of them is around level 2 and below, which contrasts to the higher level rates of top-five countries with the average ratio of 70% at level 3 and above, and at level 4 and above with 40-48%. That is to say, every 8 Turkish student has level 3 and lower reading skills and every 6 student has level 2 and lower skills but 1 sudent is at level 4 and above. This means that few students in Turkey have high skills in reading such as analytical thinking and vast majority of students can do some basic skills and lower such as working with explicit information given in the text, however, great majority of students in successful countries have higher level skills such as analytical and critical thinking on a given text and linking the information obtained from the text to the real life experiences.

Gender Differentiation in Reading Scores of Top-five OECD Countries and Turkey in PISA 2003 and 2006

Turkish female students who are quite similar to ones in OECD countries revealed that they are more succesful in reading than male students with the difference of 34 points. In this context, female students get more benefit from the teaching facilities of reading that national educational system provides for them. On the other hand, Turkish female students have the second level reading skills compared to ones in OECD countries, students of which are at third level in reading scale.

Table 4.
Top-five OECD Countries and Turkey, by Their Wealth and School Sources

	Turkey	Finland	Korea	Canada	Australia	New Zealand
PISA 2003-2006 Mean of Avarege Scores	444,06	545,17	545,06	527,46	521,29	519,16
Gross National Product per Capita ($)	8776	32586	23083	36876	35666	26212
Educational Expenditure (% of GNP)	3.4	6.0	7.2	6.2	5.8	6.7
Total Expenditure per students 6-15 years old (USD)	12576	64363	52893	78367	65737	49344
Annual Expenditure per students in Primary Schools ($)	1120	5581	4490	m*	5776	5190
15 year-experienced Teacher Annual Salary ($)	14138	35798	52666	m*	42688	36602
Avarege Number of Student per Class	27.2	m*	31.6	m*	23.9	m*
Number of Students per Teacher	26.7	15.0	26.7	15.9	16.0	17.7

Source: OECD (2008), m*=missing

Table 5.
Socio-cultural Status of Parents in Top-five OECD Countries and Turkey

	Turkey	Finland	Korea	Canada	Australia	New Zealand
Percentage of High School Enrollment (15-19 year-old)	45	87.9	86	81	83	74
Percentage of Parents with High School Graduation and Above (35-44 years old)	25	87	88	88	66	82
Percentage of Fathers with High School Graduation and Above (35-44 years old)	30	85	91	70	70	82
Percentage of Mothers with High School Graduation and Above (35-44 years old)	19	90	85	90	62	82
Percentage of Parents with University Degree (35-44 years old)	9	41	37	51	33	39
Percentage of Fathers with University Degree (35-44 years old)	10	34	44	45	30	25
Percentage of Mothers with University Degree (35-44 years old)	6	48	27	54	34	30
Reading Scores of Students in Lower Quarter in terms of Socio-economic and Cultural Status	409	519	532	490	472	473
Reading Scores of Students in Upper Quarter in terms of Socio-economic and Cultural Status	494	578	588	566	555	577

Source: OECD (2007); OECD (2008); PISA Country Profiles (2009),

Evaluation of Top-five OECD Countries' and Turkey's Wealth and School Sources

As seen in Table 4, Finland, Canada and Australia having a high rate of Gross National Product per Capita which amounts to more than 30000$ reach the upper ranks in reading scores ranging from 500 to 550. On contrary, Turkey is the one with lowest rate of GNPpC which amounts nearly 8700$ and it has reading score of 444 points. However, Korea with relatively lower rate which amounts around 23000$ acomplishes higher ranks in reading scores. As for expenditures per student and teacher, the developed OECD countries reserve a higher rate of financial support, almost two times more than Turkey does. Additionally, these countries spend more money per students ranging from 50000 to 80000$, and per teacher from almost 35000 to 53000$ each month. At the same time, these countries spend more money per student in primary schools than Turkey. While Turkey spends about 1100$ per primary school student, other successful countries spend more than 5000$.

In spite of the lack of an accurate knowledge of average student numbers per class in Finland, Canada and New Zealand, it can be easily said that while Turkey and Korea have more student per class ratio than Australia in which Australia has nearly 24, Turkey nearly 27 and Korea has 32. As for teacher-student ratio in these countries, Finland, Canada, New Zealand and Australia have lower ratios which are around 15 and 17 while Turkey and Korea have more students for each teacher, and this ratio is almost two times more than other successful OECD countries. However, Korea has striking characteristics that in spite of its higher number of students per class and teacher, it is able to reach top points in reading. In Finland and other countries teachers do well with a few students, especially Australia they do it with a few students in middle-size classes. Turkey, quite similar to Korea, but is not able reach that success of Korea in reading, and that is the point to be investigated here.

Evaluation of Parents' Socio-cultural Backgrounds of Top-five OECD Countries and Turkey

Table 5 shows that Turkey has the lowest rate of schooling in secondary education. In 2008, the schooling rate in high school is 45% in Turkey while more than 80 % of students on average are enrolled in a high school in the top-five OECD countries, which means that half of Turkish youth is in streets instead of schools, and deprived of an educational opportunity that will enhance their future life quality. In addition, today's parents in Turkey is not well-educated because almost three-forth of them have not attended even a high school,

and nearly nine of ten without any graduation from an under-graduate program. Among those parents in Turkey, mothers have less education level than fathers in that 19 percent of mothers graduates from a high school and 6 percent garduates from a university while 30 percent of fathers garduates from a high school and 10 percent graduates from a university. On contrary, the parents, both mothers and fathers respectively have high levels of education in the top-five countries, because fathers' who are between 70%-90% of high school graduation and who are between 25%-45% have university graduation as well as mothers' who are between 60%-90% have high school graduation and who are between 27%-54% have university graduation. As for the differences in the reading scores of students with different socio-economic and cultural difference, table 5 displays that in all countries disadvantaged students have lower scores in reading than other advantaged students. These differences varies between 56 and 104 points, in which Finland and Korea has the smallest gap while Turkey and New Zealand has the biggest.

Conclusion and Suggestions

In PISA 2003 and PISA 2006 evaluations of 15 years-old' students' reading skills, Finland, Korea, Canada, Australia and New Zealand were mentioned as the countries of the most skillful readers while Turkey remained 28th in rank of reading literacy. Most of the students in top-five countries occupy high level and above with the skills such as determining main idea of the text, making analytic analysis of the parts to relate each other and finding out new experiantial knowledge in the light of the knowledge given in the text, thinking critically and relating to daily experiences and finding a new knowledge out of the knowns, a large numer of Turkish students, on the contrary, range at the lower levels with simple and inefficient reading skills such as drawing knowledge based on some certain criteria within the text, determining the main idea, making some basic classifications, and making simple explanations and inferences, simple comparisons between textual knowledge and experiences, but, few of Turkish students are efficient readers. This result proves the claims that Turkish educational system can educate few students well (Dünya Bankası, 2006). On the other hand, in top-five OECD countries and Turkey, girls do better than boys in reading while Turkish female students are still inefficient in reading skills. From the point of these results, Turkish educational system is not functional to create an information society being able to search, find out, comprehend any knowledge given in a written text, and get use of them in problem solving. For this reason, Acar (2008) offers a reform in curriculum with its all dimensions.

In addition to the success in reading scores, top-five OECD countries are successful in their economic development and their people's social and cultural development. These countries have more national income rate and directs more economic source into their educational systems. These countries have less crowded classes, more teachers rate for students load, more payment for their teachers and more annual expenditure for both the system and and student. On the other hand, Turkey has lower national income and less reservation of sources for educational system and school infrastructure. As for nations' socio-cultural development, contrary to the state of Turkey, top-five OECD countries have high level of schooling in secondary schools, and high level of high school and university graduation which helps students firmly grow in the process of academic as well as psychological and social development. Parallel to these, Gedikoğlu (2005) emphasizes the deficiencies in financing the Turkish educational system, and adds that lack of enough teacher, classroom, buildings, social and technical facilities, labs and libraries in schools resulting into double-scheduled education and combined classes which decrease the quality of education. Moreover, Maya (2006) declares that school financing is insufficient, teacher salaries are low, schools are full of crowded classrooms and needs more numbers of teachers. However, McGaw (2004) points out any increase alone in educational sources cannot increase the quality of schooling without any efficient and effective management of educational processes.

As for socio-economic status of parents, Turkish students mostly comes from the families with lower level of education contrary to the situation in successful OECD countries. A small ratio of Turkish parents, both mothers and fathers, have high school degree, and few of them have university degree. Moreover, Turkey has problems in schooling rate in secondary education, half of the students graduates from primary schools do not attend any secondary level schools. From this point of view, the lower level socio-economic and cultural status of parents do not help students widen their perspectives to life, grow their self-esteem, reach higher level academic achievements (Akyüz & Pala, 2010; Yılmaz, 2006). From another point

of view, Brueggeman (2008) points out Finnish miracle in PISA reading evaluations results mainly from family background and facilities in students' environment such as role-modeling of parents for their kids, acquired culture of reading in early age in family environment, high-esteemed libraries and go-and-search-library culture of kids acquired in early ages. In this two different contexts, the achievement gap between socio-culturally advantaged and disadvantaged students are bigger than most of the sucessful OECD countries with relatively higher level status of economy and culture. Most of the researchers claims that the acievement gap between those group of students results from the geographical differences, low quality education in rural schools in particular. (Aydıner, 2006; Berberoğlu & Kalender, 2005; Dinçer & Kolaşin, 2009; Gedikoğlu, 2005).

On taking into account all these three findings related to the differences in academic achievement, school financing and socio-cultural background in countries' educational systems, it is quite necessary for Turkish policy-makers to multi-dimensionally analyze the results obtained from PISA evaluations, to find out working applications available in the educational systems of the succesful countries, and to search for the ways to lead effective policies and ways of solutions. Policies to be produced and put into practice should focus on the process of education, quality development in educational processes, achivement gaps between advantaged and disadvantaged students, productivity of education which follows the academic development with respect to educational expenditures and adult education.

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