YIL / YEAR:14 SAYI / ISSUE: 55 ISSN 1302-597X

eurasian journal of educational research

CONTENTS
İçindekiler

REVIEWERS of the 55th ISSUE
55. Sayı Hakemleri

Reviewers of 55th Issue:

EURASIAN JOURNAL OF EDUCATIONAL RESEARCH

A Bimonthly Peer-Reviewed Journal, Year: 14 Issue: 55 / 2014
İki Ayda Bir Yayımlanan Hakemli Dergi, Yıl: 14 Sayı: 55 / 2014

EDITORIAL OFFICE / Yayın Yönetim
Dilek Ertuğrul
Anı Yayıncılık, Kızılırmak Sokak 10/A
06640 Bakanlıklar Ankara, TURKEY
ejer.editor@gmail.com
Tel: +90.312 425 81 50 pbx Fax: +90.312 425 81 11

Printing Date / Basım Tarihi: 01.04.2014
Printing Address / Matbaa Adresi: Sözkesen Mat. İ.O.S. Mat. Sit. 558 Sk. No:41 Yenimahalle-Ankara
Yayın Türü: Yaygın Süreli
Cover Design / Kapak Tasarımı: Anı Yayıncılık
Typography / Dizgi: Kezban KILIÇOĞLU
The ideas published in the journal belong to the authors.
Dergide yayınlanan yazıların tüm sorumluluğu yazarlarına aittir

Eurasian Journal of Educational Research (ISSN 1302-597X) is a quarterely peer-reviewed journal published by Anı Yayıncılık
Eğitim Araştırmaları (ISSN 1302-597X) Anı Yayıncılık tarafından yılda dört kez yayımlanan hakemli bir dergidir.

Eurasian Journal of Educational Research **(EJER)** is abstracted and indexed in;
Social Science Citation Index **(SSCI),**
Social Scisearch,
Journal Citation Reports/ Social Sciences Editon,
Higher Education Research Data Collection **(HERDC)**,
Educational Research Abstracts **(ERA),**
SCOPUS database,
EBSCO Host database, and
ULAKBİM national index.

Active and Democratic Citizenship Education and its Challenges in Social Studies Classrooms

Arife Figen ERSOY*

Suggested Citation:

Ersoy, A. F. (2014). Active and democratic citizenship education and its challenges in social studies classroom. *Eurasian Journal of Educational Research,* 55, 1-20. http://dx.doi.org/10.14689/ejer.2014.55.1

Abstract

Problem Statement: Turkey's passive and task-oriented approach to citizenship education, which has endured since the Ottoman Empire period, has begun to change into more active and democratic citizenship education since Turkey joined the European Union. Identifying the practical problems as well as describing the challenges when practicing the Social Studies curriculum will contribute to citizenship education and its development, both in Turkey and in similar countries.

Purpose of Study: The purpose of the present study is to explore the active and democratic citizenship education procedures in Social Studies course in Turkey and to determine the challenges encountered in active citizenship education.

Methodology: The study was conducted using a holistic, multiple-case study design. Data were collected through interviews, classroom observations and documents. In this study, extreme or deviant case sampling was used. The study was conducted in two schools: a state school with a low socioeconomic background and a private school with high socioeconomic background. A total of six volunteer teachers and 30 students from both of the schools participated in the study.

Findings: The study found that the citizenship perceptions, political views and educational backgrounds of the teachers had an effect on the citizenship education in their lessons. Furthermore, the age, maturity level, gender and social environment of the students had an effect on implementing citizenship education. Also, the test-centered educational system, traditional school organizations and culture, and the relevant legislations and regulations limited the ability of teachers to handle

* Assoc. Prof. Dr. Anadolu University, Faculty of Education, 26470, Eskişehir, Turkey, e-mail: arifee@anadolu.edu.tr

political issues and had negative effects on citizenship education.

Discussion and Recommendation: The findings of the present study revealed that the students' task-based and passive perception of citizenship did not demonstrate any change at the beginning and end of the Social Studies course. The findings from this study suggest that, in general, citizenship education in Social Studies courses tends to offer, in part, a set of social moral values that focus more on theory and exams and lack opportunities for practice. At the end of this course, students are raised as apolitical citizens with low political literacy who lack effective thinking and participation skills. Therefore, teachers should be trained in active citizenship education, democratic school culture should be developed and the relevant legislations should be readjusted to provide teachers with more freedom in their academic concerns along with active citizenship education.

Keywords: Citizenship education, active citizenship, democracy, human rights, social studies.

Today, citizens are expected to be aware and responsible and lead an active life in society by taking part in decisions (Nelson & Kerr, 2005). Active citizenship education requires a democratic and participatory school structure and participation in society, as well as active and participatory curricula. When instruction is designed to develop active citizenship skills in lessons, students should be provided with a school structure and culture in which they can practice what they learn in lessons within the school by means of school council, elections and extracurricular activities. Students should also take part in organizations where they can reflect on their citizenship skills that they acquire both in class and outside of the school environment through community involvement. Therefore, course syllabi, democratic school culture and active participation in society are mutually complementary in active citizenship education (Potter, 2002). Moreover, students should be given an active citizenship education that is based on social and moral responsibility, political literacy and social participation (Qualifications and Curriculum Authority [QCA], 1998). However, active citizenship education is a process that is shaped through political, social, technological, economic and cultural developments on global and local scales. Citizenship education in non-Western societies is considered to be more nationalist and implemented within moral dimensions whereas it is more democratic and rights-oriented in Western societies (Lee, 2005).

The historical roots of citizenship education in Turkey originated from the educational systems in the monarchic Ottoman Empire (1299–1923), but it was restructured by the foundation of the Turkish Republic (1923), which is a democratic, secular, social and constitutional state currently still in a developmental process. This developmental process naturally reflects the transformation process of passive and loyalist Ottoman citizens to active and democratic Turkish citizens. The Ottoman public "*tebaa*," which consisted of Muslim and non-Muslim people in the empire (Kadıoğlu, 2005), became citizens in 1908 when some constitutional amendments were put into practice. At that time, during the collapse period of the Empire, the

concept of "Ottoman citizenship" was introduced as a unifying ideology (Ottomanism) for the Ottomans. Hence, along with the ideology of Ottomanism, the patriotism and moral values were highlighted in citizenship education in the Ottoman Empire (Üstel, 2004). The development of the citizenship education process and citizenship perception in the new Turkish Republic, which was founded after the end of Ottoman Empire, can be examined under three main periods: the single party period (1923–1950), the multi-party period (1950–1987), and the European Union (EU) accession period (1987 to the present day) (Çayır & Gürkaynak, 2008).

The single party period involves the first years of the Republic. Ataturk, the founder and the first president of the Turkish Republic, declared that every person who lives within the national borders of the country is a Turkish citizen, regardless of religions or ethnicity (İnan, 1969). Similarly, Okçabol (2002) describes Turkish citizenship notion as an umbrella concept, which covers a variety of religions and ethnicities within the borders of the nation. The national citizenship education practices of the period were shaped by republican and nation state-oriented policies (Kadıoğlu, 2007) and generally focused on teaching the duties and responsibilities of the good citizens while aiming to create a modern culture (Üstel, 2004). In the multi-party period, while social and political rights were established, the republican and nation state-oriented policies and practices of the previous period were nearly weakened (Çayır & Gürkaynak, 2008). The multi-party period, particularly the 1960s, 1970s and 1980s, witnessed severe internal conflicts based on militarist and liberal youth movements and political chaos, which were ended by military coups. Events in this period also caused citizenship education to become isolated from politics. Various studies revealed that people, particularly youth in Turkey, became apolitical citizens (Doğanay, Çuhadar, & Sarı, 2007; Erdoğan, 2001). In the multi-party period, the national education curriculum started to include information on rights and textbooks highlighted the role of democracy in the family, as well as in schools (Üstel, 2004). The underlying principles behind Turkey's long-lasting republican citizenship education policies and task-oriented citizenship education might have originated from the governance of republican and conservative governments (Okçabol, 2002), officially assigning the rights to the citizens by the governments, the need for devoted citizens for the new Republic and the blessed state concept that was rooted in Turkish history.

The EU accession period involved transformation procedures of active and democratic citizenship education. The Copenhagen criteria (1993) have played an important role in this transformation processes. The reforms that the government practiced concerning the Copenhagen criteria have strengthened human rights, civil society and democracy in Turkey. These criteria have directly affected citizenship policies and have led to a more democratic and liberalist concept of citizenship instead of a republican citizenship notion (Kadıoğlu, 2007). In this respect, the Ministry of National Education (MoNE) developed a new curriculum based on the norms, aims and educational concepts of the EU (MoNE, 2004). At the same time, along with the EU accession process, the MoNE also started to perform a variety of practices to facilitate a smooth transformation in citizenship education. For instance,

the MoNE runs an EU-sponsored project of democratic citizenship and human rights education to revise regulations and curricula, raise school staff awareness of democratic citizenship education and human rights, develop teaching materials related to citizenship education and adopt a democratic school culture (MoNE, 2008). As a result of such practices, the republican nationalist citizenship education notion has started to evolve into more active and democratic citizenship education in Turkey.

The new Elementary Education Curriculum, developed in 2004 and based on constructivism, adopted a cross-curricular perspective in terms of effective and democratic citizenship education. Prior to the renovations in the curriculum, citizenship issues were handled through a behaviorist perspective in a separate course – *Citizenship and Human Rights* – in one-hour class sessions per week in the 7th and 8th grades. In the current curriculum, Social Studies is a key course in which students gain practical knowledge related to political literacy and citizenship education. The Social Studies course is taught by classroom teachers in 4th and 5th grades, whereas it is taught by Social Studies teachers in 6th and 7th grades. The 2004 Social Studies Curriculum (SSC) is designed to raise active and responsible Turkish citizens. Units of the SSC, which cover social science issues as well as citizenship issues in a cross-curricular aspect, are aimed at educating patriotic citizens who know and use their rights, fulfill their responsibilities and possess national consciousness. There is a shift from task- and responsibility-oriented citizenship to an active and democratic citizenship in the new curriculum. Unlike the previous curricula, the 2004 curriculum highlights the importance of non-governmental organizations and addressed relevant issues. In addition, the new curriculum attempts to raise global citizenship awareness about global issues. Additionally, learning through experience in school council and student clubs and some extracurricular activities facilitates citizenship education in schools.

Turkey's passive and task-oriented approach in citizenship education, which has endured since the Ottoman Empire period, started to change into a more active and democratic citizenship education since Turkey joined the EU. Considering the constructivist perspectives in teaching, the SSC of 2004 was introduced to produce active citizens in Turkey. The present study aims to describe the active and democratic citizenship education procedures in Social Studies in two elementary schools in Turkey and determine the challenges in active and democratic citizenship education. The present study seeks answers to the following two questions:

1. How is active and democratic citizenship education implemented in Social Studies courses?
2. What are the problems encountered in active and democratic citizenship education implemented in Social Studies courses?

The findings of the present study may contribute to the development of the SSC and Social Studies teacher training programs in Turkey. Furthermore, the results may provide teaching strategies for teachers to teach citizenship education. Identifying the practical problems, as well as describing the challenges encountered

when practicing the SSC, could contribute to citizenship education and its development, both in Turkey and in similar countries.

Method

Design, Participants and Settings

The study was conducted using a holistic, multiple-case study design. The extreme or deviant case sampling technique was used to select the participants (Glesne, 2011). This type of sampling was chosen in order to determine the differences between the problems that are encountered in active and democratic citizenship education implemented in Social Studies courses with respect to students' socioeconomic levels. Therefore, one state elementary school and one private elementary school were selected. Student profiles in the state school and the private school were different from one other. The students in the state school generally came from low socioeconomic backgrounds. Generally, their fathers were employed, but their mothers were housewives; the parents were either graduates of elementary schools or secondary schools. The average income of the parents of students in the state school was around 1,000 Turkish Liras (around $500 USD). On the other hand, the students in the private school came from families with higher socioeconomic backgrounds. In general, the parents of the students in the private school had regular jobs such as tradesmen, doctors, lecturers or engineers, etc. The average income of the parents of the students in the private school was over 5,000 Turkish Liras (around $2500 USD) and they were typically graduates of higher-education institutions or universities. A total of six teachers – all female – from both of the schools participated in the study voluntarily and their characteristics are listed in Table 1. This study was conducted with female teachers because there were very few male teachers in the schools chosen for the study and they were not willing to participate in the study.

Table 1

Characteristics of the Teachers

Pseudonym	***School***	***Age***	***Field***	***Grade***	***Professional experience (years)***
Hacer	State	40	Classroom teacher	4	14
Gaye	State	36	Classroom teacher	5	12
Derya	State	31	Social studies teacher	6, 7	10
Hande	Private	52	Classroom teacher	4	35
Nuray	Private	50	Classroom teacher	5	30
Leyla	Private	30	Social studies teacher	6, 7	7

A total of 30 students in these teachers' classes voluntarily participated in the study. Twelve students were male and 18 were female; 8 were in the 4th grade, 7 were

in the 5th grade, 7 were in the 6th grade and 8 were in the 7th grade. Eighteen students were attending the state school and 12 students were attending the private school.

Data Collection and Analysis

The study data were collected through observations, interviews with teachers and students, and documents. The Social Studies classrooms of each of the grade levels (from 4th grade to 7th grade) in both schools were observed over the course of seven months by the researcher acting observer as participant. Therefore, the researcher made observations only during the lessons and took field notes. In this respect, at least one (sometimes two Social Studies lessons of each teacher in each grade level were observed every week during the seven-month period; the lessons lasted 40 minutes. A total of 250 class-hours of Social Studies courses were observed.

Two sets of interviews with the teachers and students were held throughout the study. The first interviews were held at the beginning of the study (October, 2009) and focused on the teachers' perceptions on citizenship and citizenship education; the second set of interviews was held at the end of the observations (June, 2010) to make a final evaluation of practices of citizenship education in Social Studies. While the students were asked questions about perceptions of citizenship in the first meeting, they were asked questions about both perceptions of citizenship and what they learned in the Social Studies course in the second set of interviews. However, some focused interviews were also held whenever an emerging case occurred regarding citizenship and citizenship education. Additionally, the teachers' lesson plans and materials related to citizenship education were also examined.

Thematic analysis techniques were performed during data analysis (Braun & Clarke, 2006). As a part of this analysis technique, the themes emerging in the observations, interviews and lesson plans were coded first and then these codes were categorized under main themes and sub-themes. The data from the interviews, observation notes and document collections were compared and analyzed in terms of perception of citizenship among the participant teachers and students and their practice of citizenship education in the state and private schools. In order to enhance the reliability of the study, methodological triangulation of data from multiple sources and peer review was used in the analysis process (Lincoln & Guba, 1985).

Findings

The Reflections of Teacher Characteristics on Active and Democratic Citizenship Education

According to the findings, active citizenship education in Social Studies seems to be associated with teachers' perceptions of citizenship, their political views, and their educational background. The challenges in active citizenship education in Social Studies classrooms are enumerated in Table 2.

Table 2

Challenges to Active and Democratic Citizenship in Social Studies

Themes	***Challenges***
Teachers	Teachers do not have an understanding of active and democratic citizenship. Teachers with conservative political views do not support active citizenship understanding. Teachers did not receive active citizenship education in their previous educational life.
Students	Younger students had difficulty understanding related to citizenship concepts. Female students demonstrate more passive citizenship behavior. Families with low socioeconomic status, social environment and government policies do not support active citizenship.
Schools and educational system	The SSC is traditionally practiced with a teacher-centered approach. Active citizenship is not applied in Social Studies education. Test-based education and exams cause active citizenship education to remain a theoretical practice. The structure and culture of schools fail to support the development of students' active citizenship. Laws and regulations restrict teachers in active citizenship education.

Citizenship perceptions. Although most of the teachers perceived citizenship as communitarian, only one teacher perceived it as an individual issue. The teachers, who presented citizenship from a communitarian perspective, defined citizenship as "people living in a state together" and "people who have responsibilities toward the community and state." These teachers described the purpose of citizenship education as "to teach our civic duties as citizens." Most of the teachers associated citizenship education in Social Studies with civic duties such as obeying and respecting the law, serving in the military, participating in elections and paying taxes, whereas a few teachers related citizenship education with being nice to people and maintaining social responsibilities by participating in non-governmental organizations. For instance, Derya, stated that she informed her students about paying taxes while teaching issues on conscious consumption and about participating in elections while teaching issues on civic duties. Similarly, Hacer, usually expressed in her lessons that being good citizens meant being a good person; she tried to teach some civic values by telling her students stories about not telling lies, being honest and being helpful. In her lesson, Gaye considered the non-governmental organizations as charity organizations rather than organizations working for protection of civil rights. Moreover, she highlighted the supportive role of non-governmental organizations during earthquakes or natural disasters. In the same lesson, she associated an issue – earthquakes – with citizenship, particularly with the honesty and social

responsibilities of people in the community by stating that a lot of people died in earthquakes because of negligent and dishonest building contractors who did not build strong buildings. Hande, who perceived citizenship as an individual issue, defined citizens as "people who have fundamental rights and freedom." She presented citizenship topics in her classes by associating the issue with human rights and emphasizing that participating in elections was a matter of democracy and human rights rather than being a matter of people's duties and responsibilities toward the state. She typically provided opportunities for her students to express their thoughts freely. She also established a classroom rule with her students on respecting the thoughts of other students. She said, "I try to teach them their rights. Instead of just saying that it must be done in this way, I try to teach them that everyone has personal rights and liberties though rights and liberties have some limitations."

Political views. One of the teachers, who described herself as liberal, generally emphasized human rights and freedom in her lessons. For instance, Hande, who actively took part in one of the teacher unions, emphasized the importance of freedom of expression and respecting the thoughts of others; she provided opportunities for her students to express their thoughts freely. In addition, she typically emphasized the role of non-governmental organizations as upholders of personal rights, in addition to their social responsibilities in the community. On the other hand, conventionalist and conservative teachers handled citizenship issues as supportive of governmental agencies and from the viewpoint of nationalist perspectives and spirituality. For example, Hacer, taught citizenship issues by associating them with (the Islamic) religion. She regarded a person's death in the War of Independence as martyrdom, which is a religious value, and emphasized the sanctity of military service. Similarly, on the issue of environmental responsibilities, Hacer, associated the issue with religion and stated, "You have responsibilities to protect your environment as a citizen because the environment is the property of the community, not of the individuals. I can associate it with the religion. This is because ethics is the sustenance of societies."

Educational background. Teachers acknowledged that throughout their previous education, they learned citizenship as fulfilling official duties and responsibilities toward the state. Leyla, explained this fact by saying, "In fact, we were taught about citizenship in this way and I always associated citizenship with elections, military service and taxes… this was the way our courses at school presented this subject. This was what the school courses emphasized then. Now, in retrospect, I see that they lacked some points. People are responsible for the world around them and we have rights that we cannot use." In addition, most of the teachers stated that they had not taken courses related to citizenship education during their pre-service education or in-service training during their teaching profession. Both the classroom teachers and the Social Studies teachers said that the last time they were taught about citizenship was in a Citizenship and Human Rights course in high school; they did not take any course on citizenship and citizenship education in higher education. Nevertheless, all of the teachers agreed that they needed professional training related

to issues of active citizenship education, including how to keep up with the changes as well as how to teach citizenship issues. The teachers' lack of knowledge on citizenship and citizenship education challenged active and democratic citizenship education.

The Reflections of Students' Characteristics on Active and Democratic Citizenship Education

Age and gender. The age of the students was a challenge to the interpretation of issues related to citizenship. The 4th and 5th grade students had difficulties interpreting some citizenship concepts such as types of regime, legislation, executive and judicial powers, as well as the relationships among these concepts. For instance, when the 5th graders did not understand the notion of 'state,' Gaye exhibited its similarity to the classroom environment and tried to illustrate the concept by drawing a state diagram on the classroom board. She explained that students could not understand some concepts unless they were explained using examples. She added, "The students who did not understand who the district governor was were able to understand it when they saw a district governor in a local tree planting organization." The younger students in the study said that they did not understand speeches of politicians and the subjects they talked about. For example, Emine, a 4th grade state school student, said that she could not understand political subjects:

> Sometimes I find these things interesting, but I cannot always figure out what they say. For example, when they discuss something, they just use words that I don't know, so I lose my interest because I cannot understand anything at all.

The gender of the students, on the other hand, had an effect on their interests on political issues. For instance, when political issues were discussed, girls in the 6th and 7th grades typically expressed their discomfort by saying, "Puff, let's get them over." A 7th grade female student discussed the political positions of women by saying, "If I tell my mom that I want to become a member of the parliament, she will get angry with me and advise me to become a teacher or a doctor." Derya, explained why she thought female students demonstrated an indifferent attitude even toward relevant issues:

> We discuss political issues with male students more often. For example, even when we were talking about the scarcity of women in the parliament, it was male students that expressed their opinions. They [female students] feel irrelevant about these subjects… I think women and politics do not stand close to each other in our society. They [female students] do not have role models.

Socioeconomic and cultural environments. The socioeconomic level of the students was another challenge in citizenship education. The students from low socioeconomic backgrounds showed more passive citizenship characteristics than students from higher socioeconomic backgrounds. The students from low socioeconomic backgrounds that attended the state school tended to mention responsibilities to the state more often than students from higher socioeconomic levels attending the private school. Some of the students from higher socioeconomic

backgrounds addressed citizens' rights, as well their duties. Furthermore, these students discussed being respectful to the state and other people, protecting the state, working, contributing to the country's economy, and finding solutions to the country's problems. On the other hand, the state school students showed more interest in subjects that dealt with the cultural structure of society and historical events such as the individual and society and culture and heritage; the students from higher socioeconomic backgrounds stated that they liked better the units about "production-distribution and consumption" and economic issues in the Social Studies course. Some of the students from higher socioeconomic backgrounds cared more about material values than citizenship values. For example, during the lessons, some of them said, "I pay money and can win any lawsuit." Likewise, the students from low socioeconomic backgrounds generally hesitated to express their thoughts and rarely participated in the discussions in the lessons; this effect was reported by the teachers as well. Moreover, the parents of the students from low socioeconomic backgrounds were generally conventionalist and conservative. Therefore, the parents' low-level socioeconomic and cultural status did not support the active citizenship concepts that the students learned in their school environment. Additionally, parental ignorance about the current issues in the family, the lower fraction of newspaper readers among the parents, and the fact that the current issues were followed via television had a negative effect on the political literacy of the students. Gaye, expressed that some of the parents reacted somewhat negatively when she taught children's rights to her students. She said, "Parents started to complain when we taught children's rights. They complained that their children wanted to go out and they saw it as their rights." Similarly, Derya, expressed that her students did not pay attention to their rights since they believed that they could not use their rights in the society. She said, "I always tell them to write a petition when they have any problem on any subject. However, whenever I recommend them to write petition they usually respond with:"

> You must be kidding, we are still children or even if we write a petition, our headmaster does not weigh our words. They generally thought that they would get a negative reaction when they attempted to use their rights. Therefore, they preferred not to talk on these issues…

The students from higher socioeconomic and cultural backgrounds thought and acted in quite an individualistic manner. The teachers in the private school typically considered their students to be prospective businessmen. For instance, Nuray, sometimes said to her class, "You are going to be the businessmen of the future." She dealt with economic issues in detail and highlighted the importance of paying taxes in her Social Studies classes. Also, the teachers mostly dealt with the economic crisis as a current issue in their lessons. On the other hand, Leyla believed that the students from higher socioeconomic backgrounds were more self-centered, individualist and less responsive to social issues. Leyla and Hande, frequently mentioned the importance of being a charitable person in society and the conditions of poor people in their lessons. The teachers in the private school presented current issues more often, particularly issues related to current politics. The calm demeanor of the teachers in the private school when discussed political issues in their lessons can be

attributed to the attitudes of the parents from higher socioeconomic backgrounds since they do not get annoyed with the discussion of such issues in the lessons. Moreover, while dealing with current issues in their lessons, the teachers in the state schools attempted to raise the awareness of students to issues of children's rights. On the other hand, the teachers in private schools attempted to develop social justice and equity concepts among their students. In addition, in general, passive citizenship perception in society, political actions and the media affect students' perception of active citizenship negatively. One of the teachers, Derya, stated that the contradiction between what students are taught and real life had a negative impact on citizenship education:

> We provide them with knowledge about ideal situations, but the real life is different from that… As I said earlier, what we teach cannot go beyond knowledge level… We tell them not to accept bribe because good people do not accept bribe, but when they go outside the classroom, children witness bribery perhaps not among their friends or family but by means of television, the Internet and computers, newspapers… And we shouldn't underestimate these students just because they are children because children tend to do what they see not what they are told to do.

While Gaye was explaining that citizens should join non-governmental organizations during the lesson, a student asked, "You taught us about the Association for Supporting Contemporary Life, but its president was arrested, wasn't she?" During the interview, Gaye explained: "One day, one of the students announced that the president of the Association for Supporting Contemporary Life was arrested, and we had discussed this subject in the previous lesson. I had told them to join to this kind of organizations as citizens. That student asked me about that and I felt he was questioning whether I had taught them wrong. He was expressing his confusion. I was not able to explain to him the situation."

Reflections of the Educational System on Active and Democratic Citizenship Education

Curriculum. The students' perceptions of citizenship did not change at the beginning and end of the Social Studies course. In the interviews conducted before and after the course, the students defined citizenship as fulfilling one's duties to the state such as loving the state, obeying the law, serving military service, voting in elections and paying taxes; students stated that a good citizen should be charitable, honest and religious (Muslim). The students thought bad citizens betrayed their country and broke the law. Only few students listed joining non-governmental organizations among citizenship competencies at the end of the Social Studies course. For instance, when asked about the meaning of citizenship, Cemal, a 4th grade state school student, said "Well, it makes me remember our citizenship duties… such as serving military service, working, paying taxes, voting in elections, and respecting the law." Perceiving citizenship as only duties and responsibilities to the state, the students told they would be citizens when they got older because they did not yet pay taxes or serve in military service. Mehtap, a 5th grade private school student said, "Now, I do not know what to do as a citizen, but I want to learn it."

Although the SSC offers a constructivist and learner-centered instruction, most of the teachers practiced teacher-centered instruction in their lessons. This discrepancy shows that the teachers did not grasp the notion of the constructivist SSC. The citizenship issues in the SSC are presented with the help of the textbook and teacher's book through question-and-answer and narration techniques. Only two of the teachers made use of dramatization, discussions, exploratory research, field trips, Internet searches, newspapers, etc. while teaching citizenship issues in their lessons. Therefore, according to the findings, effective and permanent learning could not be achieved in citizenship education in the Social Studies course. When the students were asked what they learned about citizenship at the end of the Social Studies course, some of the students were unable to answer the question. Those students who were able to answer the question said they learned about the principles of democracy, foundation of the Republic, human rights, the constitution and form of governments. One of the teachers, Derya, stated that citizenship education remains theoretical in the Social Studies course by saying, "I mean it exists as knowledge but not as practice. Students are taught that a good citizen pays taxes, serves military service and performs their duties." Moreover, the teachers expressed that the curriculum and the textbooks include thorough descriptions of several citizenship issues such as the duties of governors. Since the curriculum does not adequately deal with current issues, most of the teachers did not present such issues in relation to their lessons; the teachers believed that they had to follow the prescribed syllabus. In the interviews, the students also said that they typically learned about developments in political events by means of television and newscasts. Therefore, these findings suggest that citizenship education in the Social Studies course cannot adequately produce students who are politically literate and possess social participation skills.

Test-centered education. The test-centered educational system also has negative effects on active citizenship education. Teachers devote one class hour of the Social Studies class for testing. Since students start to prepare for the high school entrance examination when they are 4th graders, both teachers and students have to possess theoretical knowledge in citizenship issues. As a result, citizenship education becomes a theoretical instruction instead of learning by experience. The negative effects of this test-centered education are particularly seen in the 6th, 7th and 8th grades because both teachers and students in these classes focus on the issues that might occur in the exams. One of the teachers, Nuray, for example, said, "Children's lives are shaped by exams and we do everything according to exams and so do children. They behave as if they did not care about anything that is not included in the exam and as if there was nothing else in their lives apart from exams."

School culture. In this study, the school facilities and school culture did not provide the students with opportunities to practice their citizenship knowledge and skills that they learned and gained in their Social Studies classroom. This lack of opportunity to practice was more evident in the state school, where the school rules were stricter. For instance, the elections of school council and school council sessions did not function efficiently. During the interviews, the teachers stated that although the students in the private school were given more freedom in such issues, they

could not use their rights in the desired manner and the students furthermore did not have any good models of citizenship in their environments. In this respect, Derya said:

> Students hesitate to use their rights to write a petition to declare their problems and wishes at the school. All in all, if they do not learn how to write a petition here, how will they do that in real life? ... Things will just remain in theory unless they are practiced….

Legislations and codes of conduct (Ethics). In this study, the teachers hesitated to deal with current political issues related to citizenship education in their lessons. This hesitation stemmed from a belief that dealing with political issues in the lessons contradicted current laws and legislations. On the other hand, the teachers in the private schools felt more comfortable in this respect since they believed that the current laws and legislations about the civil service did not limit their actions in their schools. When her students started to talk about a political party in her class, Gaye tried to skip the subject either by saying, "Let's say Party A" instead of telling the real name of the political party or saying, "This issue is out of our concern now." Most of the teachers believed that political issues should not be presented in educational environments, particularly with young learners. This belief often arises because teachers think that imposing their political views on their students is unethical. Gaye said, "Personally, I think discussing political subjects in class with students is wrong. If I do that, another teacher will do the same and it can just confuse children. This can cause a chaos, which we experienced before…" Hande, mentioned her concern for the reactions of families and administration in saying that:

> In fact, I'm always worried about it; discussing these subjects, political issues, is difficult. Students may talk about it at home and their parents may react and so may the school administration and even the state. Presenting these subjects is a challenging task… and we are just not ready for this yet…

Discussion and Conclusions

This study revealed that active and democratic citizenship education in the Social Studies classrooms of the schools that were analyzed failed to satisfy expectations. The fact that the students' task-based and passive perceptions of citizenship did not demonstrate any changes at the beginning and end of the Social Studies course could be an indication of this situation. The findings from this study suggest that, in general, citizenship education in Social Studies courses tend to offer, in part, a set of social moral values that focuses more on theory and exams and lacks practical applications. At the end of this course, students become apolitical citizens with a low political literacy. Furthermore, students lack effective thinking and participation skills. This finding of the present study shows similarities with related studies that were conducted in other countries (Davies & Evans, 2002; Morris & Cogan, 2001; Sim, 2008).

Also, several challenges that originate from teachers, students and the educational system affected the process in a negative way. The citizenship perceptions, political views and educational background of the teachers were outstanding factors that had an effect on active and democratic citizenship education. Most of the teachers did not have a perception of active citizenship. As a result, they followed task-based and passive citizenship education practices in their Social Studies classrooms. The reasons for such a citizenship notion among the teachers might be attributed to their educational backgrounds, which emphasized citizenship as an individual's responsibility toward the government, as well as the dominant ideology that emphasized republican, nationalist and task-based citizenship in society. One of the teachers said, "We always make a ceremony for the people who join the army, since we believe that they are going to perform their military service for the nation, however we scarcely witnessed applauses when a person claim his/her rights." The notion of task-oriented citizenship is clearly the prevailing perception among people in Turkey. Therefore, it is rather difficult to produce individuals who are conscious citizens who use their rights and liberties. Furthermore, it is challenging to foster participative citizens who share their political and personal thoughts in society. Although the teachers generally had positive attitudes toward the SSC, which has the goal of raising active and democratic citizens, the teachers fell behind in practice, which indicates that they were not fully competent in active citizenship education. Therefore, the teachers should be trained in current citizenship concepts and active citizenship education through in-service or pre-service training. Also, the students' ages, genders, and socioeconomic and cultural backgrounds limited active and democratic citizenship education. In this respect, while the students from low socioeconomic backgrounds had more passive, nationalist, obedient, religious and ethical citizenship notions, the students from higher socioeconomic backgrounds had more active, democratic and critical thinking citizenship notions.

The female students in the study were unenthusiastic in talking about political issues. Their lack of enthusiasm to express their thoughts on current issues might be associated with the role of women in Turkish society. Within this framework, some previous studies (Doğanay, Çuhadar & Sarı, 2007; Ersoy, 2010) also revealed that female students in Turkey are more depoliticized in comparison with male students. This fact confirms that women are strongly exposed to societal regulations and norms. In this respect, teachers should be aware of gender discrimination in society and some precautions should be taken to raise the political and social awareness of female students and encourage them to be active and participative citizens in society. The notion of passive citizenship was prevalent among the students from low socioeconomic backgrounds. Ignorance of rights and liberties in social environments hindered functional applications of active citizenship that the students had gained at their schools. Furthermore, the traditional school organizations and cultures of the schools in the study did not promote practicing the active citizenship that the students had learned in their Social Studies classrooms. In connection with this finding, it can be suggested that a fundamental renovation in the traditional school organization and traditional school culture concepts should be implemented

concerning active citizenship education practices. Moreover, the legislations that restricted teachers to deal with political issues in their lessons had a negative effect on the development of political literacy and political participation skills of the students. Therefore, the relevant legislations should be readjusted to provide more democratic school organizations and cultures where the teachers feel freer in their academic concerns along with active citizenship education.

To sum up, an active and democratic citizenship education cannot be achieved in Social Studies courses because teachers do not have a perception of active citizenship. In particular, individuals from low socioeconomic backgrounds tend to perceive citizenship as being based on obeying and fulfilling duties, practices at schools fail to supplement the activities within the Social Studies course, the national educational system adopts an exam-oriented approach and the current legal framework restricts teachers' academic freedoms. In order for the Turkish national education to achieve active and democratic citizenship education, it is essential that the state and society accept and care about active citizens who participate in political and social life, are aware of their rights and duties, and respect individual differences. Also, the school organization and culture in Turkey is in need of restructuring in way that promotes active citizenship education. In addition, teachers and pre-service teachers need to be trained about active and democratic citizenship education through in-service and pre-service training programs so that their professional competencies can be improved.

References

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3,* 77-101.

Çayır, K., & Gürkaynak, I. (2008). The state of citizenship education in Turkey: Past and present. *Journal of Social Science Education, 6,* 50-58.

Davies, I., & Evans, M. (2002). Encouraging active citizenship. *Educational Review, 54,* 69-78.

Doğanay, A., Çuhadar, A., & Sarı, M. (2007). Examining of the effects of some variables on political participation level of prospective teachers in the context of democratic citizenship education. *Educational Administration–Theory, 13,* 213–246.

Erdoğan, E. (2001). Türk gençliği ve siyasal katılım boyutları: Bir katılım endeksi denemesi. [Youngests of Turkey and extension of political participation]. In B. Ekin (Ed.), *Türk gençliği ve katılım*. [Youngests of Turkey and participation] (pp. 9–27). Istanbul: Form Matbaacılık.

Ersoy, A. F. (2010). Social studies teacher candidates' views on the controversial issues incorporated into their courses in Turkey. *Teaching and Teacher Education, 26,* 323-334.

Glesne, C. (2011). *Becoming qualitative researchers: An introduction* (Fourth Edition). Boston, MA: Pearson Education, Inc.

İnan, A. A. (1969). Medeni bilgiler ve Atatürk'ün el yazıları. [Civil knowledge and handwritings of Atatürk]. Ankara: Türk Tarih Kurumu.

Kadıoğlu, A. (2005). Vatandaşlığın ulustan arındırılması: Turkiye örneği. [Denationalization of citizenship: the Turkish experience]. In A. Kadıoğlu (Ed.), *Vatandaşlığın dönüsümü: Uyelikten haklara. [Transformation of citizenship: From membership to the rights].* 31–54. Istanbul: Metis Yayınları.

Kadıoğlu, A. (2007). Denationalization of citizenship: The Turkish experience. *Citizenship Studies, 11,* 283-299.

Lee, W. O. (2005). Aspirations for democracy in the absence of a democracy: Civic education in Hong Kong before and after 1997. In S. Wilde (Ed). *Political and citizenship education: International perspectives*. (pp. 61-85). UK: Cambridge University Press.

Lincoln, Y. S., & Guba, E. (1985). *Naturalistic inquiry.* Newbury Park, CA: Sage.

MoNE. (2004). *Talim Terbiye Kurulu program geliştirme çalışmalar: programların geliştirilmesini gerekli kılan nedenler.* [Program development studies of Board of Education and Discipline: What makes necessary to develop programs] Retrieved May 15, 2010, from http://ttkb.meb.gov.tr/programlar

MoNE. (2008). *Demokratik vatandaşlık ve insan hakları eğitimi projesi*. [The project of democratic citizenship and human rights education] Retrieved June 08, 2010, from http://projeler.meb.gov.tr

Morris, P., & Cogan, J. (2001). A comparative overview: Civic education across six societies. *International Journal of Educational Research*, *35,*109-123.

Nelson, J., & Kerr, D. (2005). Active citizenship: Definitions, goals and practices. *Qualifications and Curriculum Authority.* Retrieved June 12, 2012, from http://www.inca.org.uk/.../Active_citizenship_bac.

Okçabol, R. (2002). Citizenship and civic education in Turkey. *Journal of Ethno-development.* May, 32-44.

QCA. (1998). Educating for citizenship and the teaching of democracy in schools. (Final report of the Advisory Group on citizenship). Retrieved June 15, 2010, from http://www.teachingcitizenship.org.uk/dnloads/crickreport1998.pdf

Potter, J. (2002). *Active citizenship in schools: A good-practice guide to developing a whole-school policy.* London: Kogan Page.

Rossman, G. B., & Rallis, S. F. (1998). *Learning in the field: An introduction to qualitative research.* Thousand Oaks, CA: Sage.

Sim, J. B. Y. (2008). What does citizenship mean? Social studies teachers' understandings of citizenship in Singapore schools. *Educational Review*, *60,* 253–266.

Üstel, F. (2004). *'Makbul vatandas''ın peşinde: II. Meşrutiyet'ten bugüne vatandaşlık eğitimi.* [Obeyed citizens: Citizenship education from 2nd constitutional monarchy to today]. İstanbul: İletişim Yayınları.

Sosyal Bilgiler Dersinde Etkin ve Demokratik Vatandaşlık Eğitimi ve Sorunlar

Atıf:

Ersoy, A. F. (2014). Active and democratic citizenship education and its challenges in social studies classroom. *Eurasian Journal of Educational Research*, 55, 1-20. http://dx.doi.org/10.14689/ejer.2014.55.1

Özet

Problem Durumu: Türkiye'de vatandaşlık eğitimi, Osmanlı İmparatorluğu'ndan 2000'li yıllara kadar edilgen ve görev odaklı bir özellik gösterirken Avrupa Birliği üyelik süreciyle birlikte etkin ve demokratik vatandaşlık eğitimine doğru evrilmiştir. Bu bağlamda 2004 yılında Sosyal Bilgiler Öğretim Programı yapılandırmacı yaklaşımı da benimseyerek etkin vatandaşlık eğitimine yönelik olarak yenilenmiştir. Bu araştırmada, Sosyal Bilgiler dersinde etkin ve demokratik vatandaşlık eğitimi uygulamaları ve karşılaşılan sorunlar incelenmiştir. Böylece, etkin ve demokratik vatandaşlık eğitimini uygulamaya başlayan Türkiye ve benzer ülkelerde ilköğretimde etkin vatandaşlık eğitiminin geliştirilmesine katkı sağlanacağı beklenmektedir. Ayrıca, bu araştırma sonuçlarından, etkin ve demokratik vatandaşlık eğitimi konusunda öğretmen eğitim programlarının geliştirilmesi ve öğretmenlere hizmet içi eğitim etkinliklerinin düzenlemesinde yararlanılabilecektir.

Araştırmanın Amacı: Bu araştırmanın amacı, Sosyal Bilgiler dersinde etkin ve demokratik vatandaşlık eğitimin sürecini ve bu süreçte yaşanan sorunları anlamaktır.

Yöntem: Bu araştırmada bütüncül çoklu durum deseni kullanılmıştır. Araştırmada katılımcıların seçiminde aşırı ve aykırı durum örneklemesi yapılmıştır. Bu kapsamda, araştırma bir alt ve orta sosyo-ekonomik düzeydeki öğrencilerin devam ettiği bir devlet okulu ile üst sosyo-ekonomik düzeyden gelen öğrencilerin devam ettiği bir özel ilköğretim okulunda gerçekleştirilmiştir. Araştırmaya bu okullarda görev yapan altı öğretmen ve bu öğretmenlerin sınıflarından 30 öğrenci katılmıştır. Araştırma verileri yarı-yapılandırılmış görüşme, katılımcı gözlem ve dokümanların incelenmesi ile toplanmıştır. Araştırmacı, Sosyal Bilgiler dersinde gözlemci olarak katılımcı biçiminde ders sürecini izlemiştir. Gözlem öncesi ve sonrasında öğretmen ve öğrencilerle yarı-yapılandırılmış görüşmeler gerçekleştirilmiştir. Ek olarak, öğretmenlerin ders planları ve derste kullandıkları materyaller incelenmiştir. Araştırma verilerinin analizinde tematik analiz yöntemi kullanılmıştır. Analizde gözlem ve görüşme verileri, alt ve üst sosyo-ekonomik düzey karşılaştırılarak yapılmıştır. Araştırmanın inanırlığını artırmak için birçok veri kaynağından yararlanılmış, veri analizinde bir başka uzmanla çalışılmış ve katılımcılarla veriler paylaşılmıştır.

Bulgular: Araştırma sonuçlarına göre, öğretmenlerin vatandaşlık algısı, siyasal görüşü ve eğitim geçmişi vatandaşlık eğitimine yansımaktadır. Bireysel vatandaşlık algısına sahip öğretmenler hak ve özgürlükleri vurgularken; toplumcu vatandaşlık algısına sahip öğretmenler daha çok devlete karşı olan sorumlulukları vurgulamaktadır. Öğretmenlerin çoğunun toplumcu, edilgen ve görev odaklı vatandaşlık algısına sahip olması etkin vatandaşlık eğitimini olumsuz etkilemektedir. Aynı zamanda öğretmenler, hizmet öncesi ve hizmet içi eğitim sürecinde vatandaşlık eğitimine ilişkin yeterli bilgi ve deneyim elde etmemişlerdir. Öğretmenlerin etkin ve demokratik vatandaşlık eğitimi konusunda yeterli bilgi ve deneyime sahip olmaması vatandaşlık eğitimi uygulamalarına olumsuz yansımaktadır.

Öğrencilerin yaşı, cinsiyeti ve sosyal çevresi de etkin vatandaşlık eğitimini etkilemektedir. Yaşı küçük olan öğrenciler devlet, anayasa gibi temel vatandaşlık kavramlarını anlamada zorlanmaktadır. Kız öğrenciler ise, siyasal konulara ilgi göstermemektedir. Sosyo-ekonomik düzeyi düşük öğrenciler sosyo-ekonomik düzeyi yüksek öğrencilere göre daha edilgen ve görev odaklı bir vatandaşlık tutumu göstermektedir. Üst sosyo-ekonomik düzeyden gelen öğrenciler ise, daha çok haklarını bilmekte, kullanmakta ve eleştirel düşünmektedir.

Eğitim sisteminin yapısı ve işleyişi de etkin vatandaşlık eğitimini etkilemektedir. Sınav merkezli eğitim sistemi, geleneksel okul sistemi ve kültürü, yasalar ve yönetmelikler vatandaşlık eğitimi üzerinde olumsuz etki yaratmaktadır. Sınav merkezli eğitim sistemi, vatandaşlık eğitiminin uygulama yapılmadan kuramsal kalmasına neden olmaktadır. Geleneksel okul yapısı ve kültürü, öğrencilerin Sosyal Bilgiler dersinde edindiği vatandaşlık bilgilerinin uygulanmasına olanak vermemekte ve vatandaşlık eğitimini desteklememektedir. Ayrıca, yasa ve yönetmelikler, Sosyal Bilgiler dersinde öğretmenleri sınırlandırmakta ve onların vatandaşlıkla ilgili birçok konuyu ele almalarını zorlaştırmaktadır.

Tartışma ve Öneriler: Bu araştırma sonuçları, öğrencilerin edilgen ve görev odaklı vatandaşlık algısının Sosyal Bilgiler dersinin başında ve sonunda değişmediğini göstermektedir. Bu sonuç, Sosyal Bilgiler dersinde etkin vatandaşlık eğitiminin beklenilen düzeyde gerçekleşmediğini göstermektedir. Sosyal Bilgiler dersinde etkin vatandaşlık eğitimi, değer ağırlıklı, daha çok kuramsal bilgi ve sınav odaklı, siyasal konulardan uzak ve geleneksel öğretimle gerçekleşmektedir. Bu ders sonucunda, öğrencilerin siyasal okuryazarlık, etkili düşünme ve katılım becerileri yeterli düzeyde gelişmemektir. Sosyal Bilgiler dersinde etkin vatandaşlık eğitimini, öğretmen, öğrenci ve eğitim sisteminden kaynaklanan kimi etmenler etkilemektedir. Bu etmenler arasında öğretmenin vatandaşlık algısı, siyasal görüşü ve eğitim geçmişi önem taşımaktadır. Öğretmenlerin çoğunun, etkin vatandaş algısına sahip olmaması Sosyal Bilgiler dersinde edilgen ve görev odaklı vatandaşlık eğitimini güçlendirmektedir. Öğretmenlerin daha önceki eğitim yaşamında vatandaşlığı devlete karşı sorumluluklar olarak öğrenmesi ve etkin vatandaşlık eğitimine ilişkin bilgi ve deneyim eksikliği uygulamalarına olumsuz yansımaktadır. Bu nedenle, öğretmenlerin etkin vatandaşlık eğitimi konusunda hizmet öncesinde ve hizmet içi etkinliklerle bilgilendirilmeleri uygulamalarının

güçlenmesinde etkili olacaktır.

Öğrencilerin, yaşı, cinsiyeti ve sosyo-ekonomik ve kültürel yapısı etkin vatandaşlık eğitimini etkilemektedir. Özellikle kız öğrencilerin siyasal konularda ilgisiz tutumları ve düşüncelerini açıklama konusunda daha az katılım göstermesi toplumsal yaşamda kadının rolüyle ilişkilendirilebilir. Öğretmenler, etkin vatandaşlık eğitimi amacıyla Sosyal Bilgiler dersinde kız öğrencilerin sosyal ve siyasal katılımlarını artıracak önlemler almalıdır. Ayrıca, edilgen vatandaş algısının alt sosyo-ekonomik kültürde daha güçlü olması ve hak ve özgürlüklerin göz ardı edilmesi, öğrencilerin okulda elde ettiği etkin vatandaşlık kazanımlarını sosyal çevrenin desteklememesine neden olmaktadır. Böylece, öğrenciler etkin vatandaşlık kazanımlarını çevrelerinde ve toplumda uygulayamayacağını düşündükleri için yeterli önemi vermemekte ve benimsememektedir.

Eğitim sistemi yapısından ve işleyişinden kaynaklanan kimi nedenler etkin vatandaşlık eğitimini olumsuz etkilemektedir. Bunlardan biri sınav merkezli eğitim sistemidir. Sınav merkezli eğitim sistemi öğretmenlerin ve öğrencilerin vatandaşlık eğitiminde kuramsal bilgilere yönlenmelerine neden olmaktadır. Böylece, vatandaşlık eğitimi uygulamalı bir eğitim olmaktan uzaklaşarak kuramsal bilgilere dayalı bir eğitime dönüşmektedir. Bunun yanı sıra öğrenciler, Sosyal Bilgiler dersinde elde ettiği etkin vatandaşlık kazanımlarını okulda uygulayamamaktadır. Etkin vatandaşlık eğitiminin gerçekleştirilebilmesi için demokratik okul yapısı ve kültürünün oluşturulması gerekmektedir. Ayrıca, öğretmenlerin siyasal konulara ele almasını sınırlayan yasaların olması, öğrencilerin siyasal okuryazarlık ve siyasal katılım yeterliklerini geliştirmelerini olumsuz etkilemektedir. Bu nedenle, öğretmenlerin akademik özgürlüğünü sağlayacak yasalar yeniden düzenlenmelidir.

Anahtar Sözcükler: Vatandaşlık eğitimi, etkin vatandaşlık, demokrasi, insan hakları, Sosyal Bilgiler

Eurasian Journal of Educational Research, Issue 55, 2014, 21-36

An Integrated Approach for Preservice Teachers' Acceptance and Use of Technology: UTAUT-PST Scale*

Işıl KABAKÇI YURDAKUL**

Ömer Faruk URSAVAŞ***

Gökçe BECİT İŞÇİTÜRK****

Suggested Citation:

Kabakçı-Yurdakul, I., Ursavaş, Ö.F & Becit-İşçitürk, G. (2014). An integrated approach for preservice teachers' acceptance and use of technology: UTAUT-PST Scale. *Eurasian Journal of Educational Research*, 55, 21-36. http://dx.doi.org/10.14689/ejer.2014.55.2

Abstract

Problem Statement: In educational systems, teachers and preservice teachers are the keys to the effective use of technology in the teaching and learning processes. Predicting teachers' technology acceptance and use remains an important issue. Models and theories have been developed to explain and predict technology acceptance. The Unified Theory of Acceptance and Use of Technology (UTAUT) is a validated model. While the number of studies designed for teachers or preservice teachers is limited, it is used to determine the variables influencing individuals' technology acceptance. Therefore, the development of an instrument based on UTAUT is important for measuring preservice teachers' acceptance and use of information and communication technologies.

Purpose of Study: The purpose of this study was to develop an instrument to determine preservice teachers' acceptance and use of technology. It was developed based on the UTAUT and two variables were added: self-efficacy and attitude toward use.

* The present study is based primarily on the PhD Thesis of Gökçe BECİT İŞÇİTÜRK at Anadolu University, supervised by Isil Kabakci Yurdakul, called 'Examining the Acceptance and Use of Computer and Information Technologies of Pre-service teachers.

**Corresponding author: Department of Computer Education and Instructional Technologies, Anadolu University, Eskişehir, Turkey. isilk@anadolu.edu.tr

***Department of Computer Education and Instructional Technologies, Recep Tayyip Erdoğan University, Rize, Turkey. omer.ursavas@erdogan.edu.tr

****Department of Computer Education and Instructional Technologies, Nevşehir Hacı Bektaş Veli University, Nevşehir, Turkey. gokcebi@nevsehir.edu.tr

Methods: A systematic and step-by-step approach was followed to develop an instrument for determining preservice teachers' acceptance and use of information and communication technologies. The data were analyzed in two stages. The responses were assigned to two data sets (n = 170, 409) which were subjected to a two-stage factor analysis. The first data set was used to explore the underlying factor structure of the instrument using exploratory factor analysis (EFA). The second data set was used to confirm the factorial structure derived from the EFA using confirmatory factor analysis.

Findings and Results: An innovative instrument for measuring preservice teachers' acceptance and use of information and communication technologies was developed, and named the UTAUT-PST. It included 23 items to measure seven factors: performance expectancy, effort expectancy, social influence, facilitating conditions, behavioral intention, self-efficacy, and attitude toward using.

Conclusions and Recommendations: Technology acceptance and use models differ across cultures and remain an important field of study. In this respect, the instrument is important because it was prepared for the teacher training system in Turkey. In the literature, there are several measurement tools presented to predict the variables that influence technology acceptance, but this instrument was prepared for preservice teachers based on UTAUT. It is important because it can be used both for determining the current situation and for improving the process of acceptance and use of technology.

Keywords: Acceptance and use of technology, UTAUT, preservice teachers, instrument

Among the variables influencing the success of the process of technology integration into education are teachers' attitudes toward the process and their support (Bingimlas, 2009; Lim, 2007; Teo, 2008). Researchers have attempted to determine the variables influencing teachers' acceptance and use of technology (Teo, 2010; Teo, Ursavaş, & Bahçekapılı, 2010), and, as a result, certain models have been developed to explain individuals' technology acceptance and use (Davis, 1989; Venkatesh, 2000). These theories and models mainly include (Pynoo et al., 2011): Social Cognitive Theory (Bandura, 1986), Diffusion of Innovations Theory (Rogers, 1995), Technology Acceptance Model (Davis, Bagozzi, & Warshaw, 1989), and Theory of Reasoned Action based on psychological and social changes (Fishbein & Ajzen, 1975).

Theories examining human behavior generally belong to the psychology literature, but have been used in other academic disciplines. One of these is the Theory of Reasoned Action (TRA) developed by Fishbein and Ajzen (1975). According to this theory, the best predictors of the planned and purposeful behavior of a person are his or her attitudes toward the behavior and his or her related subjective norms. In 1986, based on TRA, Davis (1989) developed the Technology Acceptance Model (TAM), a model designed to explain individuals' technology

acceptance. It consists of two basic components, perceived usefulness (PU) and perceived ease of use (PEU). The former is defined as the degree of a person's belief that use of a certain system will increase his or her performance in what he or she is doing while the latter is defined as the degree of a person's belief that his or her use of a certain system (information and communication technologies) will require him or her to use less effort (Davis, 1989). The TAM was used in the field of education to determine teachers' technology acceptance (Hu, Clark, & Ma, 2003) and preservice teachers' technology acceptance (Ma, Andersson, & Streight, 2005; Teo, Lee & Chai, 2007; Teo, Chai, Hung, & Ling, 2008; Teo, 2008; Teo, Luan, & Sing, 2008; Teo, 2009; Teo et al., 2010).

The TAM has been intensely criticized because it does not sufficiently explain technology acceptance. Researchers attempted to increase its explanatory power by adding variables (Legris, Ingham, & Collerette, 2003). In studies designed to better explain technology acceptance by teachers or teacher candidates, behavioral intention (BI) and attitudes toward using (A), were correlated not only to PU and PEU, but also to technological complexity, subjective norm, facilitating conditions, and self-efficacy. However, studies in related literature explained only 40% of the intent to use technology (Venkatesh et al., 2003). This has made it necessary to view technology acceptance models from a unified perspective. A study carried out by Venkatesh et. al. (2003) discussed eight models explaining technology acceptance and use: TRA, TAM, Motivation Model, Theory of Planned Behavior, Technology Acceptance and Planned Behavior Combined Model, PC Use Model, Diffusion Theory, and Social Cognitive Theory. In addition, the weak and strong aspects of these models were compared. As a result of the study, a new model called the Unified Theory of Acceptance and Use of Technology (UTAUT) was developed. Figure 1 demonstrates the structure of the model (Venkatesh et. al., 2003).

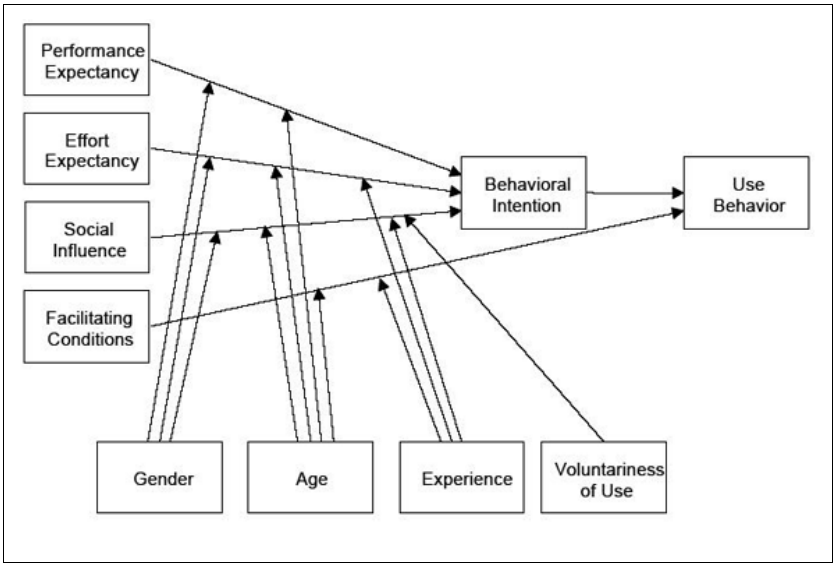


Figure 1. Unified Theory of Acceptance and Use of Technology (UTAUT)

As seen in Figure 1, there are four primary variables influencing the intention to use and actual use of technology: performance expectancy (PE), effort expectancy (EE), social influence (SI), and facilitating conditions (FC). In addition, UTAUT includes four moderators, gender, age, experience, and voluntariness, that predict the relationship between the primary variables and intent and use behaviors (Venkatesh et. al., 2003). These are explained as follows:

- Performance expectancy is defined as the degree of expectancy regarding an increase in the job performance of individuals who are using the system. It can be considered the synthesis of variables such as PEU, found in the TAM (Davis et al., 1989), extrinsic motivation, found in the Motivation Model (Davis et al., 1989), job fit, found in the PC Use Model (Triandis, 1977), relative advantage, found in the Diffusion of Innovations Theory (Rogers, 1995), and result expectancies, found in Social Cognitive Theory (Compeau & Higgins, 1995; Venkatesh et.al., 2003).
- Effort expectancy is defined as the degree of facilities brought by use of the system. It can be considered the synthesis of variables such as PEU, found in the TAM (Davis et al, 1989), complexity, found in the PC Use Model (Triandis, 1977), and ease of use, found in the Diffusion of Innovations Theory (Rogers, 1995; Venkatesh et.al., 2003).
- Social influence is defined as the degree of importance that other people give to use of the system. It can be considered the synthesis of variables such as subjective norms, found in the TAM (Davis et al., 1989), Planned Behavior Theory (Ajzen, 1971), and PC Use Models (Triandis, 1977), and image, found in the Diffusion of Innovations Theory (Rogers, 1995; Venkatesh et.al., 2003).
- Facilitating conditions are the organizational or technical sub-structure supports necessary for use of the system. It can be considered the synthesis of variables such as perceived behavioral control, found in Reasoned Behavior Theory (Ajzen, 1971), facilitating conditions, found in the PC Use Model (Trandis, 1977), and job fit, found in the Diffusion of Innovations Theory (Rogers, 1995; Venkatesh et.al., 2003).

In the UTAUT, BI is influenced by the four variables mentioned above, and is an indicator of the efforts and demands of an individual to conduct an attitude (Davis, 1989). These variables constitute a theoretical substructure of this study. They are used to predict individuals' behavioral intentions and attitudes toward use of the system. However, in the design phase, self-efficacy was considered a variable likely to produce different results among some samples. Self-efficacy is defined as one's own judgment regarding his or her capacity to organize and achieve the activities necessary to demonstrate a certain performance (Bandura, 1986).

While teachers' acceptance of technology play an important role in their technology use, data collection tools developed to measure the variables influencing technology acceptance are limited in number (Teo, 2010). The first such tools developed in this field were computer attitude scales (CASs). The CAS developed by

Loyd and Gressard (1985) examined attitudes toward the computer under three sub-dimensions: computer anxiety, computer confidence, and computer liking. Nickell and Pinto (1986) developed one that consisted of 20 items, eight of which were reverse items, and Kay (1993) developed the Computer Attitude Measurement CAS. The Computer Technology Use Scale included 36 items, and was developed by Conrad and Munro (2008) to cover dimensions such as computer self-efficacy, attitudes toward technology, and technology-related anxiety.

Because the instruments implemented in most of the recent studies on technology acceptance (Teo, 2009; Hu et al., 2003; Teo et al., 2008; Teo et al., 2008; Teo, 2009) used PU and PEU, the adapted versions prepared by Davis et al. (1989) to measure the primary variables of the TAM and those prepared by Compau and Higgins (1995) to measure attitudes toward computer use (ATCU) were used. In addition, the literature includes data collection tools developed to determine the variables influencing individuals' technology acceptance (Becker & Anderson, 1998; Teo & Noyes, 2008; Teo, 2010). Among these, the Technology Acceptance Measure for Preservice Teachers developed by Teo (2010) is a 5-point Likert-type instrument using 16 items to measure preservice teachers' acceptance and use of technology. While developing the instrument, the TRA (Fishbein & Ajzen, 1975), the Theory of Planned Behavior (Ajzen, 1991), te TAM (Davis, 1989), and the UTAUT (Venkatesh et. al., 2003) were used as bases. The instrument included five factors: PU, PEU, subjective norm, FC, and ATCU.

In studies of the UTAUT, an effective model that explains technology acceptance and use, adapted versions of the items prepared by Venkatesh et. al., (2003) were generally used (Pynoo et. al., 2009; Irvin & Birch, 2011). It is evident in related literature that technology use is a complex issue in classes, and that there are a number of variables influencing teachers' technology use in classes (Teo, 2010).

Because UTAUT explains 70% of individuals' technology use and their attitudes toward technology use, it is considered to be an important development in the literature (Venkatesh et. al., 2003). On the other hand, the number of studies designed for teachers or preservice teachers is limited, though UTAUT is used to determine the variables influencing individuals' technology acceptance. Therefore, the development of an instrument based on the UTAUT is important for measuring preservice teachers' acceptance and use of information and communication technologies.

Method

The purpose of this study was to develop a scale for determining preservice teachers' acceptance and use of information and communication technologies. A systematic and step-by step-approach was followed while developing the scale.

Item generation

Following the related literature, scale items for determining the variables that explain preservice teachers' information and communication technology acceptance and use were adapted from Venkatesh et al. (2003). The 53 items formed were presented to eight field experts from the education technology field, and were

organized according to their views. The pilot application was carried out with 12 preservice teachers from different departments, and it was found that the scale did not include incomprehensible items. In addition, the pilot revealed that it took approximately 25 minutes to administer the instrument.

Participants and Data Analysis

Participants in this study comprised 579 preservice teachers from two universities in Turkey. The participants were enrolled in different programs and 67.4% (390) were female. The participants were selected from the seniors, those closest to becoming teachers.

The data were analyzed in two stages. The responses were assigned to one of two data sets (n = 170, 409), and they were used in a two-stage factor analysis. The first was used to explore the underlying factor structure of the instrument using exploratory factor analysis (EFA). The second was used to confirm the factorial structure derived from the EFA using confirmatory factor analysis (CFA). The EFA is often considered a data-driven approach to identifying a smaller number of underlying factors or latent variables. However, CFA testing is needed to confirm EFA findings (Haig, 2005). Harrington (2009) stressed that EFA may be used as an exploratory first step during the development of a tool, then CFA is used to examine whether the structure identified in the EFA works in a new sample. In other words, CFA is used to confirm the factor structure identified by the EFA.

Study One: EFA

Aim and participants. This study was designed to test and refine the 53 items mentioned above. They were presented using a 5-point Likert response scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The participants were 170 preservice teachers (119 females and 51 males) enrolled in the education program at a teacher training faculty in Turkey. The mean (standard deviation) of the participants' daily computer use was 2.24 (0.94). All participants were volunteers and were informed about the purpose of this study and their rights not to participate and to withdraw from completing the questionnaire at any time during or after data collection. It took participants about 25 minutes to complete the questionnaire.

EFA. This was applied using principal axis factoring and varimax rotation to extract factors. The eigenvalue and scree plot were used to determine the number of factors extracted. In addition to Kaiser's (1960) requirement that the eigenvalue be greater than 1 and Cattell's (1966) scree test, the factor load lower cut-off point was set at 0.50 for each item, as suggested by Hair, Black, Babin, Anderson &Tatham (2006). Moreover, as the factors were more meaningful and interpretable, items found under more than one factor were excluded from analysis.

Results. Descriptive statistics and EFA were found for the 53 scale items. The mean values of all items ranged from 2.09 to 4.35. Standard deviations ranged from 0.80 to 1.19, and the skew and kurtosis indices from -.80 to -1.50 and -.84 to 2.04, respectively. Following Kline's (2005) recommendations, the data were considered to be univariate normal.

The initial solution yielded eight factors with eigenvalues exceeding 1, accounting for a total of 59.49% of the variance. Inspection of the scree plot supported the retention of eight factors as well. Using a cut-off of 0.5 for factor loading, five items were excluded, reducing the items to 28. Table 1 shows the principal axis factoring analysis of the eight constructs and the number of items per factor. The reliability index for each factor was computed using Cronbach's α, and were high (.76 for PE, .88 for BI, .73 for SE, .89 for FC, .87 for SI, .78 for EE, and .84 for A).

Table 1
Principal Axis Factoring Analysis With Varimax Rotation

Item	*PE*	*BI*	*SE*	*FC*	*SI*	*EE*		*h2*
PE1	0.78							0.69
PE2	0.76							0.72
PE3	0.71							0.68
PE4	0.71							0.62
PE5	0.70							0.59
PE6	0.61							0.51
BI1		0.72						0.65
BI2		0.70						0.63
BI3		0.68						0.63
BI4		0.67						0.64
BI5		0.65						0.63
SI1			0.75					0.70
SI2			0.75					0.72
SI3			0.73					0.59
SI4			0.72					0.66
SI5			0.60					0.59
FC1				0.81				0.71
FC2				0.77				0.71
FC3				0.59				0.69
FC4				0.57				0.64
SI1					0.81			0.70
SI2					0.80			0.74
SI3					0.76			0.67
EE1						0.68		0.57
EE2						0.60		0.59
A1							0.76	0.76
A2							0.73	0.73
A3							0.54	0.54
Eigenvalue	4.27	3.50	3.35	2.48	2.22	1.81	1.72	

Percentage of variance explained	12.55	10.28	9.86	7.31	6.53	5.31	5.06

Study Two: CFA

Aim and participants. This study was designed to assess the reliability and validity of the scores regarding the 28 scale items. The participants in this study were 409 preservice teachers (271 female, 138 male) enrolled in the education program at a teacher training faculty in Turkey. The mean (standard deviation) of the participants' daily computer use was 2.50 (0.97). All participants were volunteers who were not rewarded with money or in kind and were informed that they had the right to withdraw from the study at any time during or after the study.

CFA. The model fit was assessed by a number of common indices: the minimum fit function χ^2 test, the root mean square error of approximation (RMSEA; Steiger, 1990), the comparative fit index (CFI; Bentler, 1990), the Tucker-Lewis fit index (TLI; Bentler & Bonett, 1980), and the standardized root mean square residual (SRMR; Hu & Bentler, 1999). The χ^2 test assesses the fit of the model by comparing the sample correlation matrix with the correlation matrix estimated under the model. Small values indicate a good fit, reflecting a small discrepancy between the structure of the observed data and the hypothesized model. Because χ^2 has been found to be too sensitive to the sample size (Hu & Bentler, 1999), the ratio of χ^2 to its degrees of freedom (χ^2/df) was used, and a range of not more than 3.0 was indicative of an acceptable fit (Carmines & McIver, 1981). The RMSEA reflects the extent to which the model fit approximates a reasonably fit model; the model fit is acceptable when values are less than .08 and good when values are less than .05 (Browne & Cudeck, 1993). The CFI and TLI compare the hypothesized model to a 'null' or worst fitting model, taking into account model complexity, and indicate an acceptable model fit when values are greater than .90, and a good model fit when values are greater than .95 (Hu & Bentler, 1999). The SRMR is a standardized summary of the average covariance residuals. When the model fit is perfect, the SRMR is zero. Hu and Bentler (1999) suggest that an SRMR value close to .05 indicates a relatively good fit.

Results. To confirm the factor structure found in the EFA, the CFA was conducted using the maximum likelihood estimator (MLE) using Amos 18.0 software (IBM SPSS® Amos™ 18) on the second data set. Use of the MLE is popular in structural equation modeling (Schumacker & Lomax, 2004). Because MLE assumes multivariate normality of the observed variables, the data were examined with respect to multivariate normality using Mardia's normalized multivariate kurtosis value. The Mardia's coefficient for this data was 377.48, computed using Amos software. This is lower than the value of 783, computed using the formula p(p+2) where p equals the number of observed variables in the model (Raykov & Marcoludes, 2008).

Several models were computed and compared as part of the CFA. Various conceptualizations of the factor structure of the proposed instrument were made: First, a null model that assumes all factors are unrelated; second, a one-factor model that tests if all factors can be summarized with one overall factor; and finally, a correlated factor model that tests whether the eight factors are related to one another.

The final model indicated that the participants discriminated between the seven factors and that they were correlated with one another.

Table 2

Confirmatory Factor Analysis of Alternative Models

Model	*χ2*	*Df*	*χ2/df*	*TLI*	*CFI*	*RMSEA*	*SRMR*
Model 1 – Null	7131.19	253	28.18	---	---	.21	.36
Model 2 - One-Factor (23-items)	2845.56	252	11.29	.60	.64	.13	.31
Model 3 - Seven – Factor Correlated	637.85	209	3.05	.92	.93	.06	.05

Table 2 shows that all the parameters were statistically significant ($p < .01$). In addition, all the standardized estimates and R^2 values were higher than .70 and .50, respectively, as suggested by Hair et.al. (2006). Values of R^2 exceeding .50 indicate that more than half of the variance for each factor (latent variable) was explained. The Cronbach's α for each factor of the UTAUT ranged from .65 to .86, meaning that the model is acceptable, based on the recommendations by Hair et al. (2006). Table 3 shows the model comparisons.

Table 3

Results of the Confirmatory Factor Analysis

Item	*Unstandardized estimate*	*Standardized estimate*	*T value**	*R²*	*A*
Performance Expectancy					.861
PE1-7	.83	.72	18.13	.52	
PE2-8	.91	.74	17.81	.54	
PE3-12	.91	.76	20.36	.58	
PE4-10	.93	.78	21.32	.61	
PE5-11	1.00	.83	-	.69	
Effort Expectancy					.733
EE1-4	1.02	.78	14.44	.61	
EE2-3	1.00	.74	-	.54	
Social Influence					.774
SI1--	1.04	.79	15.05	.62	
SI2-6	.86	.71	13.82	.51	
SI3-2	1.00	.74	-	.54	
Facilitating Conditions					.789
FC1-10	1.18	.79	14.41	.62	
FC2-9	1.16	.77	14.34	.59	
FC3-2	1.00	.73	-	.53	

Self-efficacy					.842
SE1-2	1.19	.87	18.21	.76	

Table 3 Continue

Item	*Unstandardized estimate*	*Standardized estimate*	*T value**	*R2*	*A*
SE2-3	1.12	.84	18.55	.71	
SE3-1	1.00	.72	-	.52	
Attitude					.766
A1-3	1.36	.78	15.94	.61	
A2-4	1.42	.76	15.75	.58	
A3-1	1.00	.74	-	.54	
Behavioral Intention					.656
BI1-5	1.04	.73	14.00	.53	
BI2-4	1.27	.79	15.43	.62	
BI3-1	1.32	.79	15.44	.62	
BI4-2	1.00	.71	-	.51	

*p < 0.01; - estimate set at 1.00 for identification purpose.

It is seen in Table 3 that the results demonstrate that except for the χ2, all the values satisfied the recommended level of acceptable fit [χ2=637.850 (p = 0.0001), df=209; χ2 /df=3.052; TLI=0.925; CFI=0.938; RMSEA=0.060(LO:.054, HI:.065); and SRMR=.050]. Hence, Model 3 was retained as the model of best fit. Table 4 shows the correlation matrix for the UTAUT constructs.

It is seen in Table 3 that the results demonstrate that except for the χ2, all the values satisfied the recommended level of acceptable fit [χ2=637.850 (p = 0.0001), df=209; χ2 /df=3.052; TLI=0.925; CFI=0.938; RMSEA=0.060(LO:.054, HI:.065); and SRMR=.050]. Hence, Model 3 was retained as the model of best fit.

Table 4 shows the correlation matrix for the UTAUT constructs.

Table 4

Matrix of Intercorrelations among the UTAUT Constructs

Construct	*PE*	*SI*	*FC*	*SE*	*A*	*EE*	*BI*
PE	1.00						
SI	.39**	1.00					
FC	.30**	.23**	1.00				
SE	.49**	.34**	.27**	1.00			
A	.72**	.33**	.27**	.62**	1.00		
EE	.62**	.30**	.27**	.54**	.73**	1.00	
BI	.76**	.40**	.29**	.54**	.71**	.60**	1.00

PE=Performance Expectancy; EE=Effort Expectancy; SI=Social Influence; FC=Facilitating Conditions; BI=Behavioral Intention; SE=Self-Efficacy, A=Attitude Toward Using, **p<0.01.

Table 4 shows that all correlations between the UTAUT factors are moderate and significant at $p < .01$ and $p < .05$. This suggests that the seven factors in the UTAUT are distinct, though they are related.

Discussion and Conclsusion

The goal of this study was to develop a means to determine preservice teachers' acceptance and use of technology. The UTAUT was used as a basis, and the variables from this model were used. In addition, the variables of attitude toward use and self-efficacy were not found to be significant, but were considered likely to be significant in different samples. The 53 items prepared as a result of a literature review were presented to field experts and re-organized according to their views. The analyses revealed seven factors: PE, EE, SI, FC, SE, A, and BI.

A two-phase study was conducted. First, EFA was carried out, and using a cut-off of 0.5 for factor loading, five items were deleted to reduce the scale items to 28. Second, CFA was used to confirm the factors, and 23 items were ultimately used. The instrument was capable of explaining more than half of the variance.

There are certain problems regarding teachers' integration of technology into instructional processes (Yildirim & Goktas, 2007; Bingimlas, 2009; Choy, Wong, & Gao, 2008). This instrument will allow researchers to determine the variables that influence the process of preservice teachers' technology integration.

Teachers can consider this instrument a useful tool to gain a better understanding of the variables that predict technology acceptance among preservice teachers. These data could help to determine new strategies for increasing preservice teachers' acceptance of technology and to improve the process of preservice teachers' technology usage.

The UTAUT-PST instrument could be used as a valid and reliable tool to determine the variables influencing preservice teachers' acceptance and use of technology. In addition, it could provide an integrated approach for determining preservice teachers' acceptance and use of information and communication technologies using UTAUT. Thus, it is thought to be beneficial for researchers in the field.

Appendix A includes the 5-point Likert items ranging from 5 (*completely agree*) to 1 (*completely disagree*).

In conclusion, the UTAUT-PST instrument differs from other measurement tools developed for the UTAUT that are found in the literature. First, it includes the self-efficacy variable, which could reveal different results with some samples. This was tested before, but was not found to be significant in the UTAUT. Second, it differs from other tools because it was prepared for use with preservice teachers.

The Technology Acceptance and Use Model (TAM) differs across cultures, and remains an important field of study (Venkatesh & Zhang, 2010). In this respect, our instrument is important and appropriate for use in the teacher training system in Turkey. While the literature contains several measurement tools developed to predict the variables that influence technology acceptance, this instrument was prepared for preservice teachers based on the UTAUT, and can be used both for determining the current situation and for improving the scientific research related with preservice teachers' use of technology.

References

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, *50*, 179-211.

Bandura, A. (1986) *Social Foundations of Thought and Action: A Social Cognitive Theory*, Prentice Hall, Englewood Cliffs, NJ

Birch, A. & Irvine, V., (2009). Preservice teachers' acceptance of ICT integration in the classroom: Applying the UTAUT model. *Educational Media International, 46*(4), 295-315.

Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin*, *107*(2), 238-246

Bentler,P.M., & Bonnett, D.G. (1980). Significant tests and goodness of fit in the analysis of covariance structure. *Psychological Bulletin*, *88*, 588-606.

Bingimlas, K. (2009). Barriers to the successful integration of ICT in teaching and learning environments: a review of the literature. *Eurasia Journal of Mathematics, Science & Technology Education, 5*(3), 235-245.

Browne, M. W. & Cudeck, R. (1993). Alternative ways of assessing model fit. In: Bollen, K. A. & Long, J. S. (Eds.) *Testing Structural Equation Models*, 136–162. Beverly Hills, CA: Sage

Carmines, E.G., & Mclver, J.P. (1981). Analyzing models with observable variables. In In G. W. Bohrnstedt & E.F.Borgatta (Eds.), *Social measurement*, 65-115.Beverly Hills: Sage.

Cattell, R. B. (1966). The scree test for the number of factors. *Multivariate Behavioral Research, 1,* 629-637.

Choy, D., Wong, A. & Gao, P. (2008). Singapore's pre-service teachers' perspectives in integrating information and communication technology (ICT) during practicum. *Proceedings of the Australian Association for Research in Education (AARE) 2008* International Education Research Conference. Fremantle: AARE.

Compeau, D. R. & Higgins, C. A. (1995). Application of Social Cognitive Theory to Training for Computer Skills. *Information Systems Research, 6*(2), 118-143.

Conrad, A. M. & Munro, D. (2008). Relationships between computer self-efficacy, technology, attitudes and anxiety: development of the computer technology use scale (CTUS). *Journal of Educational Computing Research*, *39* (1), 51-73.

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *M IS Quarterly, 13*(3), 319-339.

Davis, F. D., Bagozzi, R. P. & Warshaw, P. R. (1989). User acceptance of computer technology: A comparison of two theoretical models. *Management Science, 35*(8), 982-1002.

Davis, F. D., Bagozzi, R. P. & Warshaw, P. R. (1992). Extrinsic and intrinsic motivation to use computers in the workplace. *Journal of Applied Social Psychology*, *22*(14), 1111-1132.

Fishbein, M. & Ajzen, I. (1975). *Belief, Attitude, Intention and Behavior: An Introduction to Theory and Research.* Addison-Wesley, Reading, MA.

Haig, B. D. (2005). Exploratory factor analysis, theory generation, and scientific method. *Multivariate Behavioral Research*, *40*, 303–329.

Hair, J. F. Jr., Black, W. C., Babin, B. J., Anderson, R. E. & Tatham, R. L. (2006). *Multivariate data analysis (6th edition*). New Jersey: Prentice-Hall International.

Harrington, D. (2009). *Confirmatory Factor Analysis. (Pocket Guides to Social Work Research Methods Series).* New York: Oxford University Press.

Hu, P.J.H., Clark, T.H.K. & Ma, W.W.K. (2003). Examining Technology Acceptance by School Teachers: a Longitudinal Study. *Information & Management, 41*, 227-241.

Hu, L. & Bentler, P.M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. Structural Equation Modeling, *6*, 1-55.

Kaiser, H. F. (1960). The application of electronic computers to factor analysis. *Educational and Psychological Measurement*, *20*, 141-151.

Kay, R.H. (1993). An exploration of theoretical approach to assessing computer attitudes: The Computer Attitude Measure (CAM). *Computers in Human Behavior*, *9*, 371-386.

Kline, R. B. (2005). *Principles and practice of structural equation modeling (2nd ed.).* New York: Guilford Press.

Legris, P., Ingham, J. & Collerette, P. (2003). Why do people use information technology? A critical review of the technology acceptance model. Information & Management, *40* (3), 191-204.

Lim, C,P. (2007). Effective integration of ICT in Singapore schools: pedagogical and policy implications. *Education Technology Research & Development*, *55*(1), 83-116.

Loyd, B.H. & Gressard, C. (1985). The reliability and validity of an instrument for the assessment of computer attitudes. *Educational and Psychological Measurement*, 45 (4), 903-908

Ma, W.W., Andersson, R. & Streith, K.O. (2005). Examining user acceptance of computer technology: An empirical study of student teachers. *Journal of Computer Assisted Learning, 21*(6), 387-395.

Nickell, G.S. & Pinto, J.N. (1986). The computer attitude scale. *Computers in Human Behavior*, *2*, 301-306.

O'Conner, B. P. (2000). SPSS and SAS programs for determining the number of components using parallel analysis and Velicer's MAP test. *Behavior Research Methods, Instruments and Computers, 32*(3), 396-402.

Pynoo, B., Devolder, P., Tondeur, J., Braak, J., Duyck, W. & Duyck, P. (2011). Predicting Secondary School Teachers' Acceptance and Use of A Digital Learning Environment: A Cross-sectional Study. *Computers in Human Behavior*, *27*, 568-575

Raykov, T., & Marcoulides, G.A. (2008). *An introduction to applied multivariate analysis. Lawrence Erlbaum Associates*, Inc. Publishers

Rogers, E. (1995). *Diffusion of Innovations*, Free Press, New York.

Schumacker, R. E. & Lomax, R. G. (2010). *A beginner's guide to structural equation modeling (3rd ed.).* New York: Routledge

Steiger, J.H. (1990). Structural model evaluation and modification: an interval estimation approach. *Multivariate Behavioral Research*, *25*, 173–180.

Teo, T. (2008). Pre-service teachers' attitude towards computer use: a Singapore survey. *Australasian Journal of Educational Technology*, 24, 413-424.

Teo, T. (2009). Modeling Technology acceptance in education: A study of pre-service teachers. *Computers & Education*, *52*, 302-312

Teo, T. (2009). Evaluating the Intention to use technology among student teachers: a structural equation modeling approach. *International Journal of Technology in Teaching and Learning, 5* (2), 106-118

Teo, T. (2010). Measuring the effect of gender on computer attitudes among pre-service teachers: A multiple indicators, multiple causes (MIMIC) modeling. *Campus-Wide Information Systems, 27*(4), pp.227 - 239

Teo, T., Lee, C.B. & Chai, C.S. (2008). Understanding preservice teacher' computer attitudes: Applying and extending the Technology Acceptance Model. *Journal of Computer Assisted Learning*, *24*(2), 128-143.

Teo, T., Luan, S. W., & Sing, C.C. (2008). A cross-cultural examination of the intention to use technology between Singaporean and Malaysian pre-service teachers: an application of the Technology Acceptance Model (TAM). *Educational Technology & Society, 11*(4): 265-280

Teo, T., Ursavaş, Ö.F. & Bahçekapılı, E. (2010). Efficacy of the technology acceptance model to explain pre-service teachers' intention to use technology A Turkish Study, *Campus-Wide Information Systems 28*(2), 93 – 101.

Triandis,H . C. (1977), *Interpersonal Behavior*, Brooke/ Cole, Monterey, CA.

Venkatesh, V. (2000). Determinants of perceived ease of use: integrating perceived behavioral control, computer anxiety and enjoyment into the technology acceptance model, *Information Systems Research, 11*(4), 342- 365.

Venkatesh, V., Morris, M., Davis, G. & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, *27*(3), 425-478.

Venkatesh, V. & Zhang, X. (2010). Unified theory of acceptance and use of technology: U.S. vs. China. *Journal of Global Information Technology Management*, *13*(1), 5-27.

Yildirim, Z. & Goktas, Y. (2007). ICT Integration in primary education and teacher education programs in turkey and in EU countries, *Eğitim ve Bilim, 32*(143), 55-67.

Öğretmen Adaylarının Bilgi ve İletişim Teknolojileri Kabul ve Kullanımlarına Yönelik Ölçek Geliştirme Çalışması: UTAUT-PST

Atıf:

Kabakçı-Yurdakul, I., Ursavaş, Ö.F & Becit-İşçitürk, G. (2014). An integrated approach for preservice teachers' acceptance and use of technology: UTAUT-PST Scale. *Eurasian Journal of Educational Research*, 55, 21-36. http://dx.doi.org/10.14689/ejer.2014.55.2

Özet

Problem Durumu: Bireylerin teknoloji kabul ve kullanımlarını etkileyen değişkenlerin belirlenmesi alanyazında önemli bir araştırma alanını oluşturmaktadır. Teknoloji Kabul ve Kullanım Birleştirilmiş Modeli (TKKBM) bireylerin teknoloji kabul ve kullanımını açıklamada oldukça başarılı bir modeldir. Bununla birlikte, TTKBM halen yeni ve az denenmiş bir modeldir. Alanyazın incelendiğinde görülmektedir ki; öğretmen adaylarının teknoloji kabul ve kullanımlarını etkileyen değişkenleri belirlemeye yönelik olarak hazırlanmış ölçme araçları sınırlı sayıdadır. Bu bağlamda özel olarak öğretmenler ya da öğretmen adayları için Teknoloji Kabul ve Kullanım Birleştirilmiş Modeli'nin temel alındığı bir ölçeğin geliştirilmesi önem kazanmaktadır.

Araştırmanın Amacı: Bu çalışmada öğretmen adaylarının teknoloji kabul ve kullanımlarını etkileyen değişkenleri belirlemeye yönelik bir ölçek geliştirilmesi amaçlanmıştır. Bu bağlamda Teknoloji Kabul ve Kullanım Birleştirilmiş Modeli temel alınmış ve bu modelde incelenen değişkenler kullanılmıştır. Bununla birlikte, modelde anlamlı bulunmayan, ama farklı örneklemlerde anlamlı çıkabileceği düşünülen özyeterlik ve kullanıma karşı tutum değişkenlerine de yer verilmiştir.

Araştırmanın Yöntemi: Araştırma iki farklı üniversitenin farklı programlarında eğitim görmekte olan 579 son sınıf öğretmen adayının katılımı ile gerçekleştirilmiştir. Öğretmen olmaya en yakın grup olduklarından son sınıf öğretmen adayları araştırmaya dahil edilmiştir. Alanyazın taraması doğrultusunda öğretmen adaylarının teknoloji kabul ve kullanımlarını açıklamayı amaçlayan bileşenlere

yönelik olarak Venkatesh vd. (2003)'ten uyarlanan maddeler kullanılmıştır. Ölçek geliştirme sürecinde adım adım ilerleyen sistematik bir yaklaşım izlenmiştir. Bu bağlamda öncelikle veri seti ikiye bölünmüştür (n=170-409). 5'li Likert tipinde hazırlanan ölçme aracında yer alan ölçme maddeleri arasındaki muhtemel ilişkiyi ortaya çıkarma amacıyla veriler ilk olarak Açıklayıcı Faktör Analizine (AFA) tabi tutulmuştur. Araştırmanın ilk bölümünde kullanılan veri seti n=170 öğretmen adayından (119 kadın, 51 erkek) oluşmaktadır. 53 maddeden oluşan ilk veri seti ile betimleyici istatistikler ve açımlayıcı faktör analizi yapılmış böylece öğretmen adaylarının teknoloji kabul ve kullanımını yordayan değişkenlerin hangi faktörler altında toplandığı belirlenmeye çalışılmıştır. Ölçekte yer alan her bir maddeye ilişkin ortalama puanların 2.09 ve 4.35 arasında değiştiği ayrıca ölçme maddelerine verilen cevaplara ilişkin standart sapmaların 0.80 ve 1.19 arasında değiştiği hesaplanmıştır. Normallik varsayımlarından geçirilen verilerin ortalama etrafında dağıldığı normal dağılım gösterdiği tespit edilmiştir. Faktör analiz sonucunda 7 faktörden oluşan ölçme aracı ayrıca çizgi grafiği ve paralel analize tabi tutulmuştur. Bu analizler sonucunda ölçme maddelerinin toplamda varyansın %59.49'unu açıkladığı hesaplanmıştır. Araştırma kapsamında elde edilen bu ölçme aracının mevcut faktör yapısının doğrulanması amacıyla seçilen ikinci bir örneklem üzerinde doğrulayıcı faktör analizi yapılmıştır. Çalışma 2 olarak adlandırılan bu aşamaya 409 öğretmen adayı (271 kadın, 138 erkek) dahil edilmiştir. Çok değişkenli normallik varsayımın test edildiği modelde ayrıca ölçme modelinin sağlanmasına ilişkin pek çok uyum iyiliği indeksi kullanılmıştır. Modelin farklı faktör yapılarında da testi ayrıca sağlanmıştır. Bu çalışmanın sonucunda, öğretmen adaylarının bilgi ve iletişim teknolojileri kabul ve kullanımını etkileyen değişkenleri belirlemeye yönelik yenilikçi bir ölçek olan UTAUT-PST geliştirilmiştir.

Araştırmanın Bulguları: Bu çalışmanın sonucunda, öğretmen adaylarının bilgi ve iletişim teknolojileri kabul ve kullanımını etkileyen değişkenleri belirlemeye yönelik yenilikçi bir ölçek olan UTAUT-PST geliştirilmiştir. UTAUT-PST 2 bölümden oluşmaktadır. İlk bölümde demografik bilgilerin yer aldığı 8 madde ikinci bölümde ise 5'li Likert tipi 23 madde bulunmaktadır ve bu maddeler Performans Beklentisi, Çaba Beklentisi, Sosyal Etki, Kolaylaştırıcı Durumlar, Özyeterlik, Kullanıma Karşı Tutum ve Davranışsal Niyet olmak üzere 7 faktör altında toplanmaktadır.

Araştırmanın Sonuçları ve Öneriler: Teknoloji Kabul ve Kullanım Birleştirilmiş Modelinin farklı kültürlerle çalışılması alanyazında önemini korumaktadır. Bu bağlamda Türkiye'deki koşullara ve öğretmen yetiştirme sistemine uygun olarak hazırlanan bu ölçek önem kazanmaktadır. Bireylerin teknoloji kabul ve kullanımlarını etkileyebileceği düşünülen değişkenlerin modele katılması ile güçlendirilen ölçek mevcut durumun belirlenmesi ve sürecin iyileştirilmesine katkı sağlaması açısından önemlidir. Benzer şekilde ölçeğin öğretmenler için de uyarlaması yapılabilir ve farklı örneklemlerde uygulandığı çalışmalar desenlenebilir.

Anahtar Kelimeler: Teknoloji kabul ve kullanımı, teknoloji kabul ve kullanım birleştirilmiş modeli, öğretmen adayı, ölçek

Eurasian Journal of Educational Research, Issue 55, 2014, 37-54.

A factor Analysis on Teamwork Performance -an Empirical Study of Inter-instituted Collaboration

Mingchang WU*

Ya-Hsueh CHEN**

Suggested Citation:

Wu, M.C. & Chen, Y.H. (2014). A factor analysis on teamwork performance - an empirical study of inter-instituted collaboration. *Eurasian Journal of Educational Research*, 55, 37-54. http://dx.doi.org/ 10.14689/ejer.2014.55.3

Abstract

Problem Statement: Inter-instituted collaboration has attracted broad attention for educational quality improvement in the last decade. The team performance of these innovative team projects received foremost attention, particularly with knowledge-sharing, emotional intelligence, and team conflicts.

Purpose of Study: The purpose of the study was to empirically investigate the relationships among these three factors. The sample of this study was 178 professors, involving collaboration projects from twenty vocational institutes at the higher-education level.

Methods: The collected data were statistically analyzed using SPSS 17.0 for Windows and LISREL 8.70 for Confirmatory Factor Analysis (CFA) and Structural Equation Modeling (SEM). Also, the study undertook the Maximum Likelihood Estimation to analyze the linear relationships among the three major variables.

Results: The statistical analysis result indicated that knowledge-sharing created a positive effect on team performance. On the other hand, team conflict caused a negative effect on team performance. Emotional intelligence did not have any significant direct effect on team performance but played a moderating role.

Conclusions and Recommendations: This study concluded that vocational institutes are academic organizations where knowledge-sharing is a crucial mission and where strategies are put into place to fulfill that mission; team conflict should be avoided for better team performance.

* Professor, Graduate School of Technological & Vocational Education, National Yunlin University of Science and Technology, Taiwan. wumc@yuntech.edu.tw

** Doctor, Lunghwa University of Science and Technology, Taiwan. ya072399@ms42.hinet.net.

This study finally proposed several suggestions for improved team performance.

Keywords: Knowledge-sharing, emotional intelligence, team conflict, team performance, collaboration

Introduction

In this era of knowledge-based economy, it becomes increasingly important for higher-education institutes to create extensive educational resources and reinforce the sharing mechanism for a better quality of education (Pausits & Pellert, 2009). In the last decades especially, the vocational and technical institutes at the higher education level in Taiwan have rapidly grown from 67 institutes in 2001 to 77 institutes in 2010 (Ministry of Education, 2011). This rapid growth in terms of institute and student quantities consequently attenuated educational financial resources and threatened educational quality. This superficially prosperous but truthfully detrimental educational trend instigated the vigilance of university administrators to integrate the existent educational resources for a better educational quality. A series of inter-instituted collaboration policies and projects was proposed among the vocational institutes at the higher-education level to create the greatest benefit for students' learning achievement from the limited resources.

The quality of this inter-instituted collaboration and team performance highly relied on the function of knowledge-sharing in the collaboration team (Louis, 2006; Mohammadi, Yeganeh, & Rad, 2010). The team performance also reflected the collaboration attitude, competence, and culture behind each participant institute and team member. Like any other professional community, team conflicts somehow inevitably exist in participant institutes and even among faculty members with a high social status. These team conflicts, such as competition and varieties, usually have destructive effects on the interaction quality and collaboration achievement (Jehn & Chatman, 2000). In addition, participants' emotional intelligence is an important factor dominating team performance during the growth processes (Birx, Lasala, & Edd, 2011).

However, due to the rise of conflicts, the question is asked whether the emotional intelligence of faculty members, who possess a high social status and well-educated disposition, influences team performance the same as any other group of members. Does a group's emotional intelligence affect team performance through other mediator factors, such knowledge-sharing and team conflict? What are the relationships among knowledge-sharing, team members' emotional intelligence, team conflict, and team performance? The main purpose of this research was to explore the relationships among the factors of knowledge-sharing, emotional intelligence, and team conflicts concerning team performance during the processes of undertaking inter-instituted collaboration projects.

Literature Review

The inter-instituted and interdisciplinary academic teams have attracted increasing attention in recent years to undertake sophisticated and innovative research for the development of advanced skills. In the processes of team work, the collaboration heavily relied on the effective coordination of participants from various fields and dispositions, as well as cooperative strategies (Hoegl & Gemuenden, 2001). Inter-instituted collaboration mainly integrated institutes with different backgrounds and professional expertise; in this inter-instituted team, conflicts are inevitable, even though the team was established for knowledge-sharing with the major purpose of cooperatively solving mutual problems for better team performance. When any faculty member joins the team, his\her supportive attitude might create a positive emotional atmosphere, whereas an obstructive attitude might create negative emotions. Both types of emotion would influence team performance (Jordan, Field, & Armenakis, 2002).

Knowledge-Sharing

Vocational and technical institutes at the higher-educational level purport to deliver, apply, and create knowledge for youngsters to succeed in the workplace; knowledge-sharing is therefore a major purpose in the institutes as a matter of course and a crucial strategy to improve academic achievement and faculty performances (Senge, 1998). With the current economy being knowledge-based, knowledge-sharing has become increasingly important due to the following: (1) Intangible products, such as inventive ideas, processes, and information are taking a growing share of global trade from the traditional, tangible goods of the manufacturing economy; (2) Increasingly, the only sustainable competitive advantage is continuous innovation; (3) Expertise learnt and applied in one part of the organization should be equivalently utilized in another (Argote & Ingram, 2000; Gurteen, 1999).

In faculty teamwork for educational improvement, each faculty member is encouraged to provide his\her professional expertise to reach the best team achievement. They are recompensed for this collaboration (Nancy, 2000; Wang, 2004). While working on cooperative projects, each participant faculty member reciprocally achieves better competencies from other team members through knowledge-sharing processes. Knowledge-sharing, therefore, is recognized as a crucial factor in benefiting organization learning, knowledge creation, and team performance (Bartol & Srivastava, 2002).

The effectiveness and efficiency of knowledge-sharing is highly dependent on the internal and external culture of the organization team, such as team members' cognition and emotional intelligence, their communication mechanism in team work, and their knowledge application to the organizational mission (Goh, 2002; Gurteen, 1999). The quality and benefits of knowledge-sharing seem to rely on team members' emotional intelligence, collaborative culture, and team conflicts (Cummings, 2002; Wu, Ho, Lin, Chang, & Chen, 2013). A question for research is whether knowledge-sharing in an inter-instituted team, consisting of a well-educated faculty with elite

personalities and socio-economic status, would play a similar role and be affected by similar factors as knowledge-sharing in ordinary teams.

Emotional Intelligence

Emotional Intelligence (EI) is a skill or ability or self-perceived ability to identify, assess, and control the emotions of oneself, others, and groups. Salovey and Mayer (1997) also declaimed EI as the ability to perceive emotion, integrate emotions into the thought process, understand emotions and regulate emotions to promote personal growth. To be more specific, emotional intelligence includes two important components: (1) Regulation of emotions (ROE), which relates to individuals' ability to regulate their emotions, thus enabling a more rapid recovery from an emotional climax or distress; and (2) Use of emotions (UOE), which relates to individuals' ability to make use of their emotions by directing them toward constructive activities and personal performance (Davies, Stankov, & Roberts, 1998). In other words, EI represents the ability to deal with personal emotions for intra-personal and inter-personal relationships. EI is the subset of social intelligence to monitor one's own and others' feelings and emotions, to adjust emotions for favorable interpretation, and to express personal EI with socially acceptable and even respected behaviors.

Emotional intelligence is recognized as an inherent trait to identify, control, and present personal emotions while individuals encounter outside stimuli (Wu & Zheng, 2003). Emotional intelligence reflects the individual personality and affects interpersonal relationships. Several studies declaimed that superior emotional intelligence included some concrete abilities, as follows: (1) to appropriately identify, evaluate, and deliver personal emotions (Salovey & Mayer, 1997); (2) to integrate and manage personal emotions in order to facilitate better-quality thinking skills (Jordan & Troth, 2011); (3) to be aware of others' emotions for better management of personal relationships (Zhang & Wang, 2011); and (4) to exploit various styles of emotions to facilitate problem-solving efficiency (Wu et al., 2003).

In the team activity, members' emotions and potential emotional traits will affect the organization and other members, including the team climate. The relationships among the team members consequently influence team spirit and job performance (Rosete & Ciarrochi, 2005). Synthetically, team members' emotional intelligence usually constructs an organizational culture and influences team performance.

Team conflict

Studies revealed that team performance highly relied on team cohesion, mutual trust, and reciprocal support among team members. These crucial factors ensure team work to reach high performance and ultimate success (Plowman & McDonough, 2010). Team conflict usually results from the inner discord of team members and is expressed in outer disharmony or the underachievement of team performance. Team conflict could be provoked by team members' personal divergence, such as cognition, roles, and ideology, and interpersonal (even inter-group) relationships. That is, there are two major types of team-conflict factors, one resulting from interpersonal relationships within the group and another resulting from tasks developed and/or required by the team. In this study, the team conflicts

include task conflicts and relationship conflicts (Jehn & Chatman, 2000). Both conflicts create unfavorable interaction, information delivery, task cooperation, and substantive supports among team members, as well as a lack of sympathy for team goals. Those indifferent behaviors and attitudes degrade team performance (DeDreu & Weingart, 2003).

The team conflict discussed in this study focused on the hindrance of team cohesion and performance. Plowman and McDonough (2010) concluded that conflicting team members could not trust each other and would tend to limit communication for self-protection. Members only made an effort at self-performance but not toward team goals; minor discussions on initiative ideas would be initiated among team members. Obviously, unconstructive team conflict would limit knowledge-sharing and innovation inspiration for meaningless self-protection, which would certainly diminish team performance.

Team performance

Currently, this society highly values cooperative relationships (both the relationships of competition and cooperation) among institutes for the assurance of educational quality and improvement. Vocational institutes at the higher-educational level are therefore dedicated to inter-instituted collaboration projects for resource sharing and reciprocal supports. These projects place a high regard on team performance in this innovative policy.

Team performance is usually defined as the extent to which a team can reach the predictable goal or completely reach the expected quality of a task (Faraj & Sproull, 2000). Studies revealed several factors regarding team performance, which included the following: (1) role identity and commitment of each member (Senior, 1997), (2) team cohesiveness, (3) communication mechanism and information-sharing quality (Mesmer-Magnus & DeChurch, 2009), (4) homogeneity of members to team goals, and (5) consensus among team members toward goal approaches (Plowman & McDonough, 2010). Therefore, team performance is often improved. In brief, team performances based on the effects of teamwork strongly support the notion that effective information-sharing between team members increases both performance and productivity through interaction (Mesmer-Magnus et al., 2009).

Another factor manipulating team performance is team members' emotional intelligence (Rapisarda, 2002); in the research of Davies, Stankov, and Roberts (1998), it was revealed that individuals with consistent and pleasant emotional intelligence would be beneficial to team cohesion and performance.

Theoretic framework

This study was designed to explore the relationships among the factors of team performance in inter-instituted collaboration projects in Taiwan. The aforementioned literature review seemingly concluded that team performance could be affected by knowledge-sharing (Plowman & McDonough, 2010); that the knowledge-sharing mechanism and quality varied due to team members' emotional intelligence (Mesmer-Magnus et al.,2009); and that team members' EI management and

expression-quality might provoke team conflict and consequently determinate team performance (DeDreu & Weingart, 2003; Jehn & Chatman, 2000). Because of the interactive relationships among these factors, this study proposed the following hypotheses:

H1: Emotional intelligence would cause a significantly positive effect on knowledge-sharing (H1-1); emotional intelligence would also have a significantly positive effect on team performance through knowledge-sharing as a moderating factor (H1-2).

H2: Emotional intelligence would create a significantly negative effect on team conflict (H2-1); emotional intelligence would also create a significantly negative effect on team performance though team conflict as a moderating factor (H2-2).

H3: Emotional intelligence would create a significantly positive effect on team performance.

H4: Knowledge-sharing would create a significantly positive effect on team performance.

H5: Team conflict would create a significantly negative effect on team performance.

Methodology

Consistent with the research background and purpose, this study proposed the conceptual framework to examine the linear relationships among the major variables, including knowledge-sharing, emotional intelligence, team conflict, and team performance.

Research population and sample

The population was composed of the faculty members of 22 vocational institutes at the higher-educational level located in Central Taiwan who participated in the inter-instituted collaboration projects (N=250). The survey questionnaires were delivered to all faculty members who participated the collaboration projects. After three follow-up emails to the non-respondents, a total of 196 questionnaires were returned (approximately 71.2% response rate), including 18 incomplete respondents; thus, 178 questionnaires, as a sample of this study, were finally analyzed for this study.

The analysis result indicated a high percent of sampled participants aged between 41 and 50 (N=123, 69.1%) and 55 of faculty members (30.9%) aged 31 to 40 (Table 1). These project participants included 85 Assistant Professors (47.7%), 60 Associate Professors (33.7%), and 33 Full Professors (18.5%). These participants had various periods of experience involving these inter-instituted collaboration projects (Table 1).

Table 1

Backgrounds of Sampled Participants

Variables	***Level***	***N***	***Percent (%)***
Age	30-40	55	30.9
	41-50	67	37.6
	51 above	56	31.5
Gender	Male	97	54.5
	Female	81	45.5
Position	Professor	33	18.5
	Associate Professor	60	33.7
	Assistant Professor	85	47.8
Participating Experiences (years)	1-2	67	37.6
	2-3	60	33.7
	over 3	51	28.7

Research instrument

The questionnaire used in this study consisted of four domains; each domain was surveyed using an adapted questionnaire, revised from previous studies addressing similar issues to this one. This complete questionnaire included the following: (1) a knowledge-sharing domain using six items revised from the questionnaire developed by Van den Hooff and Van Weenen (2004); (2) an emotional-intelligence domain using eight items revised from the questionnaire developed by Mayer & Geher (1996); (3) a team-conflict domain using four items adapted from Jehn and Chatman's research (2000); and (4) a team-performance domain using eight items adapted from the findings of Edmondson (1999). This 26-item questionnaire used a 5-point Likert Scale (5 = strongly agree; 1 = strongly disagree). The reliabilities of this questionnaire were approved by means of the Cronbach's α in emotional intelligence (α=0.93), knowledge-sharing (α=0.87), team conflict (α=0.87), and team performance (α= 0.93; Table 2). All Cronbach's α values exceeded the benchmark of 0.70, indicating that the instrument possessed an acceptable internal consistency (Nunnally & Bernstein, 1994).

Data analyses

The collected data were statistically analyzed using SPSS 17.0 for Windows and LISREL 8.70 for Confirmatory Factor Analysis (CFA) and Structural Equation Modeling (SEM). Also, the study undertook the Maximum Likelihood Estimation to analyze the linear relationships among the major four variables. This study also examined each hypothesis for the purpose of research to determine the direction and significance of the relationship structure.

Results

The Results of Measurement Model Analyses

The data were first analyzed to ensure the instrument quality by Convergent validity and Discriminant validity. The four major indices were then identified, including factor loading, parameter estimation, average variance extracted, and composite reliability, proposed by Bagozzi & Yi (1988).

The instrument quality should be ensured by the acceptable factor loadings above 0.50 and the significant t-value (Bagozzi & Yi, 1988; Hair, Black, Babin, & Anderson, 2009). The factor loadings tested in this instrument were between 0.58 and 0.94 with the t-values higher than 1.96 and within a significance level of 5% (Table 2); thus, these values constituted evidence of the convergent validity. This data analysis indicated that this measurement possessed an acceptable convergent validity. The composite reliability in acceptable latent variables must reach 0.6 and above (Fornell & Larcker, 1981). The internal reliabilities of latent variables were also tested to be acceptable (within 0.86 to 0.93), reaching the standard of above 0.60 (Fornell & Larcker, 1981).

Moreover, convergent and discriminant validities were evaluated using the average variance extracted. On the basis of the test's criterion, each value of average variances extracted should exceed 0.50 (Bagozzi & Yi, 1988). All of the average variances extracted for emotional intelligence (0.61), knowledge-sharing (0.54), team conflict (0.61), and team performance (0.61) exceeded the threshold of 0.50, which indicates that this study had adequate levels of convergent and discriminant validity.

The analysis results of Structure Equation Modeling (SEM)

The goodness-of-fit of the structural model can be evaluated using many statistics of the SEM structural model. The Chi-square (χ^2) test, Normed Fit Index (NFI), non-Normed Fit Index (NNFI), Comparative-Fit Index (CFI), Incremental Fit Index (IFI), and Root Mean Square Error of Approximation (RMSEA) have been applied to the evaluated model fitness (Jöreskog & Sörbom, 1996). In this study, except for the χ^2 test (χ^2=761.48, df=289, p<0.001) and RMSEA (0.09) that could not determine the goodness-of-fit of the structural model (χ^2=761.48, df=289, p<0.001), other statistics such as χ^2/df (2.63), NFI (0.91), NNFI (0.93), CFI (0.94), and IFI (0.94), all indicated an acceptable model fitness for the structural model. This model, hence, could appropriately explain the linear relationship among the lurking variables in this study, such as emotional intelligence, knowledge-sharing, team conflict, and team performance (Jöreskog & Sörbom, 1996).

Table 2

Factor Loadings、t-Value、AVE、and CR

Latent Variables	*Measurement*	*Factor Loadings*	*t-Value*	*AVE**	*CR***
Emotion Intelligence (EI)	EI 1	0.88	14.58	0.61	0.93
	EI 2	0.81	12.75		
	EI 3	0.74	11.16		
	EI 4	0.82	13.12		
	EI 5	0.75	11.55		
	EI 6	0.77	11.83		
	EI 7	0.67	9.80		
	EI 8	0.81	12.83		
Knowledge-Sharing (KS)	KS 1	0.60	8.41	0.54	0.87
	KS 2	0.67	9.61		
	KS 3	0.70	10.17		
	KS 4	0.72	10.48		
	KS 5	0.86	13.55		
	KS 6	0.83	12.98		
Team Conflict (TC)	TC 1	0.68	9.98	0.61	0.86
	TC 2	0.94	15.92		
	TC 3	0.88	14.43		
	TC 4	0.58	8.12		
Team Performance (TP)	TP1	0.84	13.77	0.61	0.93
	TP2	0.92	15.98		
	TP3	0.93	16.25		
	TP4	0.91	15.73		
	TP5	0.70	10.51		
	TP6	0.59	8.51		
	TP7	0.64	9.38		
	TP8	0.65	9.59		

*AVE: Average variance extracted=$(\Sigma\lambda^2) / [\Sigma\lambda^2 + \Sigma(\theta)]$

**CR: Composite reliability= $(\Sigma\lambda)^2 / [(\Sigma\lambda)^2 + \Sigma(\theta)]$ (Jöreskog & Sörbom, 1996)

Table 3

Covariance Matrix

	EI	***KS***	***TC***	***TP***
EI	0.78*			
KS	0.28	0.73*		
TC	-0.21	-0.41	0.78*	
TP	0.31	0.64	-0.67	0.78*

*A diagonal line shows the square of average variance extracted.

The causal relationships among variables were constructed and verified through the SEM (Table 4, Figure. 1). The SEM analysis obtained the following results: (1) Emotional intelligence created a significantly positive effect on knowledge-sharing (γ_{11}=0.29, t=3.31, p<0.001); emotional intelligence also significantly created an indirect positive effect on team performance through knowledge-sharing (0.29 × 0.45=0.13, p<0.01). Hypothesis 1 was thus accepted. Knowledge-sharing was proved to play the mediator between emotional intelligence and team performance. (2) Emotional intelligence created a significantly negative effect on team conflict (γ_{21}= -0.22, t= -2.68, p<0.01); emotional intelligence also significantly created a negative but indirect effect, through team conflict, on team performance (-0.22) × (-0.52) =0.11, p<0.01). Thus, Hypothesis 2 was confirmed, and it was concluded that team conflict acted as mediator between emotional intelligence and team performance. (3) The effect of emotional intelligence on team performance was not significant (γ_{31}=0.10, t=1.55, p>0.05); thus, Hypothesis 3 was rejected. It meant emotional intelligence would not directly affect team performance. (4) The relationship between knowledge-sharing and team performance was significantly and positively related (β_{31}=0.45, t=5.60, p<0.001), confirming Hypothesis 4. (5) Team conflict was also proved to possess a negative effect on team performance (β_{32}=-0.52, t=-6.77, p<0.001); thus, Hypothesis 5 was confirmed.

Table 4

The Path Coefficients of SEM and t-value

Hypothesis	***Route Relationship***	***Path Coefficient***	***t-Value***	***Results***
$H_{1\text{-}1}$	EI→ KS	0.29	3.31	confirmed
$H_{1\text{-}2}$	EI→KS→TP	0.13	2.23	confirmed
$H_{2\text{-}1}$	EI→TC	-0.22	-2.68	confirmed
$H_{2\text{-}2}$	EI→TC→TP	0.11	2.03	confirmed
H_3	EI→TP	0.10	1.55	rejected
H_4	KS→TP	0.45	5.60	confirmed
H_5	TC→TP	-0.52	-6.77	confirmed

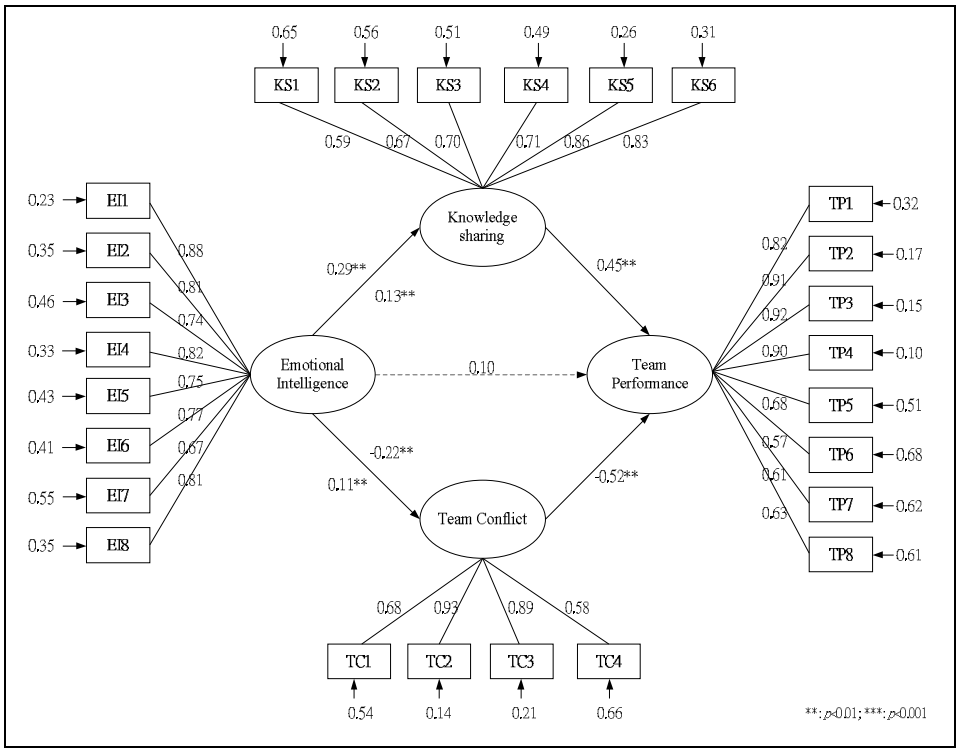


Figure 1. Structure model

Discussion and Conclusion

This study mainly investigated factor effects on the team performance of faculty members while they were conducting inter-instituted collaboration projects. The factors proposed in this higher-education setting included knowledge-sharing, emotional intelligence, and team conflict. The research findings provoked some discussion issues as follows:

(1) Knowledge-sharing played an important role among faculty members in higher-education settings.

This study verified that knowledge-sharing had a significant effect on team performance in higher-education settings, just like the research findings of Nancy (2000). This finding seemingly reflected that faculty members, even belonging to competitive organizations, graciously appreciated the knowledge-sharing mechanism in collaboration projects for the enhancement of both their personal academic achievement and team performance. Similar to the findings of Hoegl and Gemuenden (2001), this study reconfirmed that faculty members highly appraised both intra- and inter-instituted knowledge-sharing.

(2) Team conflict in inter-instituted collaboration significantly diminished team performance.

The result of the study revealed that team conflict among participant institutes significantly diminished the team performances, just like the similar conclusion of DeDreu and Weingart's research (2003). This explicit finding confirmed that team conflict had brutal effects on team performance, no matter the team members' educational background and/or socio-economic status. Team members encountering team conflicts easily aroused negative emotions such as distrust, anxiety, and self-protection (Chen & Tjosvold, 2002). These reactions, due to negative emotions, consequently instigated unfavorable information-interpretation, poor communication, anxious interpersonal relationships, and even hostility among team members (Chen et al., 2002; Das, 2006). It is reasonable to predict that people in the midst of team conflict usually conceal their ideas, loose enthusiasm, restrain dedication, and finally demote team performance (Jehn & Chatman, 2000). This study reveals that team conflict among faculty members who possessed a high intention to pursue personal academic achievement and reputation also created a negative effect on the team performance.

(3) Emotion intelligence acted as an antecedent variable; both knowledge-sharing and team conflict played an important role in moderating factors between knowledge-sharing and team performance.

A. This study verified that team members' emotional intelligence significantly affected team members' intention and dedication to share knowledge for better team performance.

This result was similar to those conclusions of Nancy's (2000) and Cummings' (2002) research projects, which all revealed that team members' recognition and intentions were the dominant factor of promptly delivering immediate information and sharing expertise to team partners for achievement enhancement. As Rosete and Ciarrochi (2005) concluded, sociable team members with a high quality of emotional intelligence usually developed a pleasant team atmosphere, which favorably encouraged members to share their work experience and on-going information, and to achieve comparatively high performance.

B. Inferior emotional intelligence caused negative team conflicts.

This study obtained similar results as those conclusions of Chen and Tjosvold (2002) and Jordan and Troth (2011), whose studies all revealed that the inferior emotional intelligence of team members potentially caused team conflict. In this inter-instituted collaboration team, participants with inferior emotional intelligence inappropriately adjusted and managed their emotions, and then initiated intra- and inter-instituted conflicts; finally, this conflict instigated brutal destruction to team performances (Jordan, Field, & Armenakis, 2002).

C. The emotional intelligence of university faculty created significant effects on the team performance; their effects differed from that of other group members possibly due to their faculty's highly academic cultivation and socio-economic status.

Attention should be paid to the fact that the faculty's emotional intelligence did not have a significant effect on the team performance of the inter-instituted collaboration. This result was completely different from that of Van den Hooff et al. (2004), who showed that participants' emotional intelligence presented a highly significant relationship to team performance. In this study, faculty members' backgrounds of high academic achievement and elites' socio-economic status--which were approved to promote team identity (Ostrove & Cole, 2003)--might miscarry the direct effects of emotional intelligence on team performance. In other words, the emotional intelligence of university faculty members could only create negative effects on the knowledge-sharing mechanism but not on team performance directly (rather, indirectly). Likewise, the faculty members' emotional intelligence also created a significant negative effect on team conflict, which consequently created a significant negative effect on team performance. This factor--emotional intelligence--created indirect effects on team performance in faculty members' relationship mechanism (Black, Crest, & Volland, 2001; Louis, 2006). This phenomenon might reflect the unique cultural characteristics of university faculty, a type of social elites who could well manage or just suppress emotion and highly valued professional achievement, considering their high socio-economic status and high professional identity (Mohammadi, Yeganeh, & Rad, 2010). However, their thinking styles and behavior, nevertheless, were as inevitably influenced by emotional intelligence as any other human being (Rosete & Ciarrochi, 2005). Knowledge-sharing mechanisms and team conflict were consequently influenced as moderating factors to influence team performance (Clercq, Dimov, & Thongpapanl, 2010; Fleming & Thompson, 2004).

Synthetically, the emotional intelligence of faculty members seemed not to create significant effects on team performance due to the special community culture of higher-educational campuses, such as faculty members' academic achievement and social status (Perry & Marsh, 2003). However, emotional intelligence played the role of antecedent in team conflict, resulting in significant effects on team performance.

Conclusion

This study was conducted to analyze the factors of team performance of inter-instituted collaboration. Particularly, this study emphasized the relationships among several factors to team performance, including faculty members' emotional intelligence, knowledge-sharing, and team conflict. The following four conclusions were drawn on the bases of research findings:

(1) Knowledge-sharing among faculty members at the higher-education level was proved to be a crucial factor dominating team performance in inter-instituted collaboration. Similar to any other organization, knowledge-sharing in higher-education settings is the major mission of institutes and the major strategy to implementing this mission.

(2) Team conflict existing within inter-instituted community created direct but negative effects on faculty members' team performance in collaboration projects. As in any other community, team conflict within a faculty

community at a higher-education level significantly destroyed team performance, even among faculty members who possessed high academic backgrounds and highly valued achievement.

(3) The emotional intelligence of faculty members at higher-education institutes, unlike that of any other type of team member, was proved to not create any significant effect on team performance. This could reflect that these well-educated faculty members with a high socio-economic status and self-identity might well manage and appropriately express their emotion taking the elite's dignity and team privilege into account. This consideration for the sake of the general good could be a part of faculty members' sense of professional morality and benefit to team performance (Porter, 2007).

(4) Emotion intelligence was proved to play the important role of antecedent to team performance in the relationship structure for inter-instituted faculty collaboration. This antecedent variable (emotional intelligence) drove knowledge-sharing and team conflict, as moderating factors which indirectly influenced the team performance. This fact might reflect a part of faculty cultural traits that classify faculty with achievement. Social elites could easily manage their EQs for team performance, but their inferior EQs still circuitously diminished team performance through knowledge-sharing and team conflict. EQ was nevertheless, in both direct and indirect aspects, a crucial factor in this relationship structure of the faculty community team performance.

Suggestion

The vocational institutes at the higher-education level have been rapidly growing and encountering consequent financial reduction in the last decade. These institutes increasingly carried out inter-instituted collaboration policies to integrate and share educational resources for reciprocal advantages and better achievement. The collaboration policy brought together competing faculty members with various professional expertise and from different institutes to work in an innovative inter-instituted team (Stoll & Louis, 2007). The team performance attracted high attention due to its team members' academic backgrounds and high social status. Based on the aforementioned research conclusions, this study finally proposed the following suggestions for the team performance improvement and long-termed inter-instituted collaboration:

(1) Faculty members should recognize that emotional intelligence plays an important role in knowledge-sharing and conflict solution and should cultivate positive EQ for both personal achievement and team performance in academic institutes (Bishop & Scott, 2000; Zhang & Wang, 2011).

(2) In educational settings, the mechanism of knowledge-sharing should be effectively reinforced through both intra-instituted and inter-instituted collaboration to reciprocally utilize educational resources and create innovative knowledge (Argote & Ingram, 2000; Faraj & Sproull, 2000).

(3) Vocational institutes are suggested to reinforce the integration and collaboration mechanisms among various fields of faculties--and even institutes--in order to diminish possible inner and outer team conflicts for new missions and challenges in this collaboration era (Black, Crest, & Volland, 2001).

(4) In order to motivate faculty members to share and further develop their expertise for team performance improvement, administrative policies should be designed corresponding with the culture traits of the social-elite community, which are characterized to be academic, highly self-esteemed, independent, and even disparagingly critical (Porter, 2007; Stoll & Louis, 2007; Wu, Lin, Lin, & Chang, 2013).

Finally, in order to further understand the factors and factor relationships regarding inter-instituted team performance, this study suggests that future studies could address the structural mechanism and contextual effects of these three factors. Quality research methods are also suggested to investigate the in-depth and authentic research issues from various resources.

Reference

Argote, L. & Ingram, P. (2000). Knowledge transfer: A basis for competitive advantage in firms. *Organizational Behavior and Human Decision Processes*, 82 (1), 150- 169.

Bagozzi, R. P. & Yi, Y. (1988). On the evaluation of structural equation models. *Journal of the Academy of Marketing Science, 16*, 74-94.

Bartol, K. M. & Srivastava, A. (2002). Encouraging knowledge sharing: The role of organizational reward systems. *Journal of leadership and Organization Studies*, 9 (1), 64-76.

Birx, E., Lasala, K. B., & Edd, W. M. (2011). Evaluation of a team building: Retreat to promote nursing faculty cohesion and job satisfaction. *Journal of Professional Nursing,* 27, 174-178.

Bishop, J. & Scott, K. (2000). An examination of organizational and team commitment in a self-directed team environment. *Journal of Applied Psychology,* 85, 439-450.

Black, C., Crest, S., & Volland, M. (2001). Building a successful information literacy infrastructure on the foundation of librarian-faculty collaboration. *Research Strategies,* 18, 215-225.

Chen, G. & Tjosvold, D. (2002). Conflict management and team effectiveness in China: The mediating role of justice. *Asia Pacific Journal of Management*, 19, 557-572.

Clercq, D. D., Dimov, D., & Thongpapanl, N. (2010). The moderating impact of internal social exchange processes on the entrepreneurial orientation-performance relationship. *Journal of Business Venturing, 25*, 87-103.

Cummings, J. L. (2002). Knowledge transfer across R&D units: An empirical investigation of the factors affecting successful knowledge transfer across intra- and inter-organizational units, unpublished Ph.D. dissertation, George Washington University, Washington, DC.

Das, T.K. (2006). Strategic alliance temporalities and partner opportunism. *British Journal of Management, 17*, 1-21.

Davies, M., Stankov, L., & Roberts, R. D. (1998). Emotional Intelligence: In Search of an Elusive Construct. *Journal of Personality and Social Psychology,* 75 (4), 989-1015.

DeDreu, C. K. W., & Weingart, L. R. (2003). Task versus relationship conflict, team performance, and team member satisfaction: A meta-analysis. *Journal of Applied Psychology*, 88 (4), 741-749.

Edmondson, A. (1999). Psychology safety and learning behavior in work teams. *Administrative Science Quarterly*, 2, 119-143.

Faraj, S. & Sproull, L. (2000). Coordinating expertise in software development teams. *Management Science*, 46 (12), 1554-1568.

Fleming, G. L. & Thompson, T. L. (2004). *The role of trust building and its relation to collective responsibility.* In S. M. Hord (Ed.). Learning together, leading together (pp. 31-44). New York: Teachers College Press and National Staff Development Council.

Fornell, C. & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research,* 18, 39-50.

Goh, S. C. (2002). Managing effective knowledge transfer: An integrative framework and some practice implications. *Journal of Knowledge Management*, 6, 23-30.

Gurteen, D. (1999). Creating a knowledge sharing culture. *Knowledge Management Magazine*, 2 (5), 33-41.

Hair, F. J., Black, W. C., Babin, B. J., & Anderson, R. E. (2009). Multivariate Data Analysis: A global perspective. 7th ed. New York: Macmillan.

Hoegl, M. & Gemuenden, H. G. (2001). Teamwork quality and the success of innovative projects: A theoretical concept and empirical evidence. *Organization Science,* 12, 435–449.

Jordan, M. H., Field, H. S., & Armenakis, A. A. (2002). The relationship of group process variables and team performance: A team-level analysis in a field setting. *Small Group Research*, 33 (1), 121-150.

Jehn, K. A. & Chatman, J. A. (2000). The influence of proportional and perceptual conflict composition on team performance. *The International Journal of Conflict Management*, 11 (1), 56-73.

Jordan, P. J., & Troth, A. (2011). Emotional intelligence and leader member exchange: The relationship with employee turnover intentions and job satisfaction. *Leadership & Organization Development Journal,* 32 (3), 260-280.

Jöreskog, K. G., & Sörbom, D. (1996). *LISREL 8: User's reference guide*. Chicago: Scientific Software International.

Louis, K. S. (2006). Changing the culture of schools: Professional community, organizational learning, and trust. *Journal of School Leadership,* 16, 477-487.

Mayer, J. D., & Geher, G. (1996). Emotional intelligence & the identification of emotion. Intelligence, 22, 89-113.

Mesmer-Magnus, J. R. & DeChurch, L. A. (2009). Information Sharing and Team Performance: A Meta-Analysis. J*ournal of Applied Psychology c 2009 American Psychological Association*, 94 (2), 535–546.

Ministry of Education (2011). Statistics of educational resources. Data retrieved on 5 August, 2011, from

http://www.edu.tw/statistics/.

Mohammadi, M., Yeganeh, E. M., & Rad, T. D. (2010). The relationship between faculty members' perception of organizational culture types and their preferences for instruction and counseling in Iranian college of education and psychology. *Procedia Social and Behavioral Sciences,* 5, 1841-1848.

Nancy, M. D. (2000). Common knowledge: How companies thrive by sharing what they know. *Harvard Business Press*, Boston.

Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). New York: McGraw-Hill.

Ostrove, J. M. & Cole, E. R. (2003). Privileging Class: Toward a Critical Psychology of Social Class in the Context of Education. *Journal of Social Issues,* 59 (4), 677-692.

Pausits, A., & Pellert, A. (2009). The winds of change: Higher education management programs in Europe. *Higher Education in Europe,* 34 (1), 39- 49.

Perry, C. & Marsh, H. W. (2003). *Relations Between Elite Athlete Self-Concept And International Swimming Performance*. Paper presented at NZARE AARE, Auckland, New Zealand.

Plowman, N. & McDonough, M. (2010). Seven Factors of Effective Team Performance. Retriewed 5 Agust, 2011, from

http://www.brighthub.com/office/project-management/articles/62415.aspx.

Porter, S. R. (2007). A Closer look at faculty service: What affects participation on committees? *The Journal of Higher Education,* 78 (5), 523-541.

Rapisarda, B. A. (2002). The impactof emotional intelligence on work team cohesiveness and performance, *International Journal of Organizational Analysis,* 10 (4), 363 – 379.

Rosete, D., & Ciarrochi, J. (2005). Emotional intelligence and its relationship to workplace performance outcomes of leadership effectiveness. *Leadership & Organization Development Journal,* 26 (5), 388-399.

Salovey, P. & Mayer, J. (1997). *What is emotional intelligence? Emotional development and emotional intelligence: Implications for educators.* New York: Basic Books.

Senge, P. M. (1998). Sharing knowledge. *Executive excellence*, 15 (6), 11-12.

Senior, B. (1997). Team roles and team performance: Is there 'really' a link? *Journal of Occupational and Organizational Psychology,* 70, 241-258.

Stoll, L.,&Louis, K. S. (2007). Professional learning communities: Elaborating new approaches. In L. Stoll & K. S. Louis (Eds.), *Professional learning communities: Divergence, depth and dilemmas*(pp.1-13). Maidenhead, UK: Open University Press.

Van den Hooff, B. J., & Van Weenen, F. L. (2004). Committed to share: commitment and CMC use as antecedents of knowledge sharing. *Knowledge and Process Management*, 11 (1), 13-24.

Wang, C. C. (2004). The influence of ethical and self-interest concerns on knowledge sharing intentions among managers: An empirical study. *International Journal of Management*, 21 (3), 370-381.

Wu,C.Y., & Zheng,B.S.(2003). A retrospective study on organizational emotional intelligence, *Applied Psychology,*19, 137-173.

Wu, M.C., Ho, S.H., Lin, H.H., Chang, W.L., & Chen, L.H. (2013). How do Thinking Styles Influence Collaborative Dispositions? A Study on the Relationships between Thinking Styles and Collaborative Dispositions for Youngsters in Taiwan. *Educational Sciences: Theory & Practice*. 13(4), 2059-2070.

Wu, M.C., Lin, H.H., Lin, Y.K., & Chang, W.L. (2013).A study on the tacit knowledge of university faculty: A case study in Taiwan. *Asia Pacific Education Review*, 14(2), 171-188.

Zhang, H.-H., & Wang, H. (2011). A meta-analysis of the relationship between individual emotional intelligence and workplace performance. *Acta Psychologica Sinica,* 43 (2), 188-202.

Eurasian Journal of Educational Research, Issue 55, 2014, 55-72

Validity and Reliability of the DeMoulin Self-Concept Developmental Scale for Turkish Preschoolers

Nalan Kuru TURAŞLI*

Suggested Citation:

Turaşlı, N. K. (2014). Validity and reliability of the DeMoulin Self-Concept Developmental Scale for Turkish preschoolers. *Eurasian Journal of Education Research*, 55, 55-72. http://dx.doi.org/ 10.14689/ejer.2014.55.4

Abstract

Problem Statement: "Self-concept" is a primary issue of emotional and social development. Though the most important stage in the formation of self-concept is childhood, measuring the development of the self in the preschool period is quite difficult, for the tools used to measure children's self-concept either require the child's knowing how to read and write or have been designed to measure the self-concepts of children with special developmental characteristics.

Purpose of Study: This study aimed to adapt the DeMoulin Self-Concept Developmental Scale (DSCDS) for 5- and 6-year-old Turkish children and to determine its validity and reliability for determining the self-perception of these children with normal development.

Methods: The study was conducted with 345 participants, roughly half of whom were Turkish children aged 5–6 years. The scale was investigated for its linguistic equivalence and applicability. Data was collected by using both the original DSCDS translated into Turkish and the Marmara Social–Emotional Adjustment Scale and the Marmara Readiness for School Scale. Ultimately, the validity and reliability of the Turkish DSCDS were analyzed.

Findings and Results: The maximum reliability produced according to Cronbach's alpha and Spearman's rank correlation coefficient was 0.88, and the lowest reliability calculated with the Guttman method was 0.88. It was determined that the DSCDS for these children composed of 29 items and two subdimensions applied to participants according to the Turkish Developmental Norms as a high-quality measurement tool.

Conclusions and Recommendations: With the validity and reliability studies of the DSCDS for children aged 5–6 years completed, a norm study can be arranged in order to expand the scale by applying it to groups of children

*Dr. Uludag University, Education Faculty, Bursa, Turkey, Email: nalanturasli@gmail.com

with different characteristics, such as those with a low socioeconomic status, those residing in orphanages, and adopted children.
Keywords: Self-concept, validity, reliability, preschool, children aged 5–6 years

Introduction

Interactions between developmental stages of the life cycle establish a necessary substructure to enable people to adapt to new situations. In this process, emotional and social factors play an important role, particularly the concept of self, an aspect of personality development in the psychosocial domain (Berk, 1997, p. 141). To define and describe the concept of the self, nearly all researchers refer to William James, whose approach holds that one's self-concept involves numerous basic comprehensions of how he or she interprets, arranges, and lives life (Bukato & Daehler, 1992, p. 457). By contrast, Carl Rogers explained that the concept of self involves perceptions regarding the characteristics of "I" and "me." Attaching importance to self-awareness, Rogers held that the self has two subdimensions: the real self, or a person's perceiving him or herself as he or she is, and the ideal self, or what a person desires to be (Cüceloğlu, 1993, p. 427–429).

The approach adopted by DeMoulin (1999), another researcher who studies self-concept, resembles the one put forward by James. DeMoulin has examined the concept of self under two dimensions and generally includes all the experiences that we attach to these dimensions: self-efficacy and self-esteem (DeMoulin, 1999, p. 12). Self-efficacy refers to one's awareness of whether his or her behavior overlaps his or her capacity. It is based on our sensitivity and motivation toward works to be performed and self-confidence. By contrast, self-esteem refers to one's perception of his or her standing among other people (Fan & Chen, 2001, p. 10).

The development of the self is a slow process that continues throughout life and changes with age. It is not only a person's ability to describe, but also to know and perceive him- or herself as a distinct social entity. It also involves other factors to describe a person as unique, such as values, desires, and attitudes (Zigler & Stevenson, 1987, p. 416).

In the formation of self-concept, the most important stage is childhood. Events lived during this period constitute a person's judgments and values about him- or herself. A childhood without support for the healthy development of self-concept can cause significant problems for self-concept, beginning with adolescence (DeMoulin, 2000a, p. 145). During infancy, the most important development of self in terms of "I" and "me" is learning the self as a whole and determining and revealing its relationships with an independent self (Phillips, 1983, p. 120). The development of the self starts in the second year of life with self-understanding and self-awareness. In childhood and adolescence, the self gradually develops the ability to evaluate personality characteristics and capacity in a rich, multifaceted way (Berk, 1997, p. 54).

As children develop an interpretation about their inner mental worlds, they start to think about themselves more carefully. During preschool, the concept of self involves more than a person's physical appearance. A preschool child's self-

perceptions include pieces of information acquired for years regarding his or her personal and physical characteristics, preferred activities, activities at which he or she excels, and things which she or he has and knows about others (Bukato & Daehler, 1992, p. 122).

However, measuring the development of this concept, which is crucial during childhood, is rather difficult for two reasons. First, self-awareness emerges during this period. Second, many factors discussed regarding self-concept are intertwined and difficult to not only elucidate but, for the children, describe. These children's inability to read and write, as well as various highly influential factors—family, environment, and teachers—on self-concept, the self's inherent abstractedness, and the trouble preschoolers have describing the self are other factors that complicate the evaluation process.

The Coopersmith Self-Esteem Inventory (1967), Piers–Harris Self-Concept Scale for Children (1959), and the Efficacy and Social Acceptance Scale for Children are among the most frequently used tools to measure children's self-concepts (Dai, 2002, p. 32; Önder, 1997, pp. 443–448). One of these—the Piers–Harris Self-Concept Scale for Children—has been translated into Turkish. It is a paper-and-pencil test composed of 80 items with six subtests that aims to determine children's self-confidence, self-concept, self-perception, and self-evaluation. It applies to people aged 9 to 20 years only.

Another self-concept scale adapted for the Turkish context is the Efficacy Perception Scale for Children, first adapted by Önder (1997) into Turkish and with the name Self-Concept Scale for Small Children. The scale aims to collect information about different dimensions of self-concepts of 4 to 6-year-old preschool children with different characteristics, including developmental differences and premature birth. This scale was developed specifically for children with abnormal development and/or needing special education, hence its inappropriateness for measuring the self-concept levels of 5 to 6-year-old children with normal development. To measure the self-concept of this latter group, the DeMoulin Self-Concept Developmental Scale (DSCDS) is more suitable. This more recent scale is a measurement tool that affords the opportunity to perform systematic and comparative analyses of children's individual self-concepts for diagnostic purposes (DeMoulin, 1998a, p. 33; DeMoulin, 1998b, p. 16). The DSCDS was developed by DeMoulin at the University of Tennessee in a program aiming to support the self-concept called "I Like Me!" used in four different studies of roughly 950 preschool students from schools in West Tennessee, Kentucky, and Kansas (DeMoulin, 2000a, p. 144).

More specifically, the DSCDS is a tool affording the opportunity to make a very comprehensive and systematic analysis of children's self-concepts. With 30 questions, the DSCDS includes two subscales: self-efficacy and self-esteem. In the scale, information obtained by asking three sources—the child, the child's teacher, and the child's family interrelated questions. For primary and secondary measurements in which the reliability coefficient, gender, age, or any other role-determining conditions did not make any important difference, the self-efficacy and self-esteem Cronbach's alphas both fell between 0.79 and 0.91 (DeMoulin, 2000a, p.

145). To assess the potential of using the DSCDS in the Turkish context, this study aimed to adapt DeMoulin's (2000a) for Turkish children aged 5–6 years with normal development and to examine its validity and reliability.

Method

Research Sample

To obtain qualitative data, this study was conducted with 345 participants, 170 of whom were 5- or 6-year-old students of middling socioeconomic status at four different preschools in Istanbul, all of whom were randomized into groups. Additionally, 90 other participants— 30 children, 30 mothers, and 30 teachers—were administered the method of test–retest for reliability twice with an interval of 7 days. Mothers were chosen for participation because mothers also participated in the original scale's development and, compared to fathers, they are closer to and spend more time with their children, which enables them to form a better understanding of their children's development. Since the scale requires individual administration, one-on-one administrations with each participant were performed by the researcher at four different schools.

Research Instruments

The DeMoulin Self-Concept Developmental Scale. The DSCDS for 5- and 6-year-old Turkish children scale includes 30 items and two subscales—one of self-efficacy (i.e., the child's self-perception of him- or herself as a singular entity) and the other for self-esteem (i.e., the child's perception of him- or herself within a social group). Each subscale entails 15 items, each of which begins with "I feel," after which the child is asked to paint the facial expression that he or she believes best reflects his or her feelings about the statement. The child and administrator sit facing each other at a table and the child is given the answer form with various facial expressions and colored pencils. The administration held with each participant lasted about 20 minutes. For each item, the facial expressions include scores ranging from 1 to 3. The child is given the score value of the facial expression that he or she chooses, and later, these answers are compared to assess whether they agree with one another. In the statistical procedures of the original DSCDS involving 950 children, the primary and secondary measurements—gender, age, and other role-determining conditions—made no significant differences. Thus, the reliability coefficients were found to vary from 0.79 and 0.91 (DeMoulin, 2000a, p. 143; DeMoulin, 2001, p. 118).

The Marmara Social–Emotional Adjustment Scale (MSEAS). The MSEAS was developed by nine specialists on the faculty of Marmara University (Güven et al., 2004, p. 145) and aims to measure the social–emotional adjustment of children aged 60–72 months. The internal reliability coefficients of the scale and its subdimensions after being administered to 490 people revealed a high Cronbach's alpha of 0.83 ($p < 0.01$). Moreover, as a result of test–retest of the scale, the correlation value was also quite high ($r = 0.89$, $p < 0.01$). According to the results of item total and item discrimination analysis, correlation values of all dimensions, save Factor 7, amounted to 0.01. (Güven et al., 2004, p. 146).

Marmara Readiness for Elementary School Scale (MRESS). The MRESS was prepared by Unutkan and Oktay (2004) to determine the readiness of children aged 5–6 years

old (60–72 months old) to transition from preschool to elementary education. The study involved 1,002 children and five subscales to measure their abilities with mathematics, science, language use, drawing, and escaping from a labyrinth for 74 questions total. For the reliability study, the maintainability coefficients of the development and administration forms were calculated to be 0.90 for the development form and 0.93 for the administration form, while the internal consistency coefficients (i.e., Cronbach's alpha) were 0.98 for the development form and 0.93 for the administration form (Unutkan, 2003, p. 88, Unutkan & Oktay, 2004, p. 150). Since no test exists with the same scope available to determine the self-concept levels of children in this age group, the MSEAS and MRESS were administered to evaluate criteria validity and examine correlations.

Procedure

The studies related to the DSCDS for children aged 5–6 years entailed three types: linguistic equivalency studies, validity studies, and reliability studies. Within this scope, a study to evaluate criteria validity was also performed.

Linguistic equivalency-related studies. After necessary permissions were granted by DeMoulin et al. concerning the use and the validity and reliability studies of DSCDS for children aged 5–6 years, the linguistic equivalency study of the scale was performed. Aimed to assess the linguistic equivalency of the scale, five specialists in either preschool education and/or psychology whose native language is Turkish and who were fluent in English were first asked to translate the scale into Turkish. Ultimately, five different Turkish versions were obtained. To translate the scale into Turkish, careful attention was paid to select statements, including elements of Turkish preschool education system, that would be understood by children. The five Turkish versions formed and with this understanding were consolidated into a single form with the guidance of Dr. Ayla Oktay and Dr. Rengin Zembat. Secondly, the five specialists in preschool education and whose native language is English and who were fluent in Turkish were asked to translate the composite Turkish version into English. Once obtained, the English version was compared to the original version of the scale. The adaptation level was very high according to the specialists. Ultimately, the scale was administered to the children in the sample group twice with an interval of 7 days.

Reliability-related studies. The validity and reliability of the Turkish DSCDS for children aged 5–6 years were evaluated by both item analysis and distinctiveness analysis. For the administration results of 170 children, the Cronbach's alpha and both the Spearman and Guttman internal consistency coefficients were used. Maximum reliability was obtained according to Cronbach's alpha and the Spearman method (0.88), while minimum reliability was obtained according to the Guttman method (0.88).

Validity-related studies. To test distinctiveness, correlations were examined between the children's, teachers', and mothers' results for the Turkish DSCDS both in total and in the subdimensions of self-efficacy and self-esteem. To examine criteria validity, since tests to determine self-concept levels of children in this age group with the same scope were unavailable, the MSEAS and MRESS were administered and

their correlations examined. Comparative results revealed that the criteria validity of the DSCDS for children aged 5–6 years was very high.

Results

The results of arithmetic means and standard deviation of the test and test items are give in Table 1.

Table 1
Arithmetic Means and Standard Deviation of The Test And Test Items.

Questions	*n*	*M*	*Sd*
S2	170	2,4294	,8414
S3	170	2,6353	,6315
S4	170	2,4647	,7469
S5	170	2,2059	,8898
S6	170	2,8000	,5056
S7	170	2,6000	,7249
S8	170	2,7000	,5843
S9	170	2,6235	,6876
S10	170	2,6000	,6563
S11	170	2,5471	,7999
S12	170	2,7176	,6637
S13	170	2,4294	,8272
S14	170	1,2412	,5391
S15	170	2,5471	,7303
S16	170	2,5235	,7474
S17	170	1,2176	,4415
S18	170	2,9000	,3713
S19	170	2,7765	,4835
S20	170	2,7882	,5238
S21	170	2,8118	,4984
S22	170	2,4471	,8286
S23	170	1,8294	,9296
S24	170	2,6588	,6353
S25	170	2,4412	,8210
S26	170	2,6941	,5963
S27	170	2,8824	,4045
S28	170	2,7235	,6154
S29	170	2,4824	,7396
S30	170	2,7647	,5136
	170	2,6588	,6259
TOTAL	170	75,14	9,64

n: Number in Subsample M: Arithmetic Mean, Sd: Standard Deviation

Table 1 shows the arithmetic means and standard deviation values of the general test in total and its items. When the mean values of the test items were compared, it was found that Item 17 had the highest means, while Item 16 had the lowest.

The results of the Turkish DeMoulin Self-Concept Developmental Scale (for children aged 5–6 years) in an administration with an interval of 7 days, give in Table 2.

Table 2

The Child–Teacher–Mother Total and Subscales

CHILD	*M*	*N*	*Sd*	*Std. E.*	*R*
Pre-Test Total	5000	30	6,0663	1,1075	*,607
Post-Test Total	0000	30	7,1293	1,3016	
Pre-Test Self Efficacy	9333	30	3,3211	,6064	*,615
Post-Test Self Efficacy	4333	30	3,8299	,6992	
Pre-Test Self Esteem	5667	30	3,5848	,6545	,*516
Post-Test Self Esteem	5667	30	4,0742	,7438	
TEACHER					
Pre Tests Total	40,8333	30	2,2141	,4042	**,341
Post Tests Total	42,2000	30	1,0954	,2000	
Self Esteem Pre-Test	41,1000	30	1,6887	,3083	**,379
Self Esteem Post-Test	41,5667	30	1,0400	,1899	
Self Efficacy Pre-Test	81,9333	30	2,8640	,5229	**,439
Self Efficacy Post-Test	83,7667	30	1,3309	,2430	
MOTHER					
Pre Tests Total	40,0000	30	3,0057	,5488	*,594
Post Tests Total	40,3000	30	2,3216	,4239	
Self Esteem Pre-Test	40,1667	30	1,8399	,3359	*,521
Self Esteem Post-Test	40,3667	30	1,7317	,3162	
Self Efficacy Pre-Test	80,1667	30	4,0093	,7320	**,440
Self Efficacy Post-Test	80,6667	30	3,3665	,6146	

M: Arithmetic Mean, N: Total Number Sampel, Sd: Standard Deviation, Std. Error: Std.E ; R:Multiple

*correlation, *p<,01 **p<,05*

As shown in Table 2, the results obtained for the test's general total were 0.607, and the total was statistically significant at 0.01. The results obtained in the self-efficacy subscale increased to 0.61. The correlation coefficient for the self-esteem subscale was the lowest (0.51), yet statistically significant at 0.01 as well.

The results of test–retest reliability coefficient for the general total of the DeMoulin Self-Concept Developmental Scale (for children aged 5–6 years) are give in Table 3.

Table 3

Test–Retest Reliability Coefficient for The General Total Of The Demoulin Self-Concept Developmental Scale (for children aged 5–6 years).

	N	***R***	***P***
Test-retest correlation	170	,607	P<,01

**p<,01*

As shown in Table 3, for the results of the tests administered to the children, the test–retest reliability coefficient was 0.607 and was significant at 0.01.

The results of the internal consistency coefficients for the general totals of the Demoulin Self-Concept Developmental Scale (for children aged 5–6 years) are give in Table 4.

Table 4

The Internal Consistency Coefficients for The General Totals Of The DeMoulin Self-Concept Developmental Scale (for children aged 5–6 years).

Internal Consistency Technique	***n***	***R***	***p***
Cronbach's alpha	170	*,8851	p<,01
Spearman	170	*,8851	p<,01
Guttman	170	*,8805	p<,01

**p<,01*

As shown in Table 4, the maximum reliability was obtained by Cronbach's alpha and the Spearman method (0.88), while the minimum reliability was obtained by the Guttman method (0.88).

The ıtem analysis results for the DeMoulin Self-Concept Developmental Scale (for children aged 5–6 years) are give in Table 5.

Table 5

Item Analysis Results for The DeMoulin Self-Concept Developmental Scale (for children aged 5–6 years).

Item Number	N	Item Total		Item Remaining		Distinctiveness		
		r	p	r	p	t	sd	p
S1	170	*,699	p<,01	*,6505	P<,01	12,461	90	p<,01
S2	170	*,289	p<,01	*,2276	P<,01	4,352	90	p<,01
S3	170	*,509	p<,01	*,4481	P<,01	8,289	90	p<,01
S4	170	*,588	p<,01	*,5225	P<,01	9,164	90	p<,01
S5	170	*,153	p<,01	*,1009	P<,01	1,575	90	p<,01
S6	170	*,570	p<,01	*,5158	P<,01	7,526	90	p<,01
S7	170	*,369	p<,01	*,3145	P<,01	3,702	90	p<,01
S8	170	*,609	p<,01	*,5613	P<,01	7,512	90	p<,01
S9	170	*,600	p<,01	*,5541	P<,01	8,906	90	p<,01
S10	170	*,507	p<,01	*,4419	P<,01	7,270	90	p<,01
S11	170	**,088	p>0.5	**,0189	p>0.5	1,318	90	p>,05
S12	170	*,785	p<,01	*,7482	P<,01	16,810	90	p<,01
S13	170	*,158	p<,01	*,1032	P<,01	2,236	90	p<,01
S14	170	*,442	p<,01	*,3785	P<,01	7,317	90	p<,01
S15	170	*,635	p<,01	*,5856	P<,01	9,581	90	p<,01
S16	170	*,265	p<,01	*,2217	P<,01	3,851	90	p<,01
S17	170	*,385	p<,01	*,3520	P<,01	3,696	90	p<,01
S18	170	*,608	p<,01	*,5749	P<,01	7,515	90	p<,01
S19	170	*,500	p<,01	*,4575	P<,01	5,112	90	p<,01
S20	170	*,408	p<,01	*,3635	P<,01	4,693	90	p<,01
S21	170	*,496	p<,01	*,4271	P<,01	6,299	90	p<,01
S22	170	*,523	p<,01	*,4478	P<,01	11,055	90	p<,01
S23	170	*,602	p<,01	*,5580	P<,01	7,652	90	p<,01
S24	170	*,652	p<,01	*,5992	P<,01	11,242	90	p<,01
S25	170	*,460	p<,01	*,4092	P<,01	5,550	90	p<,01
S26	170	*,306	p<,01	*,2673	P<,01	3,308	90	p<,01
S27	170	*,531	p<,01	*,4825	P<,01	5,832	90	p<,01
S28	170	*,433	p<,01	*,3678	P<,01	6,547	90	p<,01
S29	170	*,414	p<,01	*,3683	P<,01	5,152	90	p<,01
S30	170	*,588	p<,01	*,5431	P<,01	7,814	90	p<,01

*N: Total number sampel, Sd: Standard deviation, *p<,01 **p<,05*

Three types of item analyses—item total, item remainder, and distinctiveness—were employed. Excepting Item 11, all scores are arranged in order, beginning with the child who earned the highest total score. Findings related to validity and validity criteria for the DSCDS, MRESS, and MSEAS totals, subscales, and total scores are shown in Tables 6 and 7. Here, significant relationships were found between the DSCDS and MRESS and the subscales of the labyrinth and line at a significance of 0.05, and between all other subdimensions at a significance of 0.01.

The results of relationships between totals and subscales for the Marmara Readiness for School Scale and the DeMoulin Self-Concept Developmental Scale (for children aged 5–6 years) are give in Table 6.

Table 6

Relationships Between Totals And Subscales for The Marmara Readiness For School Scale and The Demoulin Self-Concept Developmental Scale (for children aged 5–6 years).Scales and Sub-Dimensions between which Relations were Examined

	N	**r**	**P**
D. Self Concept Scale (Total) & Readiness for School- Mathematics	40	*,737	p<,01
D. Self Concept Scale (Total) & Readiness for School- Science	40	*,612	p<,01
D. Self Concept Scale (Total) & Readiness for School- Voice	40	*,719	p<,01
D. Self Concept Scale (Total) & Readiness for School- Line	40	**,020	p>,05
D. Self Concept Scale (Total) & Readiness for School- Mathematics-Labyrinth	40	**,115	p>,05
D. Self Concept Scale (Total) & Readiness for School- Mathematics- Total	40	*,782	p<,01

**p<,01 **p<,05*

As seen in Table 6, significant relationships were found between DSCDS and *MRESS* and the sub-scales of labyrinth and line at the level of .05 and between all the other sub-dimensions at the level of .01.

The results of relationships the totals and subscales between the DeMoulin Self-Concept Developmental Scale (for children aged 5–6 years) and Marmara Social–Emotional Adjustment Scale are give in Table 7.

Table 7

Relationships The Totals And Subscales Between The Demoulin Self-Concept Developmental Scale (For Children Aged 5–6 Years) And Marmara Social–Emotional Adjustment Scale. Scales and Sub-Dimensions in which Relationships were Examined

	N	r	p
D.S.C. Scale (Total) & MSEA – Communications with Peers	40	**,379	p<,05
D.S.C. Scale (Total) & MSEA – Reacting in accordance with Social Situation	40	*,612	p<,01
D.S.C. Scale (Total) & MSEA – Delaying Personal Satisfaction	40	**,273	p<,05
D.S.C. Scale (Total) & MSEA – Behaving in accordance with the Requirements of Social Life	40	*,665	p<,01
D.S.C. Scale (Total) & MSEA – Positive Approach to Social Environment	40	*,664	p<,01
D.S.C. Scale (Total) & MSEA – Reacting to Negative Social Situations	40	*,671	p<,01
D.S.C. Scale (Total) & MSEA – Total	40	*,765	p<,01

**p<,01 **p<,05*

As shown in Table 7, significant relationships were found between the DSCS and MSEAS regarding the subdimensions of 'communication with peers' and 'delaying personal satisfaction' at a significance of 0.05 and between all other subdimensions at 0.01.

Reliability of the DSCDS for children aged 5–6 years. According to the arithmetic means and standard deviations of the DSCDS's self-esteem subscale and test items, the highest score possible is 45. The mean of the study group was 38.07, meaning that a mean close to the highest possible score was obtained. While the means of all items exceeded 2.0, the means of Items 16 and 22 were below 2. The mean of means of all items was 2.53 (see Table 1). For the results of the tests administered to the children, the test–retest reliability coefficient was 0.607 and significant at 0.01 (see Table 3). When the characteristics of preschool children were considered, including their relative inability to read and write and the abstractedness of the topic of self-concept, this result was observed to be rather high.

According to the item analysis procedure results for the child's total, except for Item 11, all items yielded statistically significant results and proved to be valid and reliable (see Table 5). According to the arithmetic means and standard deviation values of the self-efficacy subscale of DSCDS for children aged 5–6 years and the test items, the highest score possible was 45. The mean of the study group was 37.064. While the means of all items exceeded 2, only the mean of the Item 13 was below 2 (1.24). However, the total score correlation confidence of the item total was high. As such, it was included within the scope of the test. When these results and the

aforementioned characteristics of preschool children are considered, the reliability of DSCDS for children aged 5–6 years was quite high (0.166)

Validity of the DSCDS for children aged 5–6 years. For the validity of the scale, the self-concept test was first administered to the children in the study group, and the same test was administered to the children's mothers and teachers in order to determining the children's perceptions of their self-concept. The correlations between the administration results were examined, after which criteria validity was applied. Since a test to determine self-concept levels of children in this age group with the same scope was unavailable, the MSEAS and MRESS were administered for criteria validity and the correlations examined.

According to the DSCDS for children aged 5–6 years in terms of child–mother–teacher administration correlations, the highest correlation was obtained among the DSCDS teacher–child total scores (0.86). In the teacher–mother administrations, the lowest correlation was obtained from the self-esteem subscale perception (0.46). According to the relationships between the DSCDS's self-efficacy and self-esteem subscales and MRESS's total and subscales, no significant relationship was found except between the line and labyrinth subscales, though significant relationships were found between all the scales and their subdimensions at 0.01 (see Table 6).

According to the relationships between the DSCDS's self-efficacy and self-esteem subscales and the MSEAS's total and subscales, significant relationships were found between the DSCDS self-efficacy subscale and the MSEAS, namely for the subdimension of 'delaying personal satisfaction' subdimension, between the self-esteem subscale and the subdimension of 'communication with peers' at a significance of 0.05, and between all the other scales and their subdimensions at a significance of 0.01 (see Table 7). When these results were examined together, the criteria validity for the DSCDS for children aged from 5–6 years was deemed quite high. The results obtained in this study suggest that the DSCDS for children aged 5–6 years is a valid and reliable tool in determining self-concept levels of 5- and 6-year-old children.

As a result of the Turkish linguistic equivalency and the validity and reliability studies of the DSCDS, some items were modified, while others remained the same. Accordingly, in its original version, the scale consisting of 30 items and two subdimensions (i.e., self-esteem and self-efficacy) was reduced to 29 items, given the insufficiency of the validity and reliability level of Item 11 determined as a result of the validity and reliability studies, though the subdimensions remained the same. The self-efficacy subdimension provides analysis for sensitivity to school, while the self-esteem subdimension provides analysis for sensitivity to oneself; the sum of two subdimensions points to the self-concept level. Though the scale did not originally specify an age group, it was limited to 5- and 6-year-old children for the validity and reliability studies.

Discussion and Conclusion

In the adaptation process of the DSCDS for Turkish children aged 5–6 years, internal consistency coefficients for the general total maximum reliability was found with Cronbach's alpha and Spearman methods (0.88), while the lowest reliability rate

was found with the Guttman method (0.88). According to the internal consistency coefficients for the self-sufficiency subscale, the highest internal consistency rate of children's self-sufficiency was obtained with the Spearman method (0.83), and the lowest rate with Cronbach's alpha (0.79). The test–retest reliability coefficients for the self-sufficiency subscale were 0.516 among the implementation results performed on children and were determined to be significant at 0.01. According to the internal consistency coefficients for the self-esteem subscale, the highest internal consistency rate was obtained with the Spearman method (0.83), and the lowest rate from Cronbach's alpha (0.80).

In the statistical procedures made with 950 children for the original scale, the primary and secondary measurements—gender, age, and other role-determining conditions—did not make any significant difference, and the reliability coefficients were found to vary between 0.79 and 0.91 (DeMoulin, 2000b, p. 35). As shown, the results of the present study are very similar to the results of the original. Considering the relative inability of children aged 5–6 years to read and write and the abstractedness of the topic of self-concept, these results are quite high. Furthermore, the criteria-related validity of the scale appears to be high. However, a comparison seems impossible, since no criteria-related validity can be gauged in the English version. Factors such as gender and socioeconomic status had an important impact on measurements. For the original form of the scale, there was no significant difference between means for 359 girls and 294 boys (DeMoulin, 2000b, p. 36).

There are different scales in Turkey to measure children's self-concepts. However, these scales generally necessitate literacy or are designed to measure the self-concepts of children with different developmental characteristics. On this point, the Coopersmith Self-Esteem Inventory (1967), the Piers–Harris Self-Concept Scale for Children (1959), and the Efficacy and Social Acceptance Scale for Children (Harter & Pike, 1984) can be counted among the most frequently used measurement tools in the world for measuring children's self-concepts (Öner, 1997, p. 443).

One of these tools—the Piers-Harris Self-Concept Scale for Children—was translated into Turkish. The test–retest reliability coefficients calculated with data obtained from 447 students in the study of the adapted scale by Çataklı (1985) were 0.72 for primary schoolers, yet varied between 0.72 and 0.91 for secondary schoolers. The internal consistency coefficients, on the other hand, were 0.87 for primary schoolers and 0.86 for secondary schoolers (Öner, 1997, pp. 443–448).

As can be seen, the validity and reliability coefficients of the Piers–Harris Self-Concept Scale for Children are similar to the results of this study. Two important details are that the scale is intended for primary- and secondary-school students and the consistency coefficients rise as the age groups become older. Once again, the problems encountered while measuring the abstractedness of the topic of self-concept in preschoolers emerge here.

Another self-concept scale translated into Turkish is the Efficacy Perception for Children, which was completed by Önder (1997) with the name Self-Concept Scale for Small Children. The scale aims to collect information about different dimensions of self-concepts of preschoolers aged 4–6 years with different characteristics, including developmental differences and premature birth. In the validity and

reliability study that Önder (1997) performed on 146 children from a middling socioeconomic level, the internal reliability coefficient was calculated to be 0.88 for whole scale (Önder, 1997, p. 47).

The present study, which involved adapting a self-concept scale into Turkish and gauging its validity and reliability, revealed results similar to the reliability coefficient of DSCDS for children. Similarly, relations between preschoolers' self-concept and overall time of attendance at school and gender were investigated. As a result, it was determined that the overall time of attendance at school can influence self-concept, though gender does not play any role in this equation. This result aligns with other research findings.

Regarding this study's findings, future research could seeks to conduct a norm study of DSCDS for children aged 5–6 years, given that the validity and reliability of the scale are now complete. In this way, it would be possible to study a larger sample of children. At the same time, testing the workgroups of the DSCDS with different characteristics (e.g., children from low socio-economic levels, children from nurseries, and children residing at orphanages, among others) by performing applications of the scale can extend the scope of application, as well as obtain further data regarding the validity and reliability of the scale.

References

Benninga, J. S.& Meredith R.(1987). Enhancing young children's moral judgments: the piagetian connection. *Journal of Elementary and Early Childhood Education,* 2, 10-13.

Berk, L. E. (1997). *Child development*. U.S.A: Allyn and Bacon.

Bukato, D., & Daehler, M. (1992). *Child Development*. New York: Houghton Mifflin Company.

Cüceloglu, D. (1993). *İnsan ve davranışı: Psikolojinin temel kavramları*. [*Human And Behavior: Basic Concepts of Psychology]*.İstanbul, Turkey: Remzi Kitapevi.

Çataklı, M. (1985). *Piers-Harris çocuklar için benlik algısı ölçeğinin dilsel eşitlik ve güvenirlik çalışması*, [Transliteral Equivalence And Reliability Of The Piers- Harris Children's Self Concept Scale]. İstanbul: Boğaziçi University, Education Faculty, Education Science Department

Dai, D. Y. (2002). Incorporating parent perceptions: A replication and extension study of the internal-externa lframe of reference model of *self-concept development*. *Journal of Adolescent Research,* 6, 17-45.

Demoulin, D.F. (1998a). Adressing self-conceptand reading needs of elementary children. *Journal of At Risk,* 42, 34-41.

Demoulin, D.F.(1998b). Reading empowers self-concept. *Kappa Delta Pi Record*, 35, 31-36.

Demoulin, D.F. (1999). A personalized development of self-concept for beginning readers. *Journal of Education,* 120, 14-18.

Demoulin, D.F. (2000a). I like me! enhancing self concept in kindergarten-age children through active school/business partnerships. *NASP Communiqué,* 27(8), 141-146.

Demoulin, D.F.(2000b). *Complete summary of a four-partresearch project for the I like me program.* Department of Educational Studies University of Tennessee Martin, Tn U.S.A.

Demoulin, D.F.(2001). The hidden value of personalization and rhtyme in reading. *Reading Improvement*, 38,116-121.

Fan, X., & Chen M.(2001).Parental involvement and students academic achievement: A Meta-Analysis. *Educational Pyschology Review,* 13, 1-15.

Güven, Y., Önder A., Sevinç M., Aydın O., Balat G.U., Palut B., …Dibek E. (2004). MASDU Sosyal Duygusal Uyum Ölçeği'nin geçerlilik ve güvenirlik çalışması. [MASDU Social Emotional Adjustment Scale Validity and Reliability Study] *1. Uluslararası Arası Okul Öncesi Eğitim Kongresi Bildiri Kitabı*, İstanbul: Ya-PaYayınları.

Öner, N. (1997). *Türkiye'de kullanılan psikolojik testler: Bir başvuru kaynağı,* [Psychological tests used in Turkey: A Reference Resource*],* 3. Basım, İstanbul: Boğaziçi Üniversitesi Yayınları.

Önder, A. (1997*).*"*Küçük çocuklar için kendilik algısı ölçeğinin türkçe'ye uyarlanması ve okul öncesi çocuklarında kendilik algısının yaş cinsiyet premature doğma ve okula devam etme süresine ilişkin olarak incelenmesi".* [Self-Perception Scale for Young Children Turkish Adaptation of the and the Self-Perception of Preschool Children Age Sex Premature Born and Investigation Relating To School Attendance Time] İstanbul: Marmara University Institute of Social Sciences.

Phillips, S. (1983). Self-concept self-esteeem: Infancy to Adolecence. A conitive developmental outline with some reference to behaviorand health effects. *Journal of ElementaryandEarlyChildhoodEducation, 27, 45-48.*

Unutkan, P. Ö. (2003). Marmara ilköğretime Hazır Oluş Ölçeğin Geliştirilmesi ve Standardizasyonu" [Marmara Ready to Elementary School Scale Development and Standardization]. İstanbul: Marmara University Institute of Social Sciences.

Oktay, A.,& Unutkan, P.Ö. (2004). ilköğretime Hazır Oluş ve İlköğretimle Okul Öncesi Eğitimin Karşılaştırılması. [Primary School Readiness and Comparasion of Preschool Education with Primary Education]. M.Sevinç (Ed). *Erken Çocuklukta Gelişim ve Eğitimde Yeni Yaklaşımlar,* (pp.145-156), İstanbul: Morpa.

Zigler, E.F, & Stevenson, M. F. (1987). *Children development and social issues,* U.S.A: D.C. Heathand Company.

Demoulin Çocuklar İçin Benlik Algısı Ölçeği (5-6 yaş)'nin Geçerlik Güvenirlik Çalışması

Atıf:
Turaşlı, N. K. (2014). Validity and reliability of the DeMoulin Self-Concept Developmental Scale for Turkish preschoolers. *Eurasian Journal of Education Research*, 55, 55-72. http://dx.doi.org/ 10.14689/ejer.2014.55.4

Özet

Problem Durumu: Okul öncesi eğitimi döneminin kendine has özellikleri; tüm gelişim alanlarında gerçekleşen iç içe ve birbirine bağlı karmaşık süreçleri desteklemeyi, ihtiyaçları anlamayı ve onlara uygun eğitsel ortamı düzenleyebilmeyi gerektirmektedir. Tüm gelişim alanları birileri ile ilişki içindedir. "Benlik Algısı" duygusal ve sosyal gelişimin öncelikli konularından biridir. Benlik algısı kişinin başkalarından aldığı geri bildirimler sonucu kendi hakkında edindiği değerlendirmelerdir. Bu sebeple benlik algısı insan davranışının en önemli ve merkezi konusudur. Benlik algısının oluşumunda en önemli devre çocukluktur. Bu dönemde yaşanan olaylar kişinin kendi hakkındaki yargı ve değerlerini oluşturur. Son günlerde okul öncesi dönemde benlik algısının gelişimi, gelişimi etkileyen faktörler ile diğer gelişim alanları ve okul olgunluğu üzerindeki etkisi konuları sıklıkla ele alınmaktadır. Ancak, okul öncesi dönemde benlik algısı konusunda önemli sıkıntılardan biri, benliğin gelişiminin ölçülmesinin gerçekten oldukça zor olmasıdır. Bu zorluğun başlıca nedeni olarak bu dönemde benlik ile ilgili farkındalığın henüz ortaya çıkmaya başlaması ve benlik kavramı içinde ele alınabilecek bir çok faktörün iç içe girmiş olması düşünülebilir. Bununla beraber çocukların okul öncesi dönemde çocukların henüz okuma yazma bilmiyor olmaları, aile, yakın çevre ve öğretmen gibi farklı unsurların benlik algısı üzerindeki etkilerinin yüksek olması, benlik algısının oldukça soyut bir konu benliğin ölçme sürecini zorlaştıran diğer faktörler arasında sayılabilir. Dünyada çocukların benlik algısının ölçülmesinde en çok kullanılan ölçme araçları arasında Coopersmith Kendilik Değeri Ölçeği (1967), Piers-Harris Çocuklar için Kendilik Kavramı Ölçeği (1959) ve Çocuklar için yeterlik ve Sosyal Kabul Edilme Ölçeği sıralanabilir. Söz konusu bu ölçekler ülkemizde de kullanılmaktadır. Ancak ya okuma yazma gerektirmekte ya da özel gelişim özellikleri gösteren çocukların benlik algılarını ölçmek üzere tasarlanmış bulunmaktadırlar. Türkiye'de normal gelişim gösteren 6 yaş çocuklarında benlik algısı düzeyi ölçen bir ölçek bulunmamaktadır. Bu çalışmada normal gelişim gösteren okul öncesi çocukların benlik algısı düzeylerini belirlemeye yönelik "Demoulin Çocuklar İçin Benlik Algısı Testi" (5-6yaş) 'nin geçerlik güvenirlik çalışması yapılarak alanda söz konusu ihtiyacın karşılanmasına katkıda bulunulmaya çalışılmıştır.

Araştırmanın Amacı: Bu araştırmanın amacı Demoulin (2000a) tarafından geliştirilen Demoulin Çocuklar İçin Benlik Algısı Ölçeği (DSCDS)'yi Türkçeye uyarlamak ve ölçeğin normal gelişim seyri izleyen 5-6 yaş grubu Türk çocukların benlik algısı düzeylerini belirlemeye yönelik kullanılabileceğine ilişkin geçerlik ve güvenirlik

kanıtları elde etmektir. *Araştırmanın Yöntemi:* Araştırma İstanbul'da bulunan dört ayrı resmi ilköğretim okullarının hazırlık sınıflarına devam eden ve orta-sosyo ekonomik düzeyden gelen 5-6 yaş grubunda 170 çocuk ile gerçekleştirilmiştir. Ayrıca 30 çocuk ve 30 anne ile de güvenirlik için tekrar test yöntemi çalışılmış ve çocukların öğretmenleri, anneleri ve kendilerine ölçek bir hafta ara ile iki kez uygulanmıştır. Demoulin Çocuklar İçin Benlik Algısı Ölçeği(DSCDS) nin kullanımı ve geçerlik güvenirlik çalışması ile ilgili olarak öncelikle ölçeğin dilsel eşdeğerlik çalışması yapılmıştır. Ardından uygulama ve analiz çalışmalarına başlanmıştır. Araştırmanın verileri, (DSCDS) nin Türkçeye çevrilmiş özgün formunun yanı sıra *Marmara Sosyal ve Duygusal Uyum Ölçeği(MASDU) ve Marmara İlköğretime Hazır Oluş Ölçekleri* (MİHOÖ) kullanılarak elde edilmiştir. Verilerin çözümlenmesinde betimleyici istatistiklerin yanı sıra açımlayıcı, doğrulayıcı faktör analizi ile İlişkili/ İlişkisiz Grup T Testi, Pearson Moment Korelasyon Katsayısı kullanılmıştır. Ölçeğin toplamı ile iki alt ölçeğinin iç tututarlılık katsayılarını belirlemek üzere ise, Cronbacf alfa, Spearman, Guttman tekniklerine bakılmıştır. Elde edilen veriler SPSS 10 programı kullanılarak analiz edilmiştir.

Araştırmanın Bulguları: Demoulin Çocuklar İçin Benlik Algısı Ölçeği(DSCDS)nin kullanımı ve geçerlik güvenirlik çalışması ile ilgili olarak gerekli izinler alındıktan sonra öncelikle ölçeğin dilsel eşdeğerlik çalışması yapılmıştır. Ardından, DSCDS'nin oluşturulan Türkçe formu üzerinden geçerlik güvenirlik çalışması yapılmıştır. Bu aşamada madde analizi ve ayrıt ediciliği işlemleri yapılmıştır. Buna göre 30 maddelik ölçeğin sadece bir istatistiksel açıdan özellikli olmadığı tespit edilmiştir. Bunun dışında tüm maddeler istatistiksel açıdan anlamlı sonuç vermiştir. Güvenirlik katsayısını bulmak üzere, 170 çocuğun uygulama sonuçları üzerinde Cronbach alfa, Spearman, Guttman teknikleri iç tutarlılık katsayıları uygulanmıştır. Maksimum güvenirlik Cronbach Alfa, Spearman tekniklerinde (0.88), en düşük güvenirlik Guttman tekniğinde (0.88)elde edilmiştir. Ayırt ediciliği sınamak için yapılan çalışmalarda, ölçeğin, çocuk, öğretmen ve anne uygulama sonuçlarının hem toplam hem de öz yeterlilik öz saygı alt boyutlarındaki korelasyonlara bakılmıştır. Ardından kriter geçerliliği yapılmıştır. Ancak alanda bu yaş grubu çocukların benlik algısı düzeylerini belirlemeye yönelik aynı kapsamda bir test bulunamadığından, Marmara Sosyal Duygusal Uyum Ölçeği ve Marmara İlköğretime Hazır Oluş Ölçeği kriter geçerliliği amacı ile uygulanmış ve korelasyonlara bakılmıştır. Sonuçlar toplu olarak değerlendirildiğinde Demoulin Çocuklar İçin Benlik Algısı Ölçeği (6 yaş)'nin tüm ölçekler ve alt boyutları arasında ise .01 düzeyinde anlamlı ilişkiler bulunmuştur. Demoulin Çocuklar İçin Benlik Algısı Ölçeği (6 yaş)'nin öğrencilere bir hafta ara ile iki kez yapılan uygulama sonuçları arasında test-tekrar test güvenirlik katsayısı .607 olarak bulunmuştur ve bu sonuç .01 düzeyinde anlamlıdır.

Araştırmanın Sonuç ve Önerileri : 5-6 yaş hazırlık grubuna devam eden ve Türk Gelişim Normlarına uygun normal gelişim seyri içinde olan çocuklara uygulanan, 29 madde ve iki alt ölçekten oluşan Demoulin Çocuklar İçin Benlik Algısı Ölçeği (DSCDS)'nin yüksek nitelikli bir ölçme aracı olduğu belirlenmiştir. Çocuklara yapılan uygulama sonuçları arasında test-tekrar test güvenirlik katsayısı .607 olarak bulunmuştur ve .01 düzeyinde anlamlıdır . Demoulin Benlik Algısı testi'nin kriter

geçerliliğinin de oldukça yüksek olduğu bulunmuştur. Bu sonucun okul öncesi çocukların özellikleri göz önüne alındığında ve henüz okuma yazma bilinmeyen bir dönemde olmaları, ölçeğin benlik algısı gibi oldukça soyut bir konu ile ilgili olduğu gibi faktörler de düşünüldüğünde oldukça yüksek olduğu görülmektedir.

Geçerlik ve güvenirlik çalışması yapılan Demoulin Çocuklar İçin Benlik Algısı Ölçeği'nin norm çalışması yapılabilir, farklı özelliği olan çalışma gruplarına (düşük sosyo-ekonomik düzeyde yaşayan çocuklar, yetiştirme yurdunda kalan çocuklar, evlat edilmiş çocuklar vb.) uygulama yapılarak sınanması ölçeğin uygulama alanını genişletebilir.

Anahtar Kelimeler: Benlik algısı, geçerlik, güvenirlik, okul öncesi, 5-6 yaş çocuklar

Eurasian Journal of Educational Research, Issue 55, 2014, 73-90

Analysis of Open-Ended Statistics Questions with Many Facet Rasch Model

Neşe GÜLER*

Suggested Citation:

Güler, N. (2014). Analysis of open-ended statistics questions with many facet Rasch model. *Eurasian Journal of Educational Research*, 55, 73-90. http://dx.doi.org/10.14689/ejer.2014.55.5

Abstract

Problem Statement: The most significant disadvantage of open-ended items that allow the valid measurement of upper level cognitive behaviours, such as synthesis and evaluation, is scoring. The difficulty associated with objectively scoring the answers to the items contributes to the reduction of the reliability of the scores. Moreover, other sources of error also affect reliability. When measurement involves more than one source of error, as in the case of scoring open-ended items, item response theory, which removes the restriction of the classical test theory, is preferred.

Purpose of Study: The purpose of the study is to assess the infit-outfit statistics and reliability coefficients of the scores for a statistics exam composed of open-ended items using the many facet Rasch model (MFRM) analysis for each source of variability (i.e., students, items, and raters) and to interpret the reliability of the scores.

Methods: In this study, MFRM was used to analyse the answers given to 10 open-ended items in a Statistics I course; the answers were provided by 55 third year graduate students of the Psychological Counselling and Guidance Department of the Faculty of Education in the fall semester of the 2010-2011 academic year. The scoring was performed by three raters who were experts in statistics and work as academic staff at the university. Thereby, this study contains the following three sources of variability (facets): students, items, and raters. Measurement reports, including infit and outfit statistics, separation indexes and reliability coefficients were calculated for each facet by FACET computer package programme.

Findings and Results: According to the MFRM analysis, the reliability coefficients for the student and item facets were .79 and .90, respectively; moreover, the separation indexes of the student and item facets were 1.95

* Dr. Sakarya University, Sakarya, Turkey, gnguler@gmail.com

and 2.95, respectively. Additionally, complete consistency was found between the raters in this study.

Conclusions and Recommendations: The MFRM makes important contributions to the analysis of measurement results, the development of measurement tools, the organization of appropriate measurement circumstances, and the provision of effective training for raters. Because it is believed to provide important information, the use of the MFRM might be recommended when analysing the results obtained from exams in which open-ended items are used and through which important decisions about the students' future are made.

Keywords: Open-ended questions, reliability, many facet Rasch model

Introduction

One measurement tool that is frequently used in education is the open-ended item. These items enable students to freely communicate their answers and allow educators to analyse the insufficiencies and mistakes that cannot be analysed using other typical measurement tools, such as multiple-choice items (Hong, 1984). Open-ended items also enable students to pursue the process of thinking and strategy formation. Thus, those items help educators to understand each student's level of knowledge and asses how they structure their knowledge. Compared to multiple choice items, open-ended items offer three distinct advantages. Firstly, they remove the ability to select correct answers by chance, thus lessening measurement errors associated with other methods, which ultimately ensures the ability to obtain more reliable results. Secondly, open-ended items also eliminate the students' ability to select the correct answer through a process of elimination. For instance, for the equation $2(X + 4) = 38 - X$, students can find the correct answer with a multiple choice item by simply replacing X with the values given in the options and computing the answers, thereby succeeding despite not using the approach that is being assessed. In this instance, the measurement is actually assessing a different approach than the intended one, thereby leading to a decrease in the construct validity of the test. This is not an issue with open-ended items. Thirdly, open-ended items do not permit students to use corrective feedback in order to find the correct answer after a failed attempt; note that this is an issue with multiple-choice items (Bridgeman, 1992). For example, when a student fails to find the correct answer among the options on a multiple choice item, they can return to the question and employ a new strategy in an attempt to find the answer.

Despite the advantages, open-ended items also present some disadvantages. For example, a large portion of the time allocated for the entire assessment must be dedicated to writing the answers rather than thinking about them. This means fewer items can be included for a given amount of time permitted for the assessment, which lowers the sensitivity and the content validity of the measurement tool (Özçelik, 1998). Moreover, one of the most significant disadvantages of open-ended items that allow the valid measurement of upper level cognitive behaviours, such as

synthesis and evaluation, is scoring. The difficulty associated with objectively scoring the answers to the items contributes to a reduction in the reliability of the scores. Therefore, a great many studies have analysed the scoring of items (Alharby, 2006; Geer, 1988; Güler & Gelbal, 2010a; Hong, 1984; Levia, Rios, & Martinez, 2006). When open-ended items are rated as correct-incorrect (0-1), intra-rater reliability (i.e., whether or not a rater gives the same scores to the same answers at different times) and inter-rater reliability (i.e., whether or not different raters give the same scores to a specific answer) must be tested. The method commonly used to assess these aspects in the classical test theory (CTT) is the calculation of the Pearson product-moment correlation coefficient between the scores. A correlation value close to 1 suggests that consistency between scorings (i.e., rating reliability) is high, whereas a value close to 0 means that scoring reliability is low. However, note that the correlation coefficient is influenced by the size of the sample and that it is independent of the score averages; in fact, these are the greatest restrictions to its use. In this case, the t test between the score averages should be used when two scoring situations are available, and ANOVA should be used alongside the correlation coefficient in cases with more than two scoring situations (Goodwin, 2001; Güler & Gelbal, 2010b).

In addition to the scoring of answers given to for open-ended items, other sources of error can affect reliability. For example, different reliability coefficients can be calculated for various sources of error, such as the internal consistency for each item on the entire test and test-retest reliability (i.e., the consistency between answers given by the same student for the same items at different times), both of which are available with the CTT. Note that reliability cannot be assessed using a method through which all the sources of error are simultaneously assessed. In cases of measurement that contain more than one source of error (e.g., the case of scoring open-ended items), the generalizability theory and item response theory are preferred because they remove the restriction of the CTT. This study examines the reliability of scores from open-ended statistical items by using the many facet Rasch model (MFRM), which is an extension of the Rasch model developed by Linacre (1989). The MFRM is part of the item response theory, and the sources of student, item, and rater variability are treated together.

Many Facet Rasch Model

The MFRM is conceptually similar to regression analysis; i.e., the dependent variable is the logistic transformation of the probability of the rates of scores that a student can achieve on an item, and the independent variables are the sources of variability (facets), such as a student's level of ability, an item's level of difficulty, and a rater's level of severity/leniency in scoring (Randall & Engelhard, 2009). Thus, a MFRM in which three facets are available can be stated as follows:

$$\text{Log}\,(P_{sirc} / P_{sirc\text{-}1}) = B_s - D_i - C_r - F_c$$

P_{sirc}: The probability of student "s" being rated on item "i" by rater "r" with category c.

$P_{sirc\text{-}1}$: The probability of student "s" being rated on item "i" by rater "r" with category c-1.

B_s: The ability of student "s.".

D_i: The difficulty of item "i."

C_r: The severity of rater "r."

F_c: The difficulty of the step up from category c-1 to category c.

MFRM enables parameter predictions that are independent of the sample in relation to each facet. More specifically, item response theory is based on the supposition that no interactions exist between the facets; in contrast, the generalizability theory supposes that interactions do exist between them (Smith & Kulikowich, 2004). The latter approach allows for the observation of the levels of different facets, such as students' levels of ability, raters' levels of severity/leniency in scoring, and the levels of difficulty for items, on a single linear scale (i.e., usually called the logit scale). On such a scale, each student's level of ability is included as predictions that are independent of the distributional properties of certain items and independent of the scores given by certain raters. Similarly, predictions can be made for the levels of difficulty for the test items and raters' levels of severity/leniency, both of which are independent of the distributional properties of the other facets (Smith & Kulikowich, 2004). Moreover, students who are not considered to be a source of variability (facet) in the generalizability theory and who are described as an object of measurement are also considered as a source of variability in the MFRM. Thus, it is possible to simultaneously calculate separate reliability coefficients for each facet (e.g., students, items and raters) (Alharby, 2006).

The probabilities of students' answers are called "log-odds" and are represented on a logit table with "log-odds" units or "logits" units. Increasing positive values on the logits table reference high abilities for students, a high level of difficulty for the items, and increased severity for the raters; accordingly, high negative values are related with lower levels of ability for students, lower levels of difficulty for the items, and leniency in scoring for the raters. The visibility of the levels of each facet on such a logit table allows the researcher to see the ordering of the levels of the facets and the size of the difference between each element of each facet (Güler & Gelbal, 2010a; Hetharman, 2004).

In the MFRM, the infit and outfit statistical values are used to evaluate the suitability of the data. Additionally, the reliability of the separation index is also examined for each facet. This coefficient is an indicator of the extent to which the elements in the source of each variability (e.g. individuals or items) are separated from each other and is the proportion of the real score variance to the observed score variance. It is calculated using the following equation:

$R = SD^2 - MSE / SD^2$

Here, SD^2 represents the observed variance in a facet, while MSE represents the squared average of the prediction error (i.e., the square of the standard error) (Engelhard, 1994; Randall & Engelhard, 2009). Andrich (1982) gave detailed explanation how the separation index is obtained as well as the relationship with the KR-20 coefficient in detail (as cited in Engalhard, 1994, pg.62). In accordance with the

determination of rater consistency, high values for the reliability of separation index for raters predicate that there are significant differences in rater consistency.

The FACET programme, i.e., a software package that computes the MFRM, can be used to produce a table showing the unexpected responses in addition to logit scale, infit and outfit statistics and reliability coefficients for each facet. In cases with facets with low reliability, unexpected response tables can provide important information to diagnose what the source of unacceptable reliability value. In fact, the table shows which rater has scored which student's answer in an unexpected way. For instance, in a case with three raters, if the first rater has given a low score to the tenth student for their answer to the second item, whereas the second and third raters have given higher scores for the same response, this table will contain information to reveal this situation. Thus, it helps to detect unexpected responses when they emerge and helps the researchers to determine what the sources of low reliability and to plan more reliable measurement conditions. The research conducted by Nakamura (2002) offers information on the education of raters and on the revision of items; it is a good reference for those who wish to obtain further knowledge on this particular aspect.

This study uses the MFRM analysis to compute the separation indexes and reliability coefficients of the scores for a statistics exam composed of open-ended items for each facet (i.e., students, items, and raters) and to interpret the reliability of the scores.

Method

Researc Design

This is a descriptive survey and qualitative research method was used. In the study the MFRM to analyse the answers given to 10 open-ended items.

Study Group

This study uses the MFRM to analyse the answers given to 10 open-ended items in a Statistics I course; the answers were provided by 55 third year graduate students of the Psychological Counselling and Guidance Department of the Faculty of Education in the fall semester of the 2010-2011 academic year. Twenty nine of the students were female and twenty six were male.

Research Instrument and Procedure

The scoring was performed by three raters who were experts in statistics and work as academic staff at the university. In order to prepare the answer key for the test, the raters answered the items separately and then compared their answers; consequently, they agreed on the common answers for the answer key. Moreover, in case answers provided by students required comments from the raters, all potential answers were also noted. Thus, an answer key was jointly formed, and the raters used this common answer key to independently perform scorings of the tests. One of the statistic items is shown in Table 1 as an example.

Table1

Examples of the Statistics Questions

Question: The number of correct answers from 8 students on a 20-item mathematics exam.

Students	Number of correct answers
1	6
2	13
3	16
4	19
5	9
6	1
7	6
8	10

According to table;

a) Find the mode, median, and mean of the data.

b) Draw the histogram of the data and interpret it (At most 3 sentences).

The standard deviation for the number of correct answers is 6. The same students also took physics, chemistry, and Turkish exams, each of which included 20 items, and the standard deviations for the number of correct answers in the physics exam, the chemistry exam, and the Turkish exam were 8, 3, and 5, respectively.

According to these standard deviations, interpret the variability of the students' correct answers in 3 sentences or less.

As such, this study contains the following three sources of variability: students, items, and raters. Measurement reports, including infit and outfit statistics and standardized residual values, were calculated for each facet. The FACET computer package programme developed by Linacre (2007) was employed in the analyses of the answers.

Results

The logit table for the scores given by the three raters for the answers from the 55 students on the 10 item test is presented in Figure 1.

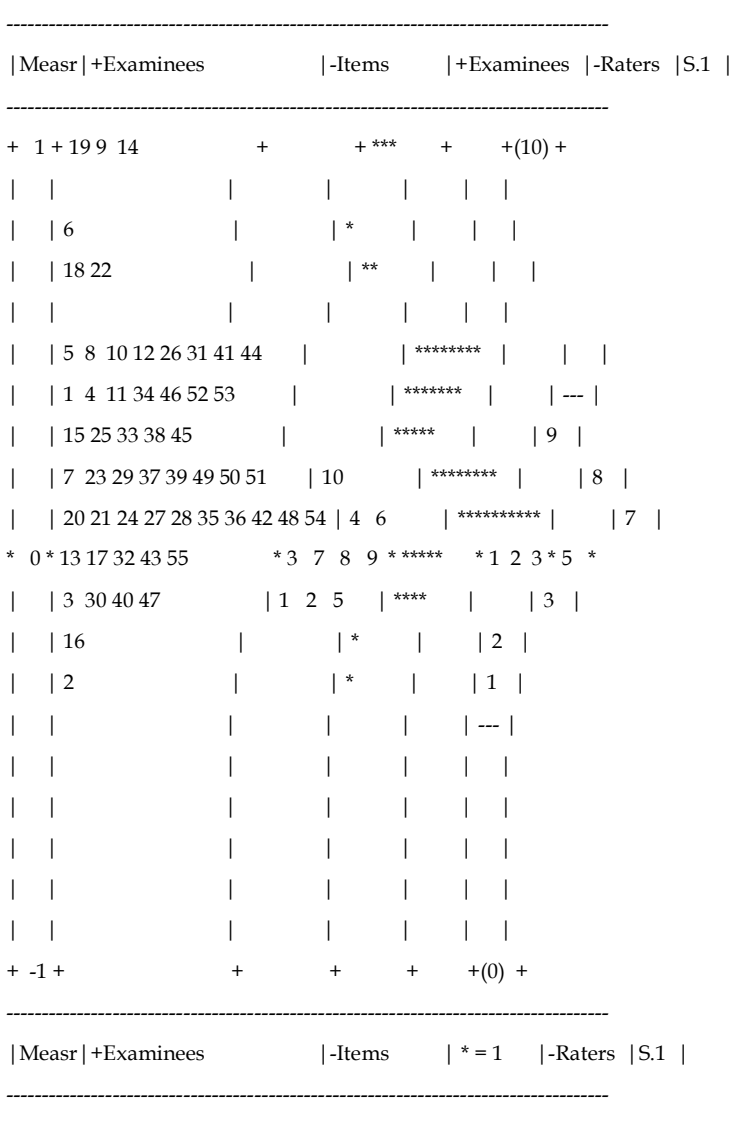


Figure 1: Logit Map for Three Facets

This figure presents the results for all the sources of variability on a single linear scale. As can be seen in the column where the students (i.e., "examinees") are shown, the students were ordered based on their scores from -1 to 1, i.e., from those with the fewest correct answers to those with the most correct answers. Thus, student 2 showed the least ability, whereas students 19, 9, and 14 demonstrated the highest ability level. In the column showing the items ranked according to difficulty, the item closest to -1 is the item with the lowest level of difficulty (i.e., the least difficult), and

as the item approaches 1, its level of difficulty increases (i.e., it becomes more difficult). Hence, the least difficult items are number 1 and 2, and the most difficult item is number 10. In the raters' column, the movement from -1 to 1 demonstrates a movement from the most lenient rater to the strictest rater. From Figure 1, the three raters included in the study performed at the same level of severity/leniency; i.e., they all scored at the level of 0 logits in terms of scoring. Table 2 shows the analysis report in relation to the students.

Table 2

Students' Measurement Report

Obsvd Score	*Obsvd Count*	*Obsvd Average*	*Fair-M Average*	*Measure*	*Model S.E.*	*Infit*		*Outfit*		*Nu*	*Student*
						MnSq	*Zstd*	*MnSq*	*Zstd*		
300	30			(2.00	1.60)	Maximum				19	19
298	30	9.9	9.94	.95	.41	0.3	0	0.3	0	9	9
298	30	9.9	9.94	.95	.41	0.3	0	0.2	0	14	14
297	30	9.9	9.91	.83	.31	0.5	0	0.7	0	6	6
295	30	9.8	9.85	.69	.22	1.2	0	0.8	0	18	18
295	30	9.8	9.85	.69	.22	1.1	0	0.4	0	22	22
290	30	9.7	9.70	.54	.14	0.8	0	0.3	0	26	26
290	30	9.7	9.70	.54	.14	0.7	0	0.5	0	44	44
289	30	9.6	9.67	.52	.13	0.7	0	0.4	0	10	10
289	30	9.6	9.67	.52	.13	0.8	0	0.4	0	10	10
289	30	9.6	9.67	.52	.13	0.6	0	0.5	0	41	41
288	30	9.6	9.65	.50	.13	0.7	0	0.4	0	8	8
288	30	9.6	9.65	.50	.13	0.7	0	0.9	0	31	31
286	30	9.5	9.59	.47	.12	0.6	0	0.4	0	5	5
281	30	9.4	9.45	.42	.10	0.7	0	0.9	0	1	1
280	30	9.3	9.42	.41	.10	1.1	0	0.8	0	11	11
280	30	9.3	9.42	.41	.10	1.0	0	0.5	0	46	46
279	30	9.3	9.39	.40	.09	0.7	0	0.7	0	52	52
278	30	9.3	9.36	.39	.09	1.2	0	0.5	0	34	34
276	30	9.2	9.30	.37	.09	0.6	0	0.4	-1	4	4
274	30	9.1	9.24	.36	.08	0.9	0	0.7	0	53	53
267	30	8.9	9.04	.32	.07	1.3	0	1.6	0	25	25
265	30	8.8	8.98	.31	.07	1.1	0	0.9	0	15	15
255	30	8.5	8.67	.26	.06	0.7	0	0.8	0	33	33
255	30	8.5	8.67	.26	.06	1.2	0	1.0	0	38	38
256	30	8.5	8.70	.26	.06	0.7	0	0.6	0	45	45
252	30	8.4	8.57	.25	.06	1.0	0	0.9	0	49	49
249	30	8.3	8.48	.24	.06	1.1	0	1.0	0	23	23
238	30	7.9	8.11	.20	.06	0.8	0	1.0	0	7	7
235	30	7.8	8.01	.19	.05	0.8	0	0.8	0	29	29
234	30	7.8	7.98	.19	.05	1.1	0	1.1	0	50	50
231	30	7.7	7.88	.18	.05	0.9	0	0.9	0	37	37
233	30	7.8	7.94	.18	.05	0.9	0	1.0	0	39	39
228	30	7.6	7.77	.17	.05	1.4	1	1.5	1	51	51

Table 2 Continue

Obsvd Score	Obsvd Count	Obsvd Average	Fair-M Average	Measure	Model S.E.	Infit		Outfit		Nu	Student
						MnSq	Zstd	MnSq	Zstd		
220	30	7.3	7.49	.15	.05	1.2	0	1.1	0	35	35
220	30	7.3	7.49	.15	.05	1.2	0	1.2	0	54	54
201	29	6.9	7.11	.12	.05	1.4	1	1.5	1	28	28
197	30	6.6	6.67	.09	.05	1.1	0	1.0	0	27	27
196	30	6.5	6.63	.09	.05	1.0	0	1.0	0	42	42
190	30	6.3	6.41	.08	.05	1.2	0	1.2	1	24	24
187	30	6.2	6.30	.07	.05	1.2	0	1.1	0	48	48
181	30	6.0	6.08	.06	.05	1.3	1	1.3	1	20	20
183	30	6.1	6.15	.06	.05	0.8	-1	0.8	-1	21	21
183	30	6.1	6.15	.06	.05	0.9	0	0.9	0	36	36
167	30	5.6	5.56	.03	.04	0.8	-1	0.8	-1	43	43
154	30	5.1	5.09	.01	.04	1.1	0	1.0	0	13	13
146	30	4.9	4.80	-.01	.04	1.0	0	1.0	0	17	17
139	30	4.6	4.54	-.02	.04	1.0	0	0.9	0	55	55
136	30	4.5	4.43	-.03	.04	0.9	0	0.9	0	32	32
109	30	3.6	3.48	-.08	.05	0.9	0	0.8	0	47	47
104	30	3.5	3.31	-.09	.05	1.2	0	1.1	0	3	3
106	30	3.5	3.37	-.09	05	1.0	0	1.2	0	30	30
101	30	3.4	3.20	-.10	05	1.1	0	1.4	1	40	40
79	30	2.6	2.46	-.15	05	1.2	1	1.7	1	16	16
31	30	1.0	0.94	-.33	.08	1.4	0	1.0	0	2	2
226.7	30.0	7.6	7.61	.26	.09	0.9	-0.0	0.9	-0.1	mean(cou.=55)	
67.2	0.1	2.2	2.30	.27	.08	0.3	0.7	0.3	0.8	S.D.	

RMSE (Model): .12 Adj. S. D.: .24 Seperation: 1.95 Reliability: .79

Fixed (all same) chi-square: 398.2 d.f.: 53 significance: .00

Random (normal) chi-square: 43.5 d.f.: 52 significance: .79

According to the last column in Table 2, student 19 is the most capable student (i.e., with the logit score of 2.00), and student 2 is the least capable student (i.e., with the logit score of -0.33). The infit and outfit statistics should be examined in order to check the consistency between the data and the model (Randall & Engelhard, 2009). The outfit statistic is the mean-square of the residuals between the observed data and the expected data and is quite sensitive to the unexpected extreme values (Engelhard, 1994). For instance, it is sufficiently sensitive to detect a student giving an incorrect answer to an easy question although he/she gave correct answers most of the other questions. On the other hand, the infit statistic is less sensitive to extreme values than the outfit statistic. The desired value for the infit statistic is 1. Values above 1 indicate that the data contains more variance than expected, whereas values below 1 indicate that the data contains less variance than expected (i.e., interdata dependence) (Hetherman, 2004). In the case of fit between the data and the model, the expected

value for both mean-squares is 1. The value limits mentioned in the literature for both the infit and the outfit statistics are rather similar. The acceptable values range between 0.6 and 1.5 according to Lunz, Wright, and Linacre (1990), whereas Turner (2003) reported the acceptable range as 0.5 to 1.5. Thus, students numbered 9, 14, 22, 26, 10, 12, 8, 5, 4, and 25 display infit and outfit statistics outside the acceptable values. Finally, the separation index in the last line was 1.95, and the reliability coefficient was 0.79. Note that the reliability coefficient is interpreted to be equivalent to Cronbach's alpha or to the generalizability coefficient (Nakamura, 2002). Thus, the internal consistency coefficient of the test is acceptable. The values for the items are shown in Table 3.

Table 3

Items' Measurement Report

Obsvd Score	Obsvd Count	Obsvd Average	Fair-M Average	Measure	Model S.E.	Infit		Outfit		Nu	Items
						MnSq	Zstd	MnSq	Zstd		
914	162	5.6	6.36	.18	.02	1.1	1	1.3	1	10	10
1108	162	6.8	7.96	.07	.02	1.0	0	1.2	0	4	4
1134	162	7.0	8.13	.06	.02	1.0	0	0.8	0	6	6
1195	162	7.4	8.50	.02	.03	1.0	0	0.8	0	9	9
1243	162	7.7	8.75	-.01	.03	1.0	0	0.7	-1	8	8
1271	162	7.8	8.88	-.03	.03	1.0	0	0.7	-1	3	3
1281	162	7.9	8.93	-.04	.03	1.0	0	0.7	0	7	7
1336	162	8.2	9.16	-.08	.03	1.4	2	1.4	1	5	5
1334	161	8.3	9.18	-.09	.03	0.9	0	0.6	-1	1	1
1352	162	8.3	9.22	-.09	.03	0.8	-1	0.5	-1	2	2
1216.8	161.9	7.5	8.51	.00	.03	1.0	0.1	0.9	-0.5	Mean	(count:10)
128.4	0.3	0.8	0.83	.08	.00	0.2	.1	0.3	1.0	S.D.	
RMSE (Model): .03			Adj. S. D.: .08		Seperation: 2.95			Reliability: .90			
Fixed (all same) chi-square: 105.2			d.f.: 9		significance: .00						
Random (normal) chi-square: 9.1			d.f.: 8		significance: .34						

According to Table 3 and Figure 1, the most difficult item is number 10 (i.e., with the logit value of 0.18), and the easiest items are 1 and 2 (i.e., both with the logit value of -0.09). A close examination of the infit and outfit statistics of the items clearly reveals that those values are within acceptable limits for all of the items (i.e., the values are between 0.5 and 1.6). The separation index for the items was 2.95, whereas the reliability coefficient was calculated as 0.90. Upon examining the order of items according to the level of difficulty, we found that the first two items were the easiest

for the students, while the final item was the most difficult; moreover, the rest of the items were close to each other in terms of difficulty, i.e., at the medium level. When the items on a test vary in terms of difficulty level, ordering them from easiest to most difficult will help reduce students' test anxiety, thereby allowing the educator to obtain the students' real scores and raising the reliability of the scores. From this perspective, the items in the study were well organised according to the level of difficulty. The values for the raters are shown in Table 4.

Table 4

Raters' Measurement Report

Obsvd Score	Obsvd Count	Obsvd Average	Fair-M Average	Measure	Model S.E.	Infit		Outfit		N	Raters
						MnSq	Zstd	MnSq	Zstd		
3991	540	7.4	8.55	.01	.01	1.0	0	0.9	0	3	3
4074	539	7.6	8.70	.00	.01	0.8	-2	0.8	-1	1	1
4103	540	7.6	8.74	-.01	.01	1.2	2	0.9	0	2	2
4056.0	539.7	7.5	8.66	.00	.01	1.0	0.2	0.9	-0.8	Mean	(count:3)
47.5	0.5	0.1	0.08	.01	.00	0.1	2.2	0.0	0.2	s.d.	
RMSE (Model): .01			Adj. S. D.: .00		Seperation: .00			Reliability: .00			
Fixed (all same) chi-square: 1.5			d.f.: 2		significance: .48						

The consistency of the scores assigned by the raters is very important for the reliability of the scoring. Differences in scoring can often be observed between raters in an environment with more than one rater even when the raters have been provided with a well-designed, shared working programme to help them assign consistent scores. Since the differences in scoring are reflected in the students' scores, this creates a bias and threatens the reliability of the scores (Nakamura, 2000). From this perspective, the data in Table 4 indicates that the three raters in this study approached scoring with very similar severity/leniency. More specifically, rater 3 was the most severe (i.e., with a logit value of 0.019), whereas rater 2 was the most lenient (i.e., with a logit value of -0.01); additionally, the logit value for rater 1 was 0. In contrast to the separation indexes for the students and the items, the desirable value for the separation index for the raters is close to 0. If complete consistency exists among the raters' scoring, then the separation index will be 0 (Nakamura, 2000; Linacre, 1989). As is evident in Table 4, the separation index for the raters is 0; therefore, complete consistency was achieved with the raters in this study. In addition to these results, the statistics for the categories can be seen in Table 5.

Table 5

Category Statistics

Data				Quality Control			Step calib.		Expectation				
Sc.	*counts used*	*%*	*cm. %*	*Av. mean*	*Exp. mean*	*Out fit*	*mean*	*s.e.*	*mean catg.*	*at -.5*	*most prob from*	*Thurst. threshold at*	*Cat peak pr.%*
0	267	16	16	-.03	-.03	.8			(-.60)		low	Low	100
1	5	0	17	.03	-.01	.9	3.96	.08	-.31	-.44		-.08	1
2	18	1	18	-.01	.02	.4	-1.27	.08	-.19	-.24		-.08	3
3	25	2	19	.06	.06	.6	-.29	.08	-.11	-.15		-.06	4
4	6	0	20	.06	.09	.5	1.50	.08	-.05	-.08		-.04	1
5	162	10	30	.13	.12	.8	-3.19	.08	.00	-.03		-.04	17
6	3	0	30	.05	.16	.4	4.13	.07	.05	.03		.05	0
7	5	0	30	.24	.20	.5	-.33	.07	.11	.08		.05	0
8	37	2	33	.24	.25	.7	-1.78	.07	.19	.15		.05	3
9	41	3	35	.32	.30	1.1	.17	.06	.31	.24		.07	3
10	1050	65	100	.37	.37	1.1	-2.91	.06	(.58)	.44	.00	.08	100

The data in Table 5 shows that the frequencies of the values in the 0.5 to 10 category ranging in the 0 to 10 scoring category are very low. These mid values are not very often used in scoring. Thus, a similar study should be conducted for scoring with three categories containing the scores 0.5 to 10.

Discussion and Conclusions

The MFRM has been used in many measurement settings to simultaneously provide a considerable amount of useful information about many facets (e.g., students, items, occasions, or raters) in a single analysis (Atılgan, 2005; Baştürk, 2010; Nakamura, 2002; Nakamura, 2000; Semerci, 2011). This study used the MFRM to analyse the scores that three raters assigned to the answers given by 55 students on a statistics test containing 10 open-ended items. This enables us to gather detailed information on each facet in the assessment and to interpret the results as a whole. As demonstrated in the study, the information for each facet is accessible through separate analysis report tables, and the position of students, items, and raters in relation to each other on the logit table easily communicates information about the three facets. The extent to which separation indexes and reliability coefficients for each facet and the data as a whole yield reliable results can be examined in the analysis report tables. Furthermore, the infit and outfit statistics and the presence of any unsuitable elements within each facet can be identified. Consequently,

inappropriate items can be changed or removed from the prospective measurement tool, and when unsuitability among the raters is identified, required education can be provided to alleviate the situation (Nakamura, 2002). The data in this study indicates that the reliability was not adversely affected by any of the sources of variability. The inter-rater reliability in particular is very good. Since the infit and outfit statistics did not exceed the desired values, no unexpected responses were identified; however, too many scoring categories (i.e., 10) were used, and categories other than 0, 5, and 10 were not used very much. Therefore, if that statistics test was used again in the future, a reduction in the scoring categories available to the raters would be more appropriate.

Therefore, the MFRM makes important contributions to the analysis of test results by easily allowing the simultaneous assessment of many perspectives; moreover, it can be used in the development of measurement tools, in the organisation of the appropriate measurement circumstances, and in the provision of effective training for raters (Kim, Park, & Kang, 2012; Looney, 2012; Nakamura, 2000; Revesz, 2012). Because it is believed to provide important information, the use of the MFRM might be recommended when analysing the results obtained from exams in which open-ended items are used and through which important decisions concerning the students' futures are made. In addition to this, since one unique part of the MFRM is the detailed information in the rater measurement report, it can be used not only for educational settings but also for other assessment conditions with more than one rater (e.g., performance assessment in medicine, engineering, or art).

References

Alharby, E. R. (2006). *A comparison between two scoring methods, holistic vs. analytic using two measurement models, the generalizability theory and the many facet Rasch measurement within the context of performance asssessment.* Unpublished phd. dissertation. The Pennsylvenia State University.

Atılgan, H. (2005). Analysis of special ability selection examination for music education department using many-facets Rasch measurement (İnönü University Case). *Eurasian Journal of Educational Measurement*, 20, 62-73.

Baştürk, R. (2010). Evaluating of research assignments with many facets Rasch measurement model. *Measurement and Evaluation in Education and Psychology*. 1(1), 51-57.

Bridgeman, B. (1992). A comparison of quantative questions in open-ended and multiple-choice formats. *Journal of Educaitonal Measurement*. 29, 3, 253-271.

Engelhard, G. (1994). Examining rater errors in the assessment of written composition with a many-faceted Rasch model. *Journal of Educational Measurement*. 31, 2, 93-112.

Geer, J. G. (1988). What do open-ended questions measure? *Public Opinion Quarterly*, 52, 3, 365-371.

Goodwin, L. D. (2001). Interrater agreement and reliability. *Measurement in Psychical Education and Exercises Science,* 5 (1), 13-14.

Güler, N. & Gelbal, S. (2010 (a)). A study based on classical test theory and many facet Rasch measurement. *Eurasian Journal of Educational Research*, 38, 108-125.

Güler, N. & Gelbal, S. (2010 (b)). Studying reliability of open ended mathematics ıtems according to the classical test theory and generalizability theory. *Educational Sciences: Theory & Practice*, 10, 2, 1011-1019.

Hetherman, S. C. (2004). *An application of multi faceted Rasch measurement to monitor effectiveness of the written composition in English in the new york city department of education.* Unpublished phd. dissertation. Teacher College, Colombia University, Colombia.

Hong, L. K. (1984). List processing free responses: analysis of open-ended questions with word processor. *Qualitative Sociology*, 7, 2, 98-109.

Kim, Y., Park, I. ve Kang, M. (2012). Examining Rater Effects of the TGMD-2 on Children with Intellectual Disability. *Adapted Physical Activity Quarterly.* 29, 346-365.

Leiva, F. M., Montoro, F. J. & Martinez, T. L. (2006). Assessment of ınterjudge reliability in the open-ended questions coding process. *Quality & Quantity*, 40, 519-537.

Linacre, J. M. (2007). *A user's guide to FACETS. Rasch model computer programs*. Chicago, IL.

Linacre, J. M. (1989). *Many facet Rasch measurement*. Unpublished phd. dissertation. University of Chicago, Chicago.

Looney, M. A. (2012). Judging Anomalies at the 2010 Olympics in Men's Figure Skating. *Measurement in Physical Education and Exercise Science*. 16, 55-68.

Lunz, M. E., Wright, B. D. & Linacre, J. M. (1990). Measuring the ımpact of judge severity on examination scores. *Applied Measurement in Education*. 3, 4, 331-345.

Nakamura, N. (2002). Teacher assessment and peer assessment in practice. *Educational Studies*, 44, 143. 204-215.

Nakamura, N. (2000). Many-facet Rasch based analysis of communicative language testing results. *Journal of Communication Students*, 12, 3-13.

Özçelik, D. A. (1998). *Ölçme ve değerlendirme* [Measuremet and evaluation] (2nd ed.). ÖSYM Yayınları, Ankara.

Randall, J. & Engelhard, G. Jr. (2009). Examining teacher grades using Rasch measurement theory. *Journal of Educational Measurement*, 46, 1, 1-18.

Revesz, A. (2012). Working Memory and the Observed Effectiveness of Recasts on Different L2 Outcome Measures. *Language Learning*. 62, 1, 93-132.

Semerci, Ç. (2011). Mikro Öğretim Uygulamalarının Çok-Yüzeyli Rasch Ölçme Modeli ile Analizi [Analyzing microteaching applications with many-facet Rasch measurement model]. *Eğitim ve Bilim/ Education and Science*, 36 (161), 14-25.

Smith, V. E. & Kulikowich, M. J. (2004). An application of generalizability theory and many facet Rasch measurement using a complex problem-solving skills assessment. *Educational and Psychological Measurement*, 64, 617-639.

Turner, J. (2003). *Examining on art portfolio assessment using a many facet Rasch measurement model*. Unpublished phd. dissertation. Boston College, Boston.

Açık Uçlu İstatistik Maddelerine Verilen Cevapların Çok Yüzeyli Rasch Modeli ile Analizi

Atıf:

Güler, N. (2014). Analysis of open-ended statistics questions with many facet Rasch model. *Eurasian Journal of Educational Research*, 55, 73-90. http://dx.doi.org/10.14689/ejer.2014.55.5

Özet

Problem Durumu: Eğitimde kullanılan ölçme araç ve yöntemlerinden biri de açık-uçlu maddelerdir. Açık-uçlu maddeler, öğrencilerin cevaplarını kendi ifadeleriyle özgürce aktarabilmelerini sağlarken diğer bazı ölçme araçlarıyla analiz edilemeyen eksikleri/hataları analiz edebilmeyi de mümkün kılar. Açık-uçlu maddeler öğrencilerin düşünme ve strateji kurabilme sürecinin izlenmesini; öğrencinin bilgi düzeyinin ve bilgiyi nasıl yapılandırdığının daha geçerli şekilde anlaşılabilmesini sağlar. Açık-uçlu maddelerin, çoktan seçmeli maddelere göre başlıca üç avantajı bulunmaktadır: 1. Şans başarısını ortadan kaldırarak bu sebeple oluşacak ölçme hatasını azaltıp; daha güvenilir sonuçlara ulaşılmasını sağlar. 2. Çoktan seçmeli maddelerde öğrenci, doğru cevabı seçeneklerden giderek de bulabilmektedir. Ancak bu tür bir sağlama yapılarak doğru cevaplamak, açık-uçlu maddelerde mümkün değildir. Örneğin; 2(X+4)= 38-X eşitliğinde X değerinin bulunmasında; öğrenci seçeneklerde verilen değerleri denklemde yerine koyarak doğru cevabı bulabilir. Halbuki öğrenciden bilmesi istenilen çözüm yolu bu değildir. Bu durum, ölçmenin istenilen yapıdan farklı bir yapıyı ölçmesine sebep olacaktır ki bu da testin yapı geçerliğinin düşmesine yol açar. Açık-uçlu maddelerde yapı geçerliğini tehdit eden bu tür bir faktör bulunmamaktadır. 3. Çoktan seçmeli maddelerin doğasında yer alan istenmeyen düzeltici dönütün yapılmasına izin vermez. Öğrenci, doğru cevabı seçeneklerde bulamayınca soruya tekrar dönüp yeni bir stratejiyle cevabı bulma yoluna gitmektedir. Açık-uçlu maddelerde bu tür bir durum söz konusu değildir.

Özellikle sentez ve değerlendirme gibi üst düzey bilişsel davranış basamaklarının geçerli bir şekilde ölçülebilmesini sağlayan açık-uçlu maddelerin en önemli

dezavantajı ise puanlanmasıdır. Açık-uçlu maddelere verilen cevapların objektif puanlanmasındaki güçlük, elde edilen puanların güvenirliğini düşüren önemli sebeplerden biridir. Açık-uçlu maddelere güvenirliği etkileyen farklı hata kaynakları da bulunmaktadır. Sınavın bütününü oluşturan her bir maddenin iç-tutarlılığı, farklı zamanlarda aynı maddelere aynı öğrencilerin verdikleri cevaplar arasındaki tutarlığı ifade eden test-tekrar test güveniliği gibi klasik test kuramı (KTK)'nda yer alan herbir hata kaynağı için farklı güvenirlik katsayıları hesaplamak mümkündür. KTK'da tüm hata kaynaklarının ve bunlar arasındaki etkileşimin birlikte aynı anda ele alınabildiği bir yöntemle güvenirliğin hesaplanması mümkün olmamaktadır. Açık-uçlu maddelerde olduğu gibi hata kaynaklarının birden fazla olduğu ölçme durumlarında KTK'nın bu sınırlılığını ortadan kaldıran genellenebilirlik ve madde tepki kuramlarının (MTK) kullanılması tercih edilmektedir.

Bu çalışmada, açık-uçlu istatistik maddelerinden alınan puanların güvenirliği; öğrenci, madde ve puanlayıcı yüzeyinin birlikte ele alındığı MTK'da yer alan, Rasch modelinin bir uzantısı olan çok yüzeyli Rasch modeli (ÇYRM) kullanılarak incelenmiştir.

Araştırmanın Amacı:Bu çalışmada, açık-uçlu maddelerden oluşan istatistik sınavı puanlarının ÇYRM analiziyle herbir yüzey (öğrenciler, maddeler ve puanlayıcılar) için uyum indeksleri ve güvenirlik katsayılarının bulunması, sonuçlar doğrultusunda puanların güvenirliğinin yorumlanması amaçlanmıştır.

Araştırmanın Bulguları: Araştırmada yer alan 55 öğrencinin 10 maddeye verdiği cevapların üç puanlayıcı tarafından puanlanmasıyla elde edilen veriler logit cetvelle incelenmiştir. Bu cetvelde tüm yüzeylerin sonuçlarını ortak bir doğrusal ölçek üzerinde görmek mümkündür. Cetvelde, öğrenci sütunu incelendiğinde, -1'den 1'e maddeleri en az doğru cevaplayan öğrencilerden en çok doğru cevaplayanlara doğru bir sıralama yer almaktadır. Böylece, en az başarı gösterenin 2. (logit puanı -0.33); en yüksek başarı gösterenlerin 19. (logit puanı 2.00), 9. ve 14. öğrenciler olduğunu açıkça görmek mümkündür. Maddelerin yer aldığı sütunda da -1'e en yakın madde, güçlük düzeyi en düşük (en zor) iken; 1'e yaklaştıkça maddelerin güçlük düzeyleri artmakta (en kolay)'dır. Böylece, en zor 1. ve 2.; en kolay 10. maddenin olduğu görülmektedir. Puanlayıcı sütununda -1'den 1'e; en cömert puan verenden en katı puanlayıcıya doğru bir gidiş söz konusudur ve üç puanlayıcının da puanlamadaki katılık-cömertlik düzeylerinin aynı olduğu (0 logits düzeyinde) görülmektedir. Verilerin, modele uyumunu iç ve dış uyum istatistikleri göstermektedir. Dış-uyum, gözlenen ile beklenen veriler arasındaki artıkların kareler ortalamasıdır ve beklenmedik uç değerlere karşı oldukça duyarlıdır. İç-uyum ise dış-uyuma göre uç değerlere karşı daha az duyarlıdır. İç-uyum için istenilen değer 1 olup; daha büyük değerler verilerin beklenenden daha fazla değişim gösterdiğini, daha küçük değelerse beklenenden daha az değişim olduğunu (veriler arası bağımlılık) gösterir. Verilerin modele uyumlu olması durumunda her iki kareler ortalaması için de beklenen değerler 1'dir. Alan yazında uyumun olduğunu söyleyebilmek üzere; dış ve iç uyum için belirtilen sınır değerler çok büyük farklılıklar göstermemektedir. Kabul edilebilir değerler (0.6, 1.5) ya da (0.5, 1.5) aralığında yer almaktadır. Buna göre; 9, 14, 22, 26, 10, 12, 8, 5, 4, 25 numaralı öğrenciler kabul edilebilir sınırların dışında iç ya da dış

uyum değerleri göstermişlerdir. Son olarak, ayırma indeksinin 1.95 ve güvenirlik katsayısının .79 olduğu görülmüştür. Buradan, testin iç-tutarlılık katsayısının kabul edilebilir düzeyde olduğu söylenebilir.

Maddeler için elde edilen analiz sonuçları incelendiğinde (Şekil 1), en zor 10. (logit değeri 0.18), en kolay 1. ve 2. maddeler (logit değeri -.09) dir. Maddelerin iç ve dış uyumları incelendiğinde, tüm maddelere ilişkin bu değerlerin kabul edilebilir sınırlar (0.5, 1.6) içinde yer aldığı görülmektedir. Maddelere ait ayırma indeksi 2.95, güvenirlik katsayısı .90 olarak bulunmuştur. Bu bilgiler dışında, maddelerin güçlük düzeylerine göre sıralaması incelendiğinde, ilk iki maddenin öğrencilere en kolay, en son maddenin en zor geldiği ve diğer maddelerin güçlük düzeyleri açısından birbirine yakın ve orta düzeyde olduğu görülmektedir. Sınavlarda yer alan maddelerin güçlük düzeyleri farklılık gösterdiğinde, maddelerin kolaydan-zora doğru sıralanması öğrencilerin sınav kaygısının düşmesine yardımcı olacak; bu durum öğrencilerin gerçek puanlarını görebilmemize dolayısıyla puanların güvenirliğinin artmasına katkı sağlayacaktır. Bu açıdan incelendiğinde, maddelerin güçlük düzeylerine göre iyi organize edildiği söylenebilir.

Puanlayıcı ölçme raporu incelendiğinde, üç puanlayıcının puanlama açısından birbirine çok yakın cömertlik-katılık düzeyinde olduğu söylenebilir. Puanlamada en katı 3. (logit değeri 0.01), en cömert 2. (logit değeri -0.01) puanlayıcının ve 1. puanlayıcının 0 logit değerine sahip olduğu görülmektedir. Puanlayıcılara ilişkin ayırma indeksinin, öğrenciler ve maddeler için elde edilenlerin aksine 0'a yakın bir değer alması istenir. Puanlayıcıların puanlamaları arasında tam bir tutarlılık söz konusuysa, ayırma indeksi 0 olacaktır. Puanlayıcıların ayırma indeksi 0 olup, puanlayıcılar arasında tam bir tutarlılığın olduğu söylenebilir.

Ayrıca, çalışmada yer alan puan kategorilerine ilişkin yer alan raporda kategoriler için frekans ve yüzde değerleri elde edilmiştir. Buna göre; 0, 5 ve 10 puanları arasında kalan değerlerin frekansları oldukça azdır. Bu ara değerlerin puanlamada çok kullanılmadığı söylenebilir. Böylece, benzer bir çalışmanın sadece 0, 5 ve 10 puanlarından oluşan üç kategori üzerinden düzenlenmesinin uygun olacağı söylenebilir.

Sonuç ve Öneriler: ÇYRM analizi, ölçmedeki farklı yüzeylere ilişkin hem tek tek ve ayrıntılı bilgi edinmemizi sağlarken hem de bir bütün olarak elde edilen sonuçların yorumlanmasına izin vermektedir. Herbir yüzeye ilişkin bilgiler ayrı ayrı sunulan analiz tablolarıyla incelenebilirken, yüzeylerin ortak logit-cetveliyle tüm yüzeylerin birbirine göre durumu aynı anda kolayca görülebilmektedir. Analiz rapor tablolarında, herbir yüzey için ayırma indeksi ve güvenirlik katsayısı değerleriyle verilerin bir bütün olarak ne ölçüde güvenilir sonuçlar verdiği; iç ve dış uyum katsayılarıyla herbir yüzeyde yer alan elemanlar içinde uyumsuzluk gösterenlerin olup olmadığı teşhis edilebilmektedir. Böylelikle, maddeler arasında uyumsuzluk gösteren bir maddenin daha sonraki ölçmeler için düzeltilmesi/ölçme aracından çıkarılması, puanlayıcılar için gözlenen uyumsuzluk durumunda puanlayıcılara gerekli eğitim programlarının düzenlenmesi sağlanabilir. ÇYRM'nin ölçme sonuçlarının pek çok yönüyle aynı anda ve kolaylıkla incelenebilmesinde, ölçme

araçlarının geliştirilmesinde, uygun ölçme koşullarının düzenlenmesinde önemli bilgiler sunduğu söylenebilir. Özellikle öğrencilerin geleceğine ilişkin önemli kararların alındığı birden fazla puanlayıcının bulunduğu sınavlardan elde edilen sonuçların analizinde ÇYRM'nin kullanılması önerilebilir.

Anahtar kelimeler: Açık-uçlu maddeler (açık-uçlu sorular), Güvenirlik, Çok yüzeyli Rasch modeli

Eurasian Journal of Educational Research, Issue 55, 2014, 91-108

Important Values of American and Turkish Students

Nihal BALOGLU UGURLU*

Suggested Citation:

Baloglu Ugurlu, N. (2014). Important values of American and Turkish students, *Eurasian Journal of Educational Research*, 55, 91-108. http://dx.doi.org/10.14689/ejer.2014.55.6

Abstract

Problem Statement: Societies want to ensure that their children receive an education that includes an emphasis on good character. Therefore, character education classes in schools are an effective means of achieving this goal. Character education curricula in societies that are experiencing global changes strive for their students to gain universal values. However, although character elements are similar, character education applications and individual attitudes and behaviors can vary from country to country. This situation is due to the fact that societies have different socio-cultural, economic and religious beliefs, which effect character education curricula regarding societal behaviors.

Purpose of Study: The purpose of this research is to determine and compare the perception of certain character values among middle school students who attend American and Turkish schools. When reviewing these countries' character education curricula, it seems that they have many similar traits. However, differences in their societal backgrounds reveal student's perspectives about certain character values. Recognizing similarities and differences that exist between American and Turkish middle school students' values about good character, this study will try to explain the reasons for such differences.

Method: In this study, a quantitative method was used as the research design. The research sample consisted of 286 American and 278 Turkish students. Survey results were evaluated with the SPSS statistical program.

Findings and Results: Descriptive statistics for each character value shows that each country's students demonstrated their highest intensity on issues of substance abuse. However, the lowest intensity focused on environmentalism with the American students and multiculturalism with the Turkish students. Empathy and tolerance were the highest in terms of mean difference between the two countries' students. In

*Dr. Nigde University, Nigde, Turkey, e_mail:nihalugurlu@nigde.edu.tr.

contrast, American and Turkish students have the lowest mean difference in terms of responsibility and multiculturalism.

Conclusions and Recommendations: Student responses indicated that each country's students have different perspectives on certain core values. One of the most highly contrasted characteristics of America and Turkey is diversity and multiculturalism. This situation offers both more opportunities and more challenges to Americans. However, the survey results show that American students can be adversely affected in terms of tolerance and empathy. Communal living, parental and peer effects on the students' responsibility and substance dependency are also apparent in their effects on the students. Educators recognize that societal differences can impact a student's ability to gain good character values.

Keywords: Character education, good character, different values, comparative education.

Introduction

All societies want to have citizens who have good character. The sustainability of society depends on citizens who protect their cultural values. All people believe that education is essential for having a strong society and raising citizens who have good character. What can we do to ensure that our children will grow up with good character? The answer to this question presupposes a systematic way of teaching character education. Character education is an effective program for schools; it values students with good character and schools with a positive school climate. Knowing why they are in school helps students develop a better character by helping them see how what they are learning leads to success in their life goals (Tully, 2009). Although schools know that character education is important, they do not know what they can do to create quality character education in their daily curriculum. To answer these questions, it is helpful to define character and character education.

Character is defined as "the complex set of psychological characteristics that motivate and enable an individual to act as a moral agent, i.e., the subset of psychological characteristics that lead one to want to and be able to do the right thing." This definition has been simplified by the Character Education Partnership (2008) and defined as "understanding, caring about and acting upon core ethical values." These definitions include properties of a good person such as empathy, compassion, conscience, moral reasoning, moral values, moral identity, perspective-taking, moral indignation, moral sensitivity, etc. (Berkowitz & Hoppe, 2009), and they are not formed automatically. Good character is developed through an effective and appropriate teaching process. In this process, schools are the basic institution for students to learn good character. Today, media tools such as television and Internet can affect children negatively, because children often spend much more time with media tools than with their families. Therefore, communication is decreased between parents and children. Negative pressure of the media and ineffective parent

communication can produce children who are annoying, disrespectful and aggressive within the society (Kirkorian, Wartella, & Anderson, 2008). Schools can decrease the negative effects of media tools. With a good character education program in the schools, independent thinking and strong moral principles can help children make correct choices even in stressful situations. Thus, students can become polite, dependable and influential members of society (Creasy, 2008). In this case, schools' responsibilities and challenges in relation to character education have increased significantly in modern times. Clearly, Kevin Ryan, Director of the Center for the Advancement of Ethics and Character at Boston University, stated, "Rather than being the schools' latest fad, character education is the schools' 'oldest mission' (as cited in Schaeffer, 1999, p. 2).

What is Character Education?

Character education is the exact and ever-developing set of experiences designed to promote positive social attitudes and related behaviors that encourage the growth of social competence and a congenial disposition. This learning is supported by the development of opportunities that introduce students to six valued traits, and it provides direct instruction in the common traits of self-control and feelings management, such as respect, responsibility, trustworthiness, fairness, caring, and honesty. In other words, students from early childhood years onward are tutored in the principles of mediation and positive communication, which develops the characteristics of conscientiousness, affability, and an inner confidence that allows them to successfully engage in new adventures and experiences (White & Warfa, 2011).

Good character education should incorporate some core properties, which are gathered under the following two traditions. One of these traditions is social and emotional learning (SEL). SEL skills presented to students include good study habits, effective skills for group work and positive classroom participation, emotional competence, thoughtful problem solving, and nonviolent decision making (Elias, 2010; Çağatay, 2009). Another tradition is character and moral education (CE). Schools that incorporate CE emphasize safe learning environments, prevention of peer bullying, victimization, discipline problems, reduction of cheating, and promotion of ethical development in order to produce public-spirited citizens (Elias, 2010). Also, social and sporting activities are important for students' character development (Üstünyer, 2009). When these ideas are presented successfully, schools effectively prepare their students for life.

Assessing Character Education in Different Educational Systems: America and Turkey

Obviously, certain character traits are useful in order to make a society function. Although character elements are similar, character education applications can vary from country to country. Because this research is conducted among American and Turkish students, a review of these countries' character education programs is important.

In the United States, character education has changed over time. Until the 1950s, character education was not highly valued, because America was involved in an

economic revolution, and it had to offer specialized courses in these fields. After World War II, civic values gained importance. From 1960-70, the country experienced a cultural revolution. Ethical dilemmas and controversies resulting from this revolution included emerging concepts of individualism, personalism, and relativism. Recently, an increase in violent events in schools and individual conflicts has obligated school programs to emphasize character education in the U.S. (Beachum & McCray, 2005). As a result, character education has received attention among educators and policy makers and has become a high priority both for now and in the future (Edgington, 2002).

Six core universal moral values have been currently emphasized in American schools. These values were outlined by a group including 29 people from state school boards, teachers' unions, universities, ethics centers, youth organizations, and religious groups. Those people participated in what has come to be known as the "Aspen Conference" in Mississippi in July 1992 (Terri, Dunne, Palomares & Schilling, 1995). They agreed that character education should include the values of trustworthiness, respect, responsibility, justice and fairness, caring, civic virtue and citizenship.

Now, according to statistical data, 18 U.S. states have mandated character education through legislation, 18 states have encouraged character education through legislation, 7 states have supported character education but have no current legislation, and 7 states have no legislation specifically addressing character education in their schools (The Character Education Partnership, 2011).

In Turkey, character education applications have been in practice for a longer time. In the beginning, this education generally motivated students to adopt a successful social life. From 1920 to 1980, Turkey primarily emphasized the values of responsibility, cooperation and sensitivity. The values of respect, trustworthiness, justice and civic virtue were also important for students. Since 1980, Ataturk nationalism has gained greater importance. The goal is to raise all individuals as citizens who are committed to the principles and reforms of Atatürk and to the nationalism of Atatürk as expressed in the constitution. Character education further promotes raising citizens who adopt, protect and promote the national, moral, human, spiritual and cultural values of the Turkish nation, who love and always seek to exalt their family, country and nation, who know their duties and responsibilities towards the Republic of Turkey which is a democratic, secular and social state governed by the rule of law, founded on human rights and on the tenets laid down in the preamble to the Constitution, and to exhibit these individual behaviors. Turkish nationalism continued with the 2005 character education curriculum, which emphasizes multiculturalism (Keskin, 2008) along with commitment to the state of Turkey. Turkish schools still use this curriculum, and this program of character education is integrated into the social studies curriculum. As a result, the Turkish social studies curriculum includes similar values to those recognized in America.

Each theme in the Turkish social studies curriculum emphasizes at least one value. Values correlate with curriculum standards. For example, the "production, distribution, and consumption" theme emphasizes the importance of resources for

Turkey's economy and what can be done to improve areas such as skilled labor, payment of taxes and environmental awareness. This theme also correlates the "responsibility" value with its standards. Another example is the "global connections" theme. This theme mentions Turkey's relations with other countries in economic, political and social cooperation. In addition it emphasizes that when natural disasters or other catastrophes occur, cooperation and solidarity are priorities. As such, this theme has been associated with the "helpfulness" value (Milli Eğitim Bakanlığı, 2011). Thus, students are encouraged to associate values with specific issues.

When American and Turkish character education programs are reviewed, it is seen that common values exist in both countries' education programs. However, perspectives on good character may change these countries' middle school students who have different cultural characteristics. For this reason, this study was designed to gather and compare data on American and Turkish students' views and attitudes about good character, and it was based on a case study approach. Specifically the following research questions were addressed:

- Is there a difference in students' character scores on the character survey based on the interaction of nationality and gender?
- What similarities and differences exist between each country's students' values about good character?

Method

Research Sample

The purpose of this study is to determine middle school (6th, 7th and 8th grade) Turkish and American students' attitudes related to their values. With this purpose, school survey was used as a research design in this study. The reason this selected study group focuses on middle school students is that at this level character education has been strongly infused in each country. The selected American study group was a middle school located in San Diego, California. The Turkish study group was a middle school located in Ankara. It is noteworthy that in each school the socio-economic level is similar according to the demographics of the city. The survey was conducted in each school during the 2011 spring semester. The participants in this study were 286 American and 278 Turkish middle school students, totalling 564. Among the students, 21% (n=118) were American females, 30% (n=168) were American males, 23% (n=130) were Turkish females and 26% (n=148) were Turkish males.

Research Instrument and Procedure

This study is intended to determine differences between Turkish and American students' perspectives about good character. The survey instrument was created by the researcher. First, educational systems and curriculums were reviewed for each country to determine the place of character education. Next, character education

standards and curriculum values were listed and compared. Field literature was reviewed and survey items were composed. When statements were prepared for the survey, common values of each country were emphasized. The survey was divided into two sections. The first section asked participants their personal information such as gender and grade level. The second section involved 40 statements that were constructed for the purpose of measuring views about good character. After the survey was completed, its content was evaluated by two American Art and Character Education instructors in San Diego (U.S.) and two Turkish social studies teachers in Ankara (Turkey). They responded positively that the survey items reflected the aims of character education, and the survey was valid in reflecting student attitudes toward character education. The prepared survey was conducted with the 75 students. The pilot test helped to ensure validity and reliability of the survey. The conducted survey was assessed using the SPSS. According to the statistical analysis of the pilot test, some statements who had a lower score were removed from the survey. Finally, the survey statements were reduced to a number of 25.

The survey items indicate a large range of character values. Respect for others, honesty, politeness, tolerance, multiculturalism, empathy, responsibility, charity, citizenship, environmentalism, substance dependency and socialization are items queried in this survey. Table 1 shows example statements reflecting values in the survey.

Table 1

Some Items of the Character Survey

Character Values	***Items***
Respect for others	I could never pay back my mother for all she has done.
Honesty	I tell the truth even though I may receive a consequence.
Politeness	It is important for me to use manners.
Tolerance	If I am being tolerant of other people, I make friends much more easily.
Multiculturalism	Everyone who lives here has to adapt to our cultural values.
Empathy	I can put myself in somebody else's place and understand how he/she feels.
Responsibility	I get annoyed with myself if I do not turn my homework in on time.
Charity	If I give help to poor people, they will probably become lazy.
Citizenship	I am honored that I am a member of American society.
Environmentalism	I would like to join an environmental protection association as a volunteer.
Sociability	I share my sadness and my happiness with my friends.
Substance dependency	Marijuana usage turns peoples' lives upside down.

Data Analysis

In the first phase of the analysis, the survey statements were coded. The survey statements asked the respondents to rate their agreement with statements about the value of good character, using a 5-point Likert scale from 1= strongly disagree to 5=strongly agree on the positive items. Items with negative statements had reversed coding (1= strongly agree to 5= strongly disagree). After coding the survey items, the survey validity and reliability were determined. The result of the survey's validity analysis was KMO .866. That point was significant for the survey's validity, because KMO values must range up to .60 for survey factorability (Büyüköztürk, 2010; Tabachnick & Fidell 2001, as cited in Worthington & Whittaker, 2006). The alpha reliability coefficient of the survey indicated .82. After the survey was proven as valid and reliable, students' responses were determined using mean and standard deviation. Next, the students' average scores from each country were compared using independent sample t-tests about certain character values. In addition to determining students' gender and nation interaction two-way ANOVA statistical analysis was used.

Results

The results of this study indicate that American and Turkish students have significant differences in relation to some character values. In the study, key indicators for character education included respect, helpfulness, friendship, tolerance, honesty etc. Relevant responses about character perspectives of American and Turkish students are discussed below.

In order to determine the differences in total character scores based on nationality (Turkish and American) and gender, scores were analyzed by means of a 2x2 (nation X gender) factorial analysis of variance. Significant main effects were found for both nation [$F(1, 560) = 39.55$; $p<0.05$] and gender [$F(1, 560) = 5.07$; $p<0.05$]. The nation X gender interaction was not significant [$F(1, 560) =,45$; $p>0.05$] making interpretation of main effects difficult. Turkish females had a mean of 4.32 (SD=.31), while American males had the lowest mean of 3.60 (SD=.45). Overall, Turkish students had a statistically significantly higher mean (4.23, SD= .37) than American students (3.68, SD=.46) (Table2).

Table 2

Descriptive Statistics of Sample Group

Gender	*American*			*Turkish*		
	N	M	SD	N	M	SD
Male	168	3.60	.45	148	4.14	.39
Female	118	3.80	.45	130	4.32	.31
Total	286	3.68	.46	278	4.23	.37

American and Turkish students' perspectives about some character values have different points in terms of statistical analysis. Table 3 indicates descriptive statistics for means and standard deviations according to each nation's students and compares these values with the t test.

Table 3

The Result of The t-test on the American and Turkish Students' Opinions about Survey's Values

		American Students		Turkish Students				
Some Core Values	N	M	SD	M	SD	Mean Dif.	t	p
Responsibility	564	3.77	.887	3.66	.742	.11	1.677	.094
Multiculturalism	564	3.14	1.251	3.34	1.368	.20	1.862	.063
Charity	564	3.69	.825	4.11	.833	.42	6.075	.000*
Sociability	564	3.94	.662	4.37	.618	.43	7.966	.000*
Politeness	564	4.21	.856	4.66	.717	.45	6.787	.000*
Substance abuse	564	4.31	.946	4.88	.495	.64	8.886	.000*
Citizenship	564	4.05	1.155	4.74	.704	.69	8.604	.000*
Environmentalism	564	2.99	1.129	3.68	1.009	.69	7.599	.000*
Honesty	564	3.31	.840	4.04	.798	.73	10.563	.000*
Respect for others	564	3.92	.690	4.67	.430	.75	15.430	.000*
Empathy	564	3.38	.922	4.23	.951	.85	10.734	.000*
Tolerance	564	3.45	.785	4.32	.679	.87	14.056	.000*

*$p<0.05$

Descriptive statistics for means and standard deviation values of students' opinions for each value showed that each country's students (American students' average score is 4.31 and Turkish students' average score is 4.88) demonstrated their highest intensity on issues of substance abuse. However, the lowest intensity was focused in the realm of environmentalism with the American students (M=2.99) and in the realm of multiculturalism with the Turkish students (M=3.34). However, empathy and tolerance were the highest two mean differences between the two countries' students. While American students had an average score of 3.45 regarding tolerance, Turkish students had a 4.32 average score. In addition, although the average score of American students on empathy was 3.38, Turkish students had a 4.23 average score for this perspective. In contrast, American and Turkish students had the lowest mean differences in terms of responsibility and multiculturalism. Americans scored an average of 3.77 compared to Turkish students 3.66 on responsibility. The average score of American students' multiculturalism was 3.14 and Turkish students' multiculturalism average score was 3.66.

Discussion and Conclusion

Character education has a value for all countries' education systems. McDonnell (1991) notes that character education is a top priority in order to remedy the national crisis of the diminishing real character among students (as cited in Beachum & McCray, 2005). This paper aims to review good character perspectives of middle school students in the countries of America and Turkey, which have different cultural features. It also shows which character values are different among students in these countries' middle schools. Student responses indicated that each country's students have different perspectives on some core values. These results are expected, because these countries have different social, cultural, economic and religious backgrounds. One of the most highly contrasting characteristics of America and Turkey is *diversity*. The U.S. Department of Homeland Security (2009) explained that since the 1960s, the number of immigrants arriving in the United States each year has tripled and includes groups from all over the globe (as cited in Healey, 2011). Diversity offers both opportunities and challenges to a society like America and its educators. This feature provides American society with a multitude of enhanced ways to target, describe and resolve social, economic and political problems. Diversity also presents important challenges to this nation, to schools and to educators. As a result students may have erroneous stereotypes, misconceptions and poor attitudes toward outside racial, ethnic and social class groups (Banks, 2002). When young students enter formal schooling, their family and societal values can either be solidified or contradicted as they become part of the school community. When the ethnicities and cultural backgrounds of students and educators diversify, their values are also subject to realignment (Manning, 2009). In this case, universal values are important for both America and other countries which are experiencing global changes.

Although the teaching of some universal values that are important in the global world has been emphasized much more recently (Hicken, 2002), student responses indicated that each country's students have different perspectives on some values. The most important differences between the two countries' students are reflected in the categories of tolerance and empathy. Each value is more positive for Turkish students than American students. Actually these values are interrelated with each other. If students show empathy, they can put themselves in another person's shoes; they can understand the inner feelings of another person. Thus they can show tolerance toward other people who think differently from them and do not agree with their ideas. Increasing lack of tolerance might be a risk for anti-social behaviors like bullying (Acker, 2007). Also included in tolerance is the idea of students not making fun of other students who are different from them or from another race, but instead trying to understand and reach out to these students. If a student has offended another student, tolerance can be demonstrated by the giving and accepting of apologies (Prestwich, 2004). In the past decade tales of bullying, isolation leading to suicide, and more tragically to school shootings, point to the imminent need to address the causes underlying school violence in America (Hollingshead, Crump, Eddy & Rowe, 2009). In addition, in American schools, students tend to be

segregated by social class, race, neighborhood, etc. (Berkowitz & Hoppe, 2009). However, tolerance, understanding, acceptance, and respect are cornerstones of sound social studies values, which is premised on the 1997 NCSS position paper on character education. Therefore, social studies teachers should provide opportunities for students to understand and to practice character traits that lead to more enlightened, tolerant, and inclusive understandings from preK to 12th grade, to provide opportunities for students to understand and to practice values that lead to more enlightened, tolerant, and inclusive understanding of diversity and acceptance (Lintner, 2011).

In the study, the highest degree of similarity between the two countries' students is shown as the values of responsibility and multiculturalism. Some educators believe that at the heart of character education is the belief that responsible behavior should be taught, and generally researchers agree that responsibility is a core value (Edgington, (2002); Richardson, Tolson, Huang & Lee (2009); Dancer (2007); Harak, (2006); Elias, (2010) in the character education programs. However, in addition to schools' participation, parents have an important role in developing this responsibility in their children. The similarity of each country's students' perspectives about responsibility indicated that although parents are from different cultures, their children's perspectives are not different in the area of responsibility. This result can be explained because each country is a democratic society. In a democratic society, citizens behave honestly, responsibly and fairly. In this context, perpetuating these values in students is the duty of schools (Schwartz, Beatty & Dachnowicz, 2006, as cited in Avcı, 2011).

An important and positive result from this study indicates that each country's middle school students show the highest level of opposition toward substance abuse. It is clear that all educators and parents share mutual concern that children will engage in risky behaviors such as substance abuse, which could endanger their lives and futures (Williams, 2010). In school environments, many character education programs are geared toward information, prevention, and treatment of substance abuse and dependency (Elias, 2010; Davis, 2006).

In contrast to substance abuse, American middle school students indicated a low level of concern about environmentalism. This result can be explained because independence and individualism are very highly valued in America. Environmentalism interferes with other freedoms, as it requires a considerable amount of regulation to be effective. This regulation often interferes with corporate profitability and individualism. American citizens tend to value medical insurance, retirement etc. more than the environment. However, in America environmentalism is seen as a cornerstone for a sustainable environment. There are efforts to develop more consciousness among American students regarding their environment. For example, *American School & University's* Green Cleaning Award Program was created in conjunction with the Healthy Schools Campaign and the Green Cleaning efforts of schools around the nation to move forward with green cleaning as they aimed to embrace green principles and practices (Lustig, 2007). Despite these efforts, American students do not seem to internalize environmentalism as well as expected,

though educators might think that developing environmentalist youth is an ongoing process and students' sensitivity has increased during the past decade.

Turkish middle school students also indicated less concern about multiculturalism. Multiculturalism has a plural perspective. Respect, tolerance, kindness, empathy, and sociability can affect this perspective positively. However, in the study, students have a positive attitude about respect, tolerance etc. in Turkey. Başbay and Bektaş (2009) stated that people who are opposed to multiculturalism have the idea that multiculturalism injures integration into the society in Turkey. In spite of this Turkish people who support multiculturalism believe that multiculturalism can promote cultural richness and emphasize important values of each individual. (as cited in Ünlü & Örten, 2013). Lower level positive multiculturalist attitudes can reflect students who do not have many experiences with a multicultural life, and thus this value can be insignificant for them. Additionally, tolerance is linked with multiculturalism as "majority rule with respect for minority rights," and this may be misunderstood by the students. Most school children quickly grasp the concept of "majority rule" but the idea of "respect for minority rights" is much more difficult to comprehend (Avery, 2002). This situation is evident in American students. If we think about multiculturalism among American students who have many experiences with different cultures, we see their average score related to multiculturalism is lower than Turkish students' score. This result can be explained because many American citizens consider the U.S. a super power and the U.S. culture to be a dominant culture. Especially in Southern California, where immigration is a huge concern, many people feel other cultures should adapt to the U.S. culture. However, it is important to note that multicultural education's goal is to be inclusive and tolerant by exposing all students to the wide variety of cultural heritages found in the schools, districts, states or nation in America. In this way, American culture moves away from the image of the culturally dominant Anglo-Saxon Protestant majority, and becomes enriched by the diversity. During the 1990s, most Americans came to accept this understanding of multiculturalism. Typically, more than seven in ten respondents agree with survey questions asking if schools should "increase the amount of coursework, counseling and school activities….to promote understanding and tolerance among students of different races and ethnic backgrounds." This is a fairly new mantra for most Americans; the rapidity of its acceptance is a testimonial to Americans' belief in the need for mutual tolerance and respect in order to solidify its democracy (Hochschild & Scovronick, 2003).

Finally, societies' moral practices may differ, but the fundamental moral principles underlying the practices do not. This point emphasizes universality. The sense of universality makes teaching character education both easy and exciting. The study of universally honored virtues keeps us from focusing too much on what people *should* do or how they *should* act. (Jacobs & Spencer, 2001). However, all countries' character education programs must assume responsibility for developing good behaviors. Brimi (2008) emphasizes that although American schools do have programs, classes, and assemblies to educate students in developing good character

traits, there is a lack of success in students' daily lives. Students do not participate fully in these programs, because they feel they are treated like children and the programs are too repetitive and simple and boring. Thus they dismiss them and go about their daily lives just as before, without changing their behaviors. This situation can be a generalization applied to each country's education systems. To see positive results of character education in the schools, effective character training methods must be applied in the learning environment.

References

Acker, V. R. (2007). Antisocial, aggressive, and violent behavior in children and adolescents within alternative education settings: prevention and intervention, *Preventing **School** Failure*, 51(2), 5-12.

Avcı, E. (2011). *İlköğretim sosyal bilgiler öğretmenlerinin karakter eğitimine dair öz-yeterliklerinin incelenmesi* [Investigation of the self-efficacy of character education pertaining to primary education social studies teachers] (Unpublished doctoral dissertation). Gazi University, Institute of Educational Sciences, Ankara, Turkey.

Avery, P. G. (2002). Political tolerance, democracy and adolescents, In W. C. Parker (Ed.), *Education for democracy: contexts, curricula, assessments* (pp. 113-131). Greenwich, Conn.: Information Age Publishing.

Banks, J. A. (2002). Teaching for diversity and unity in a democratic multicultural society, In W. C. Parker(Ed.), *Education for democracy: contexts, curricula, assesments* (pp. 131-151). Greenwich, Conn.: Information Age Publishing.

Beachum, F. D. & McCray, C. R. (2005).Changes and transformations in the philosophy of character education in the 20th Century, *Essays in Education,* Vol:14.

Berkowitz, M. W. & Hoppe, M. A. (2009).Character education and gifted children, *High Ability Studies,* 20(2), 131–142.

Brimi, H. (2008). Academic instructors or moral guides? Moral education in America and the teacher's dilemma, *The Clearing House,* 82 (3), 125-130.

Büyüköztürk, S. (2010). Sosyal bilimler icin veri analizi el kitabı, [Data analysis manual for social sciences], Ankara, Turkey : Pegem Akademi.

Creasy K. L. (2008). Is there a place for character education?, *Online Submission*, p.1-10. Retrieved 12 Nowember, 2012, from

http://eric.ed.gov/PDFS/ED501652.pdf.

Çağatay, Ş. M. (2009). *Öğretmen görüşlerine göre karakter eğitiminde ve karaktergelişiminde okulun rolü* [Role of school on character education and character development according to teachers' views] (Unpublished master dissertation). Çanakkale Onsekiz Mart University, Institute of Social Sciences, Çanakkale, Turkey.

Dancer, A. P. (2007). *The effect of a required character education and class-wide peer tutoring program on 5th-grade students' reading and writing performance* (Unpublished doctoral dissertation). University of Nebraska, Educational Administration and Supervision, Nebraska, USA.

Davis, D. H. (2006). Character education in America's public schools, *Journal of Church & State*, 48(1), 5-14.

Edgington, W. D. (2002). To promote character education, use literature for children and adolescents, *The Social Studies*, 113-116.

Elias, M. (2010).Character education: better students better people, *Education Digest: Essential Readings Condensed for Quick Review,* 75(7), 47-49.

Healey, J. F. (2011). Diversity and society: race, ethnicity, and gender, California, CA: Pine Forge Press.

Harak, E. T. (2006). *First-year self-report outcomes of a character education Experiment with elementary students* (Unpublished master dissertation). University of Maryland, Counseling and Personnel Services, Maryland, USA.

Hicken, W. (2002). Teaching the universal truths of human life, *College Teaching*, 50(2), 43-44.

Hochschild J. L & Scovronick, N. (2003).*The American dream and the public schools*, New York: Oxford University Press.

Hollingshead, B., Crump, C., Eddy, R. & Rowe, D. (2009). Rachel's challenge: A moral compass for character education, *Kappa Delta Pi Record*, 111-116.

Jacobs, D. T. & Spencer, J. J. (2001).*Teaching virtues: building character across the curriculum,* Lanham, MD : Scarecrow Press.

Keskin, Y. (2008). *Türkiye'de sosyal bilgiler öğretim programında değerler eğitimi: tarihsel gelişim, 1998 ve 2004 programlarının etkililiğinin araştırılması* [Character education in social studies curriculum in Turkey: reviewing 1998 and 2004 curriculums' effectiveness] (Unpublished doctoral dissertation). Marmara University, Institute of Educational Sciences, Istanbul, Turkey.

Kirkorian, H. L, Wartella, E. A. & Anderson D. R. (2008).Media and young children's learning, *The Future of Children*, 18 (1), 39-61.

Lintner, T. (2011).Using "exceptional" children's literature to promote character education in elementary social studies classrooms, *The Social Studies*, 102, 200–203.

Lustig, S. (2007). Red, yellow, blue, orange? Let's talk GREEN!,*American School & University*, 79(12), 6-6.

Manning, M. S. (2009). Educating latino children: international perspectives and values in early education, *Childhood Education*, 85(3), 182-186.

Prestwich, (2004). Character education in America's schools, *The School Community Journal*, 14 (1), 139-150.

Richardson, R. C., Tolson, H., Huang, T. S. & Lee, Y. H. (2009). Character education: lessons for teaching social and emotional competence, *Children & Schools*, 31 (2), 71-78.

Schaeffer, E. F. (1999). It's time for schools to implement character education. *National Association of Secondary School Principals (NASSP Bulletin),* 83(1), 1-8.

T.C. Milli Eğitim Bakanlığı (Republic of Turkey Ministry of National Education), (2011). Sosyal bilgiler dersi 6 ve 7.sınıflar öğretim programı ve klavuzu [Curriculum and guide for 6th and 7th grade social studies] Retrieved 22 November, 2012, from http://ttkb.meb.gov.tr

Terri, A., Dunne, G., Palomares, S. & Schilling, D. (1995).*Character education in America's schools,* California, CA : Innerchoice Publishing.

The Character Education Partnership, (2008). Character education quality standards, a self-assessment tool for schools and districts. Retrieved 18 November, 2012 from http://www.cortland.edu/Character/Assessment/Quality_Standards_2008.pdf.

The Character Education Partnership, (2011). Character education legislation. Retrieved from

http://www.character.org/charactereducationlegislation

Tully, S. (2009). Helping students find a sense of purpose, Chronicle of Higher Education, 55(27), B4-B5.

Ünlü, İ. & Örten H. (2013). Öğretmen adaylarının çokkültürlülük ve çokkültürlü eğitime yönelik algılarının incelenmesi [Investigation the perception of teacher candidates about multiculturism and multicultural education], *Dicle Üniversitesi Ziya Gökalp Eğitim Fakültesi Dergisi*, 21, 287-302.

Üstünyer, F. (2009). *Karakter eğitimi ile ilgili eğitimcilerin görüşleri üzerine nitel bir araştırma* [A qualititative research on the opinions of teachers about the character education] (Unpublished master dissertation). Yeditepe University, Institute of Social Sciences,Istanbul, Turkey.

Williams, H. R. S. (2010). Widening the lens to teach character education alongside standards curriculum, *The Clearing House*, 83, 115–120.

White, R. & Warfa, N. (2011). Building schools of character: a case-study investigation of character education's impact on school climate, pupil behavior, and curriculum delivery, *Journal of Applied Social Psychology*, 41(1), 45-60.

Worthington R. L. & Whittaker T. A. (2006). Scale development research acontent analysis and recommendations for best practices, *The Counseling Psychologist*, 34(6), 806-838.

Amerikan ve Türk Öğrenciler İçin Önemli Değerler

Atıf:

Baloglu Ugurlu, N. (2014). Important values of American and Turkish students, *Eurasian Journal of Educational Research*, 55, 91-108. http://dx.doi.org/10.14689/ejer.2014.55.6

Özet

Problem Durumu: Toplumlar sürdürülebilirliklerini sağlayabilmek için inandıkları kültürel değerlerin toplum bireyleri tarafından benimsenmesi ve muhafaza edilmesi gerektiğini düşünürler. Bu ideali gerçekleştirmede eğitim kurumlarının etkili ve önemli bir unsur olduğu herkes tarafından kabul edilir. Okulların uygulayacakları karakter eğitimi programları bireylerin çocukluklarının ilk yıllarından itibaren toplumsal yaşamda olumlu sosyal beceriler edinebilmelerine ve bu becerilerini davranışlara dönüştürmelerine neden olacak saygı, dürüstlük, sorumluluk, çalışkanlık ve güvenilirlik gibi bazı değerleri etkili bir şekilde kazanmalarını sağlayacaktır. Ancak, eğitimcilerin de vurguladığı üzere, karakter eğitimi programı tek başına etkili bir faktör değildir. Çocukların aile yaşantısından elde ettikleri deneyim ve tecrübelerin, medya unsurlarının ve edinilen arkadaş çevresinin çocuğun psiko-sosyal davranışlarına olumlu ya da olumsuz katkısı tartışılması gereken önemli faktörler olarak ön plana çıkmaktadır. Nitekim bu durum şunu göstermektedir ki, karakter eğitiminde göz önünde bulundurulan ve bütün toplumların kabul edecekleri evrensel değerler, okulların karakter eğitimi programlarında yer almakla birlikte, toplumların kültürel özellikleri ve bu özelliklerin sosyal yaşantılarına etkisi farklı toplumlarda yer alan bireylerin farklı değerlerle donatılmasına neden olmaktadır.

Araştırmanın Amacı: Bu araştırmanın amacı, ortaokul düzeyindeki Amerikan ve Türk öğrencilerinin bazı değerlerle ilgili sahip oldukları bakış açılarını yansıtabilmektir. Araştırmada, iki ülke öğrencilerinin sahip oldukları değerlerle ilgili düşünce benzerliklerinin ve farklılıklarının neler olduğunu belirlemeye ve bu perspektiflerin hangi faktörlerin etkisi altında gerçekleşebileceği ile ilgili yorumlamalarda bulunulmaya çalışılmıştır.

Araştırmanın Yöntemi: Araştırmada tarama yöntemi kullanılmıştır. Veri toplama aracı olarak da 20 sorudan oluşan 5'li Likert tipi bir ölçek kullanılmıştır. Bu ölçek, 286 Amerikan ve 278 Türk olmak üzere toplam 564 öğrenciye uygulanmıştır. Elde edilen veriler ile öncelikle her iki ulusa ait öğrencilerin toplam değer puanları hesaplanmıştır. Daha sonra bu değer puanı üzerinde, ait olunan ulus, sahip olunan cinsiyet ve her iki değişkenin ortak etkisini hesaplamak üzere çift yönlü ANOVA istatistik modeli kullanılmıştır. Son olarak da her iki ülkeye ait öğrencilerin araştırma kapsamında yer alan değerlerle ilgili sahip oldukları düşüncelerin ulus değişkeni göz önünde bulundurularak değişebilirliği bağımsız örneklemler t testi istatistik yöntemi ile tespit edilmiştir.

Araştırmanın Bulguları: İstatistiksel analizler sonucunda elde edilen bulgulara göre, öğrencilerin bir bütün olarak sahip oldukları değer yargıları üzerinde ait olunan ulus değişkeninin [F (1, 560) = 39.55; p<0.05] ve sahip olunan cinsiyetin [F (1, 560) = 5.07; p<0.05] istatistiksel açıdan anlamlı etkileri vardır. Buna karşın ulus ve cinsiyet değişkeninin öğrencilerin toplam puanları üzerindeki ortak etkisi istatistiksel açıdan anlamlı değildir [F (1, 560) = ,45; p>0.05]. Hem Amerikan hem de Türk öğrencilerin kendi içlerinde en yüksek ortalama puana sahip değer yargıları madde bağımlılığına karsı olan tutumlarıdır. Amerikan öğrencilerinin kendi içlerinde en düşük ortalama puana sahip değer yargıları çevrecilik iken, Türk öğrencilerin sahip olduğu en düşük ortalama puana sahip değer yargısı ise çok kültürlülüktür. Amerikan ve Türk öğrencilerin ortalama puan açısından en yüksek farka sahip değer yargıları tolerans ve empatidir. Buna karşın, Amerikan ve Türk öğrencilerin ortalama puan açısından en düşük farka sahip değer yargıları ise sorumluluk ve çok kültürlülüktür.

Araştırmanın Sonuçları ve Öneriler: Araştırma sonuçları, öğretim sürecinde öğrencilere her ne kadar evrensel değerlerin benimsetilmesi öngörülse de, ulusların sahip oldukları farklı sosyo-ekonomik ve kültürel özelliklerin onların değerlerle ilgili bakış açılarına yansımasına neden olabileceğinin bir göstergesidir. Çalışmada Amerikan ve Türk öğrencilerin en fazla tolerans ve empati kurma ile ilgili birbirilerinden farklı düşüncelere sahip oldukları görülmektedir. Bu durum iki toplumun sahip olduğu farklı sosyal yaşam tarzından kaynaklanabilmektedir. Amerikan toplumunun, Türk toplumundan daha fazla farklı etnik ve dinsel kökene sahip insanları barındırdığı bir gerçektir. Amerikan toplumunda insanlar bir arada yasamaya daha alışık olmalarına karsın, toleransın bu toplumda Türk toplumundan daha düşük seviyede olduğu görülmektedir. Bu sonucun en önemli nedenlerinden biri, Amerikalıların kendilerini "süper güç" olarak görmeleri ve kendilerinin farklı toplumlara ait insanlara hoşgörü ve tolerans göstermeleri yerine bu insanların kendilerine uyum sağlamaları gerektiğine inanmaları olabilir. Buna karşın, Amerikan ve Türk öğrencilerin sorumluluk ve çok kültürlülük ile ilgili değer yargılarında birbirlerine en yakın oldukları sonucu görülmektedir. Sorumluluk, karakter eğitimi müfredatında öğrencilere kazandırılması gerekli görülen değerlerden bir tanesidir. Ancak, bu değeri sadece öğretim sürecinde ve okullarda öğrencilere aşılamak mümkün değildir. Aile yaşantısı da öğrencilerin sorumluluk sahibi olmalarında önemli bir etkendir. Her iki toplumda da, öğrencilerin okul ve aile içerisinde üstlendikleri sorumlulukların birbirlerine yakın seviyede olduğu söylenebilir. Birbirine en yakın bir diğer değer olan çok kültürlülük ise, dikkat çekici özelliğe sahip ve yorumlanması kolay olmayan bir değerdir. Bu değer, Amerikan ve Türk öğrencilerin birbirleri ile çok farklı olmadıklarını gösteren bir değerdir. Oysa çok kültürlülük, daha önce de söz edildiği gibi Amerikan toplumunun farklı etnik, din ve kültüre sahip insanları barındıran bir toplum yapısına sahip olması açısından, Amerikan öğrencilerinin günlük sosyal yaşantılarına yansıyan bir değerdir. Ne var ki, demografik anlamda daha sade bir toplum yapısına ve daha milliyetçi bir anlayışa sahip Türk toplumunda, öğrencilerin bu değere ait ortalama puanlarının Amerikan öğrencilerinden kısmen yüksek olması, gerçek yaşamda bu değerle ilgili çok fazla tecrübeye sahip olmasalar da soyut anlamda bu değerle ilgili olumlu bir tutum içerisinde olduklarını göstermektedir. Ancak, bu değerin Türk öğrencilerinin kendi

içlerindeki değer yargıları arasında en düşük ortalama puana sahip olduğunu da vurgulamakta fayda vardır. Bu durum, öğrencilerde tecrübeye dayalı yargıların, soyut anlamdaki yargılara göre daha baskın olduğu gerçeğini bize göstermektedir. Amerikan öğrencilerinin ise, çevrecilik konusunda en düşük seviyede duyarlılığa sahip oldukları görülmüştür. Bu sonuç, Amerika'da her ne kadar bu konu ile ilgili eğitimsel faaliyetler gerçekleştirilse de çevre sorunlarının ve çevre bilincinin öğrencilere yeteri kadar verilemediğinin bir göstergesi olabilir. Her iki topluma ait öğrenciler, kendi içlerinde en yüksek ortalama puana madde bağımlılığı konusunda sahiptirler. Günümüz gençliğinin önemli problemlerinden biri olan madde bağımlılığının her iki toplumun öğrencileri tarafından da yadsınması olumlu bir sonuçtur.

Sonuç olarak, farklı toplumlara ait bireylerin değer yargılarında farklılık olsa dahi, temelde bütün toplumlar benzer evrensel değerlerin altını çizmektedirler. Evrensel değerlerin önemsendiği karakter eğitimi programlarının sorumluluğu öğrencilerde iyi davranışlar geliştirmektir. Ne var ki, Amerikan toplumunda öğrenciler karakter eğitimi programlarının kendi seviyelerinden daha düşük, basit, tekrarcı ve sıkıcı olduğunu düşünmektedirler. Bu durumu başka ülkelerdeki karakter eğitimi programları için de genellemek mümkün olabilir. Bu sorunu aşabilmek ve okullardaki karakter eğitimlerinin pozitif sonuçlarını görebilmek için öğrenme ortamında etkili metodların uygulanması gerekmektedir.

Anahtar Kelimeler: Karakter eğitimi, iyi karakter, farklı değerler, karşılaştırmalı eğitim.

Eurasian Journal of Educational Research, Issue 55, 2014, 109-122

Pragmatic Language Skills of Children with Developmental Disabilities: A Descriptive and Relational Study in Turkey

Özlem DIKEN*

Suggested Citation:

Diken, Ö. (2014). Pragmatic language skills of children with developmental disabilities: A descriptive and relational study in Turkey. *Eurasian Journal of Educational Research*, 55, 109-122. http://dx.doi.org/ 10.14689/ejer.2014.55.7

Abstract

Problem Statement: Because communication skills, particularly pragmatic skills, are fundamental for living an independent life in society, these skills are vital to the quality of life of individuals with developmental disabilities (DD) and their families. Studies of the pragmatic skills of individuals with DD can provide important insights into the communication skills of these individuals, facilitating the design and delivery of appropriate and effective services for these individuals and their families. Thus, describing and comparing the pragmatic language skills of individuals with Autism Spectrum Disorders (ASD) and intellectual disability (ID) in Turkey is important because communication skills represent one of the most important developmental domains for the quality of life of individuals with DD.

Purpose of Study: The purpose of this study was to explore the pragmatic language skills of children with DD (ASD and ID) in Turkey.

Methods: This descriptive and relational study was carried out with a sample of 86 children with DD, including 34 children with ASD and 52 children with ID. Data were collected using the Turkish Version of the Gilliam Autism Rating Scale-2 (TV-GARS-2) and the Turkish Version of the Pragmatic Language Skills Inventory (TV-PLSI).

Findings and Results: The results revealed that the majority of the participants exhibited very poor pragmatic language skills. The results of the correlation analysis revealed a significant negative correlation between Autism Index scores and Pragmatic Language Skills Index scores. The results also revealed significant differences in TV-PLSI scores between children with ASD and children with ID. Children with ID had a higher

* Dr. Anadolu University; E-mail address: diken.ozlem@gmail.com

level of pragmatic skills than children with ASD. Communication Skills suscale of TV-GARS-2 explained 30 percent of the variance in pragmatic language skills of children with ASD. In contrast, the other two scales (i.e., Stereotyped Behavior and Social Interaction) did not contribute significantly to the model.

Conclusions and Recommendations: Consistent with the international literature, Turkish children with DD also exhibit lower levels of pragmatic skills than children with typical development and children with ID have higher scores than children with ASD. Communication skills explained 30% of the variance and represented the best predictor of pragmatic language skills among children with ASD. More studies that include larger samples are needed. Services and intervention programs should consider addressing pragmatic language skills.

Keywords: Pragmatic language skills, developmental disabilities, autism spectrum disorders, intellectual disability, Turkish sample.

Introduction

The American Speech and Hearing Association (ASHA) defines the pragmatic function of language as the system combining language components (i.e., phonology, morphology, syntax and semantics) to generate functional and socially appropriate communication. According to Westby and Cutler (1994), pragmatic communication skills are fundamental for successfully completing academic and nonacademic tasks (cited in Leonard, Milich, & Larch, 2011). Bierman (2004) stated that children who use appropriate pragmatic communication skills usually have successful social interactions with peers, family, and teachers. However, communication problems, including pragmatic problems, are common in individuals with developmental disabilities (DD) (Rispoli, Franco, Meer, Lang, & Camargo, 2010), as reported in studies that investigated the development and use of pragmatic language skills in individuals with DD. The pragmatic problems reported in individuals with DD include problems taking turns in conversation, failure to adapt a message to the needs of a listener, failure to respond to verbal cues from others, overuse of stereotyped phrases, difficulty in understanding sarcasm, jokes and metaphors, and failure to continue revising utterances when conversational trouble is protracted (Green, Johnson, & Bretherton, 2013).

Among individuals with DD, individuals with autism spectrum disorders (ASD) and intellectual disabilities (ID) are two groups reported to exhibit difficulties in pragmatic language skills. As cited in Volden and Phillips (2010), several studies reported that individuals with ASD exhibit pragmatic language difficulties in a number of communication skills, such as irregular or irrelevant conversation (Kanner, 1946), lack of ease in the use of words (Rutter, 1965), stereotypic or inappropriate use of language (Bartak, Rutter, & Cox, 1975) and metaphorical language skills (Cantwell, Baker, & Rutter, 1978), problems with initiating a conversation (Baron-Cohen, 1988; Tager-Flusberg, 1996) and with responding to

others' initiations (Stone & Caro-Martinez, 1990), difficulty taking turns appropriately (Botting & Conti-Ramsden, 2003; Curcio & Paccia,1987; Prizant & Duchan, 1981; Prizant & Rydell, 1984), problems with developing and maintaining a topic (Baltaxe, 1977; Bishop & Adams, 1989; Eales, 1993; McCaleb & Prizant, 1985; Tager-Flusberg & Andersen, 1991; Volden, 2002), and sudden and inexplicable topic shifts (Bishop, 1998; Bishop & Adams, 1989; Eales, 1993; Fine, Bartolucci, Szatmari, & Ginsberg, 1994; Tager-Flusberg & Andersen, 1991). In addition, Adams, Lockton, Gaile, Earli, and Freed (2012) stated that ASD should be viewed as a spectrum because language and social interaction skills are highly variable within the group. Those authors also state that the majority of children have subtle higher-level language difficulties, such as difficulties with inference generation, narrative organization and comprehension of discourse and mild social difficulties.

Regardless of the level of disability, the language and communication domain is the most influenced developmental domain among individuals with ID (Alev, 2011). Both qualitative and quantitative differences are apparent when comparing the language skills of individuals with ID to those of individuals with typical development. In addition to that individuals with ID primarily exhibit problems with language skills in the areas of sentence structure, establishing hypotheses, and phonological processes, the pragmatic skills of these individuals are also influenced negatively (Owens, 1999). However, some studies reported that children with ID acquire important pragmatic language skills, such as appropriately repeating and revising utterances in response to requests for clarification (Coggins & Stoel-Gammon, 1982; Johnston & Stansfield, 1997; Pearl, Donahue, & Bryan, 1981; Scudder & Tremain, 1992). Children with ID are also reported to have problems with continuing to revise utterances during delayed or extended conversations (Scudder & Tremain, 1992).

As stated above, the communication domain is one of the most important and influenced areas in individuals with DD. Because communication skills, specifically pragmatic skills, are fundamental for leading an independent life in society, achieving academic and social success (i.e., establishing and maintaining friendships and relationships), and participating in employment and leisure activities, these skills are vital to the quality of life of individuals with DD and their families. The studies of the pragmatic skills of individuals with DD that are available in the international literature are primarily US-based. These studies indicate that studying the pragmatic skills of individuals with DD provides insights that are important for understanding the communication skills of individuals with DD and for designing and delivering appropriate and effective services for those individuals and their families. A search of studies in Turkey revealed only one study of the pragmatic skills of children with delays/disabilities. Sahin et al. (2009) performed a study that included 67 young children between the ages of 3 and 6 years and compared children with language delays to children with typical development. Children with language delays received educational treatment, auditory processing training, and speech and language training that consisted of acoustic signal perception, auditory discrimination, auditory comprehension, conception training, phonological processing training, speech sound processing, and speech and language education.

The authors concluded that during the critical early language development period, children who have receptive and expressive language delays also exhibit delays in pragmatic language usage. However, more studies describing and comparing the pragmatic language skills of individuals with ASD and ID in Turkey are needed because the language and communication domain is one of the most important developmental domains and skills for the quality of life of individuals with DD.

The purpose of this study is to explore the pragmatic language skills of children with DD (ASD and ID) in Turkey. For this purpose, the following questions were addressed:

(1) What is the level of pragmatic language skills of children withASD and children with ID?; (2) Is there any significant difference between the pragmatic language skills scores of children with ASD and children with ID?; and (3) Which of the following factors are the best predictors of pragmatic language skills in children with ASD: Stereotyped Behaviors, Communication Skills or Social Interaction Skills?

Methods

Research Design

This study is a descriptive and relational study (Büyüköztürk, Çakmak, Akgün, Karadeniz and Demirel, 2008) that describes, compares, and predicts variables related to the pragmatic skills of children with ASD and ID.

Research Sample

The study was carried out with a sample of 86 children with DD, including 34 children with ASD and 52 children with mild ID. Of the 34 children with ASD, 24 children were male and 12 children were female. The ages of the included children ranged from 60 to 144 months, with a mean of 103 months (SD: 29.09). The Turkish version of the Gilliam Autism Rating Scale-2 (TV-GARS-2) scores of the included children with ASD ranged from 70 to 123. As illustrated in Table 1, most of the children had Autism Index scores higher than 85, indicating that those children have a very high probability of exhibiting ASD (the minimum score that can be obtained on the TV-GARS-2 is 55, and the maximum score is 153).

Table 1

Level of Autism

Probability of Autism	*Level of Autism (TV-AI*)*	*f*	*%*
1. Unlikely	<69	-	-
2. Possibly	70-84	8	23.5
3. Very Likely	>85	26	76.5
Total	-	34	100

**TV-AI: Turkish Version of Autism Index*

Of the 52 children with mild ID, 35 children were male and 17 children were female. The ages of the included children ranged from 61 to 144 months, with a mean of 106 months (SD: 26.94). Convenience sampling procedure was followed to recruite participants coming from a private special education and rehabilitation center in the city of Antalya, Turkey. All of the included children had an official/medical report that indicated their official/medical diagnosis of "having mild level ID", which was stated by a psychiatrist or neurologist from a state run hospital. The children also had an educational diagnosis and report from the Antalya Guidance and Research Center, which is a state center that coordinates special education services and is affiliated with the Ministry of National Education and the Province of Antalya Education Directorate in Turkey.

Research Instruments and Procedure

Turkish Version of the Gilliam Autism Rating Scale-2 (TV-GARS-2) (Diken, Ardıç, Diken, & Gilliam, 2012). The Gilliam Autism Rating Scale-2 (GARS-2) (2005), which was normed on a sample of 1,107 children and young adults aged between 3 and 22 years who had been diagnosed with ASD in the United States, is a revised version of the Gilliam Autism Rating Scale. The scale was initially developed in 1995 by James E. Gilliam in the United States. The GARS-2 contains a total of 42 items and three subscales. Subscale 1 is called Stereotype Behaviors, subscale 2 is called Communication and subscale 3 is called Social Interaction. Each subscale includes 14 items that are rated by the principal caregiver or teacher/specialist who knows the child best, using a 4 point Likert-type scale (0=not observed, 1=rarely observed, 2=sometimes observed, 3=frequently observed). In the original study testing the GARS-2, reliability and validity were examined by performing a series of psychometric procedures, such as content sampling and time sampling for reliability, content validity, criterion-related validity, and construct-identification validity. The results of these analyses demonstrated that the GARS-2 has sound psychometric features. The TV-GARS-2 was normed in Turkey with 1,191 individuals with autism who were aged between 3 and 23 years. In addition to the validity and reliability analyses performed with the original version, Confirmatory Factor Analysis (CFA) was performed in a Turkish standardization study. The results demonstrated that the TV-GARS-2 is a valid and reliable tool that can be used in the assessment process for Turkish individuals with ASD. As for all standardized tests, the raw scores obtained via subscales are converted to standardized scores and the standardized scores are converted to the Autism Index (AI), which indicates the severity and probability of an ASD diagnosis. The Cronbach Alpha coefficients for the Stereotyped Behaviors subscale, the Communication subscale, the Social Interaction subscale, and the whole scale (42 items) were .79, .77, .85, and .88, respectively, in the Turkish standardization study. However, the reliability of the subscales and the total score were reexamined in the current study. The resulting Cronbach Alpha coefficients for the current study were .88 for Stereotyped Behaviors, .89 for Communication, .90 for Social Interaction, and .94 for the whole scale (42 items).

Turkish Version of the Pragmatic Language Skills Inventory (TV-PLSI) (Alev, Diken, Ardıç, Diken, Şekercioğlu, & Gilliam, 2014). The Pragmatic Language Skills Inventory

(PLSI) was developed by James E. Gilliam and Lynda Miller in 2004 in the United States. Based on teacher evaluation, this inventory is a norm-referenced evaluation tool that consists of 45 items. The PLSI is comprised of three subscales (i.e., Classroom Interaction Skills, Social Interaction Skills, and Personal Interaction Skills), with 15 items in each subscale; thus, a total of 45 items can be used to explore the pragmatic language development/skills of 5- to 12-year-old children. The PLSI uses a 9-point Likert scale that is rated by the principal caregiver or teacher who knows the individual best and can be applied in 5-10 minutes. The raw score is first converted to standardized scores for each subscale, and the total standardized score is then converted to a norm score called the Pragmatic Language Skills Index (PLSI). The Turkish Version of the PLSI (TV-PLSI) was studied in 1,383 Turkish children with typical development. Data were also collected from individuals diagnosed with ID and autism to examine the discrimination validity of the TV-PLSI. The results of the Turkish version's validity analyses, such as construct validity, item analysis, criterion-related validity, interrelationship of the subscales, relationship between subscale standard scores and Pragmatic Language Skills Index, discriminate analysis between diagnostic groups, and Confirmatory Factor Analysis (CFA), revealed that the TV-PLSI had a parallel construction (i.e., 3 subscales with 15 items in each subscale and a total of 45 items) to the original version and had acceptable psychometric values in terms of validity. The results of reliability studies (i.e., content sampling and time sampling) indicated that Classroom Interaction Skills had a Cronbach Alpha coefficient of .96, Social Interaction Skills had a Cronbach Alpha coefficient of .98, Personal Interaction Skills had a Cronbach Alpha coefficient of .95, and the Pragmatic Language Skills Index had a Cronbach Alpha coefficient of .98 in the Turkish standardization study. The reliability of the TV-PLSI was explored again for the current study by calculating Cronbach Alpha coefficients. The results demonstrated that Classroom Interaction Skills had a Cronbach Alpha coefficient of .98, Social Interaction Skills had a Cronbach Alpha coefficient of .98, Personal Interaction Skills had a Cronbach Alpha coefficient of .97, and the Pragmatic Language Skills Index had a Cronbach Alpha coefficient of .98.

Data Collection and Analysis

Data were collected from individuals who had an official/medical diagnosis of either ASD or ID and were receiving special education services from a private special education and rehabilitation center in the city of Antalya, Turkey. Special education teachers at this center were contacted and asked to voluntarily participate in the study. Parental approval was also obtained for the collection of data on the children. Therefore, consents were obtained using consent form from the teachers and parents of individuals with DD. Teachers were given instructions on how to complete the TV-GARS-2 and the TV-PLSI soon after expressing the purpose of the study. The teachers then completed the scales for appropriate students that they had been teaching. The collected data were analyzed using appropriate data analysis techniques, such as descriptive analyses with frequency and percentage calculations, the Independent Samples t-test, and correlation and standard multiple regression analysis using the stepwise method.

Results

Level of Pragmatic Language Skills

Frequency and percentage calculations were used to decribe the pragmatic language skills level of children with ASD and children with ID. In addition, the relationship between the degree of the ASD score (i.e., Autism Index-AI) and the pragmatic language skills score of children with ASD was examined using correlation analysis.

Table 2

Level of Pragmatic Language Skills.

		Groups			
		Children with ASD		***Children with ID***	
*Level of PLS**	*TV-PLSI***	*f*	*%*	*f*	*%*
1. Very Poor	<63	26	76.5	24	46.2
2. Poor	64-76	6	17.6	15	28.8
3. Below Average	77-89	2	5.9	9	17.3
4. Average	90-110	-	-	4	7.7
5.Above Average	111-117	-	-	-	-
6. Superior	118-122	-	-	-	-
7. Very Superior	>123	-	-	-	-
Total	-	34	100	52	100

**PLS: Pragmatic Language Skills, **TV-PLSI: Turkish Version of Pragmatic Language Skills Index*

The results presented in Table 2 reveal that the majority of the studied children exhibited very poor level pragmatic language skills. More specifically, 26 of 34 (76.5%) children with ASD and 24 of 52 (46.2%) children with ID, exhibited very poor pragmatic language skills. In addition, 6 (17.6%) children with ASD and 15 (28.8%) children with ID exhibited poor pragmatic language skills.

The relationship between the autism level and the pragmatic language skills level of children with ASD was explored using correlation analysis. The results of the correlation analysis revealed significant negative correlations between AI scores and PLSI scores (*Pearson's r*(34)= -0.51, *p*<.001), Classroom Interaction Skills scores (Pearson's r(34)= -0.53, p<.001), Social Interaction Skills scores (Pearson's r(34)= -0.41, p<.001), and Personal Interaction Skills scores (Pearson's r(34)= -0.45, p<.001) among children with ASD.

Differences in TV-PLSI scores

To compare the TV-PLSI scores of children with ASD and children with ID, a series of Independent Samples t-tests was performed. To control for Type 1 error across multiple tests, the Bonferroni adjustment was used. Specifically, the common alpha value (i.e., 0.05) was divided by the number of t-tests performed (i.e., 4) (Huck, 2011; Pallant, 2005). Therefore, 0.0125 was used as the adjusted alpha value. The results of the t-tests are presented in Table 3.

Table 3

Independent Samples t-test results for the TV-PLSI scores of Children with ASD and Children with ID.

Scale	*Group*	*N*	$\bar{x}$	*SD*	*df*	*t*	*p*	*η2*
Classroom Interaction Skills	ASD	34	2.03	1.98	84	-2.73	.008	.07
	ID	52	3.50	3.01				
Social Interaction Skills	ASD	34	2.03	1.90	84	-2.96	.004	.08
	ID	52	3.49	2.65				
Personal Interaction Skills	ASD	34	3.15	3.00	84	-2.58	.011	.07
	ID	52	4.99	3.54				
Pragmatic Language Skills Index	ASD	34	58.59	11.43	84	-2.89	.005	.08
	ID	52	67.08	15.79				

The results of the Independent Samples t-test revealed significant differences between the TV-PLSI scores of children with ASD and children with ID. More specifically, a significant difference in subscale standardized scores for the first subscale (i.e., Classroom Interaction Skills) was observed between children with ASD and children with ID. The magnitude of the difference between the means (effect size) was moderate. For the second subscale (i.e., Social Interaction Skills), a significant difference in subscale standardized scores was observed between children with ASD and children with ID with a moderate magnitude of the difference between the means. For the third subscale (i.e., Personal Interaction Skills), a significant difference in subscale standardized scores was observed between children with ASD and children with ID. The magnitude of the difference between the means was also moderate. Finally, the groups were compared with respect to total standardized scores or PLSI scores. The results also revealed a significant difference in standardized PLSI scores between children with ASD and children with ID with a moderate magnitude of the difference between the means.

Predictors of Pragmatic Language Skills among Individuals with ASD

To identify the structure(s) or feature(s) of ASD predicting the pragmatic language skills of children with ASD, standard multiple regression analysis was performed using the stepwise method. Prior to the analysis, assumption testing was conducted and no serious violations were observed with respect to multicollinearity, outliers, normality, linearity, homoscedasticity, and independence of residuals. The results of the correlation analysis revealed significant correlations between the Stereotyped Behaviors subscale of the TV-GARS-2 and the PLSI (Pearson's r(34)= -0.48, p<.001), between the Communication subscale of the TV-GARS-2 and the PLSI (Pearson's r(34)= -0.56, p<.001), and between the Social Interaction subscale of the TV-GARS-2 and the PLSI (Pearson's r(34)= -0.55, p<.001). Based on the correlation results, the Stereotyped Behavior, Communication Skills, and Social Interaction Skills subscales were entered into the standard multiple regression analysis using the stepwise method to determine which subscale(s) or skill(s) predicted the pragmatic language skills of children with ASD. The results are presented in Table 4.

Table 4

Predictors of Pragmatic Language Skills among Children with ASD

Variables	*B*	*Std. Error*	*Beta*	*t*	*p*
Constant	80.885	5.392		15.00	<.001
Communication Subscale	-1.962	.517	-.546	-3.798	<.001

(R=.546, R Square=.298, Adjusted R Square=.277 ; F(1,34)=14.428, p<.001)

The results of standard multiple regression analysis using the stepwise method revealed that Communication Skills explained 30% of the observed variance in pragmatic language skills. In contrast, the other two sub-scales (i.e., Stereotyped Behaviors and Social Interaction) failed to contribute significantly to the current model.

Discussion and Conclusion

The pragmatic language skills of children with DD (ASD and ID) in Turkey were explored in the current study. First, the levels of pragmatic language skills among children with ASD and children with ID were described. The results demonstrated that nearly the entire sample exhibited below average pragmatic language skills compared to the norm group, which was comprised of children with typical development. More specifically, 32 of 34 (94.1%) children with ASD and 39 of 52 (75%) children with ID exhibited poor or very poor pragmatic language skills. Further, significant negative correlations were found between Autism Index (AI)

scores and PLSI scores; this finding indicates that as the severity of ASD increases, scores on the PLSI decrease. All of these results support the idea proposed in several studies from the international literature (i.e., Bierman, 2004; Green, Johnson, & Bretherton, 2013; Owens, 1999; Scudder & Tremain, 1992; Rispoli, Franco, Meer, Lang, & Camargo, 2010; Volden & Phillips 2010) that regardless of culture and race, problems in pragmatic language skills are common among children with DD.

Second, differences between the pragmatic language skill scores of children with ASD and children with ID were investigated. A comparison indicated that significant differences of a moderate magnitude existed between the PLSI scores of children with ASD and children with ID. More specifically, children with ASD had lower PLSI scores (i.e., subscale scores and total scores) than children with ID. This result is also consistent with the international literature. For example, as cited by Volden and Phillips (2010), several researchers reported in recent decades that children with ASD exhibit pragmatic language difficulties in many communication skills. Luyster, Kadlec, Carter, and Tager-Flusberg (2008) also stated that all children with ASD, even those who had age appropriate scores on standardized language tests, have significant impairments in many aspects of pragmatics and discourse. However, levels of communication difficulties may vary because ASD is a spectrum (i.e., from low severity, high functioning ASD, to very severe ASD characteristics comorbid with ID), that encompasses a range of severity levels and symptoms.

Similar to children with ASD, levels of communication difficulties may also vary among children with ID because the level of ID may differ for each child, from mild to severe ID. For example, when comparing children with ID to children with ASD, some researchers report that children with ID do acquire important pragmatic language skills, such as appropriately repeating and revising utterances in response to requests for clarification (i.e., Coggins & Stoel-Gammon, 1982; Johnston & Stansfield, 1997; Pearl, Donahue, & Bryan, 1981; Scudder & Tremain, 1992). With respect to the characteristics of the current sample, the Autism Index (AI) scores of the sample ranged from 70 to 123. Most of the participants had an AI score higher than 85, indicating that these participants have a very high probability of exhibiting ASD (the minimum score that can be obtained on the TV-GARS-2 is 55, and the maximum score is 153). In contrast, the children with ID had a diagnosis of mild ID. Therefore, consistent with the literature, children with mild ID are expected to exhibit higher levels of pragmatic language skills than children with ASD. However, the higher level of pragmatic language skills should only be considered to exist between these two sample groups because, as stated above, both groups had below average pragmatic language skills when compared with to the norm group containing that contained children with typical development.

Finally, the best predictors of the pragmatic language skills of children with ASD among the subscales of the TV-GARS-2 (i.e., Stereotyped Behaviors, Communication Skills and Social Interaction Skills) were explored in the current study. Communication Skills explained a considerable amount of the variance (30% of the variance) observed in the pragmatic language skills of children with ASD. Communication Skills are expected to be the best predictor of pragmatic language

skills because pragmatic language skills are part of the developmental domain of communication. The obtained values were significant, even though the sample size was not large enough. Social Interaction Skills failed to contribute to predicting PLSI scores, even though social interactions have been identified as a form of practical language use (i.e., Bignell & Cain 2007; Camarata & Gibson 1999; Leonard, Milich, & Lorch, 2011; Perkins, 2010; Russell, 2007). Subsequent studies with larger samples are needed to identify the unique contributions of each construct within Communication Skills.

The results of the current study should be interpreted in the context of the limitations of the study. First, the sample was not large enough in size and did not include children with typical development. Although the TV-PLSI was standardized with children with typical development and also discriminate analyses performed with a group of children with ASD and ID during standardization study of TV-PLSI, the results presented here would be more meaningful if a group of children with typical development was part of the current study. Second, two groups could not be matched based on their standardized IQ scores because there were difficulties in the standardized IQ assessment process for most children with ASD (i.e., some of these children were not able to use standard tests). Despite these limitations, the results of the current study provide great insights for future research and practice in Turkey and in other countries. To extend the results of the current study, more studies should be performed with larger sample sizes, including children with typical development. Different variables, particularly context-based variables should be included to explore differences between groups in future studies. The current study indicated that both groups had poor pragmatic language skills, which are essential for becoming a successful part of larger society. Therefore, the programs or services provided to these children and their families must include components designed to improve the pragmatic language skills of these children. School- and home-based intervention programs that focus on pragmatic language interventions should also be developed and implemented in Turkey. While developing and implementing these intervention programs, the subcomponents of pragmatic skills, the level and spectrum of DD, and the social contexts of individuals with DD should also be considered.

References

Adams, C., Lockton, E., Gaile, J., Earl, G., & Freed, J. (2012). Implementation of a manualized communication intervention for schoolaged children with pragmatic and social communication needs in a randomized controlled trial: the Social Communication Intervention Project. *International Journal of Language & Communication Disorders, 47*(3), 245-256.

Alev, G. (2011). Pragmatik Dil Becerileri Envanteri Türkçe Versiyonu'nun Standardizasyon Çalışması [Standardization of Turkish Version of Pragmatic Language Skills Inventory]. *Unpublished Master Thesis,* Anadolu Üniversitesi, Sağlık Bilimleri Enstitüsü.

Alev, G., Diken, İ. H., Ardıç, A, Diken, Ö, Şekercioğlu, G., & Gilliam, J. E., (2014). Adaptation and Examining Psychometrical Properties of Pragmatic Language Skills Inventory (PLSI) in Turkey. *Elementary Education Online, 13*(1), 258-273.

American Speech-Language-Hearing Association (1993). *Definitions of communication disorders and variations* [Relevant Paper]. Available from www.asha.org/policy.

Bierman, K. L. (2004). *Peer rejection: Developmental processes and intervention strategies.* New York, NY: Guilford.

Bignell, S., & Cain, K. (2007). Pragmatic aspects of communication and language comprehension in groups of children differentiated by teacher ratings of hyperactivity and inattention. *British Journal of Developmental Psychology, 25*, 499–512.

Büyüköztürk, Ş., Çakmak, E. K., Akgün, Ö. E., Karadeniz, Ş., & Demirel, F. (2008). *Bilimsel Araştırma Yöntemleri.* Ankara: Pegem Akademi.

Camarata, S. M., & Gibson, T. (1999). Pragmatic language deficits in attention-deficit hyperactivity disorder (ADHD). *Mental Retardation and Developmental Disabilities Research Reviews, 5*, 207–214.

Coggins, T., & Stoel-Gammon, C. (1982). Clarification strategies used by four Down's syndrome children for maintaining normal conversational interaction. *Education and Training of the Mentally Retarded, 16*, 65-67.

Diken, I. H., Ardic, A., Diken, O, & Gilliam, J. E. (2012). Exploring validity and reliability of Turkish Version of Gilliam Autism Rating Scale-2. *Education and Science, 37*(166), 318-328.

Gilliam, J. E., & Miller, L. (2006). *Pragmatic Language Skills Inventory (PLSI)*. Austin, TX: Pro-Ed.

Green, B. C., Johnson, K. A., & Bretherton, L. (2013). Pragmatic language difficulties in children with hyperactivity and attention problems: An integrated review. *International Journal of Language and Communication Disorders, 00*(0), 1-15. DOI: 10.1111/1460-6984.12056.

Huck, S. W. (2011). *Reading Statistics and Research.* Boston, MA: Pearson Education.

Johnston, F., & Stansfield, J. (1997). Expressive pragmatic skills in pre-school children with and without Down's syndrome: parental perceptions. *Journal of Intellectual Disability Research, 41*, 19-29.

Leonard, M. A., Milich, R., & Lorch, E. P. (2011). The role of pragmatic language use in mediating the relation between hyperactivity and inattention and social skills problems. *Journal of Speech, Language, and Hearing Research, 54*, 567–579.

Luyster, R.J., Kadlec, M. B., Carter, A., & Tager-Flusberg, H. (2008). Language assessment and development in toddlers with Autism Spectrum Disorders. *Journal of Autism & Developmental Disorders, 38*, 1426-1438.

Owens, R. E. (1999). *Language Disorders: A Functional Approach to Assessment and Interveniton.* USA: Allyn & Bacon.

Pallant, J. (2005). *SPSS Survival Manual.* Crows Nest NSW: Allen & Unwin.

Pearl, R., Donahue, M., & Bryan, T. (1981). Learning disabled and normal children's responses to nonexplicit requests for clarification. *Perceptual and Motor Skills, 53*, 919-925.

Perkins, M. R. (2010*). Pragmatic Impairment*. In J. S. Damico, N. Muller and M. J. Ball (eds), The Handbook of Language and Speech Disorders (Chichester:Wiley-Blackwell), pp. 227–246.

Russell, R. L. (2007). Social communication impairments: Pragmatics. *Pediatric Clinics of North America, 54*, 483–506.

Rispoli, M. J., Franco, J. H., Meer, L. V.D.M., Lang, R., & Camargo, S.P.H. (2010). The use of speech generating devices in communication interventions for individuals with developmental disabilities: A review of the literature. *Developmental Neurorehabilitation, 13*(4), 276-293.

Sahin, S., Yalcinkaya, F., Bayar Muluk, N., Bulbul, S. F., & Cakir, I. (2009). Abilities of pragmatic language usage of the children with language delay after the completion of normal language development training. *The Journal of International Advanced Otology, 5*(3), 327-333.

Scudder, R.R., & Tremain, D.H. (1992). Repair behaviors of children with and without mental retardation. *Mental Retardation, 30*, 277-282.

Volden, J. & Phillips, L. (2010) Measuring pragmatic language in speakers with Autism Spectrum Disorders: Comparing the Children's Communication Checklist—2 and the Test of Pragmatic Language. *American Journal of Speech-Language Pathology, 19*, 204–212.

Gelişimsel Yetersizliği olan Çocukların Pragmatik Dil Becerileri: Türkiye'de Betimsel ve İlişkisel Bir Çalışma

Atıf:

Diken, Ö. (2014). Pragmatic language skills of children with developmental disabilities: A descriptive and relational study in Turkey. *Eurasian Journal of Educational Research*, 55, 109-122. http://dx.doi.org/ 10.14689/ejer.2014.55.7

Özet

Problem Durumu: Gelişimsel alanlar içerisinde iletişim alanı (iletişim alanında da pragmatik dil becerileri), gelişimsel yetersizliği olan çocuklar için en önemli ve aynı zamanda en önemli derecede olumsuz anlamda etkilenmiş gelişimsel alanlardan biridir. İletişim becerileri ve özellikle pragmatik dil becerileri gelişimsel yetersizliği

olan çocukları toplumda bağımsız yaşaması, akademik ve akademik olmayan becerilerde başarılı olması, iş ve bağımsız yaşam becerilerinde önemli bir yer tutarken, bu çocuklar ve ailelerinin yaşam kalitesi açısından da önem arz etmektedir. Bu bağlamda uluslararası alan yazın gelişimsel yetersizliği olan çocukların pragmatik dil becerileri üzerine çalışmalar yapılmasının, bu çocuklar ve aileleri için sunulacak hizmetlerin içeriğini ve kalitesini belirlemede önemli katkılar sunduğunu ortaya koymaktadır. Ancak yetersizliği olan çocukların pragmatik dil becerilerine ilişkin çalışmalar incelendiğinde sadece gecikmiş dil özelliği gösteren çocuklar ile yapılan bir çalışma dışında gelişimsel yetersizliği olan çocuklar (otizm spektrum bozukluğu ve zihinsel yetersizlik) ile yapılan çalışmaya rastlanılmamıştır.

Araştırmanın Amacı: Bu çalışmanın amacı Türkiye'de gelişimsel yetersizliği (otizm spektrum bozukluğu ve zihinsel yetersizlik) olan çocukların pragmatik dil becerilerini incelemektir.

Araştırmanın Yöntemi: Bu çalışmada betimsel ve ilişkisel araştırma modeli kullanılmıştır. Çalışmanın katılımcılarını ise 34'ü otizm spektrum bozukluğu (OSB) ve 52'si zihinsel yetersizlik (ZY) olmak üzere yaşları 5 ile 12 arasında değişen toplam 86 gelişimsel yetersizliği olan çocuk oluşturmuştur. Gilliam Otistik Bozukluk Derecelendirme Ölçeği-2-Türkçe Versiyonu ve Pragmatik Dil Becerileri Envanteri-Türkçe Versiyonu kullanılarak Antalya ilinde bir özel eğitim ve rehabilitasyon merkezine devam eden katılımcıların öğretmenlerinden veriler toplanmıştır.

Araştırmanın Bulguları: Bulgular her iki grubun büyük bir kısmının oldukça düşük pragmatik dil becerileri gösterdiğini ortaya koymuştur. Daha spesifik olarak, 34 OSB gösteren çocuğun 32 (%94.1)'sinin ve 52 ZY gösteren çocuğun 39 (%75)'unun düşük ve çok düşük olarak adlandırılan pragmatik dil becerileri gösterdikleri görülmüştür. OSB derecesi ile pragmatik dil becerileri puanı arasında negatif yönde anlamlı bir ilişki bulunmuştur. Bulgular ayrıca ZY gösteren çocukların OSB gösteren çocuklara nazaran daha iyi pragmatik dil becerileri gösterdiklerini ortaya koymuştur. Çalışma da son olarak yapılan regresyon analizinde pragmatik dil becerilerini OSB gösteren çocukların iletişim puanları %30 varyansla açıklarken, sosyal etkileşim ve stereotip davranışların pragmatik dil becerilerini açıklamadığı görülmüştür.

Araştırmanın Sonuçları ve Önerileri: Bu çalışmadan elde edilen bulgular uluslararası alan yazını destekler niteliktedir. Türkiye'de de gelişimsel yetersizliği olan çocukların pragmatik dil becerilerinin yetersiz olduğu ve ZY gösteren çocukların OSB gösteren çocuklar ile karşılaştırıldığında daha yüksek pragmatik dil beceri puanları elde ettikleri sonucuna varılmıştır. Pragmatik dil becerileri yaşama aktif katılımda ve nihayetinde gelişimsel yetersizliği olan çocukların yaşam kalitelerini yükseltmede önemli yere sahip olduğundan, Türkiye'de bu alanda daha büyük örneklemler ile daha çok çalışma yapılması ve sunulan hizmetler ve müdahale programlarında iletişim ve pragmatik dil becerilerine öncelik verilmesi önerilmektedir.

Anahtar Sözcükler: Pragmatik dil becerileri, gelişimsel yetersizlikler, otizm spektrum bozukluğu, zihinsel yetersizlik, Türk örneklemi.

Eurasian Journal of Educational Research, Issue 55, 2014, 123-136

Motivation for Instrument Education: a Study from the Perspective of Expectancy-Value and Flow Theories

Sabahat BURAK*

Suggested Citation:

Burak, S. (2014). Motivation for instrument education: A Study with the perspective of expectancy-value and flow theories, *Eurasian Journal of Educational Research,* 55, 123-136. http://dx.doi.org/10.14689/ejer.2014.55.8

Abstract

Problem Statement: In the process of instrument education, students being unwilling (lacking motivation) to play an instrument or to practise is a problem that educators frequently face. Recognizing the factors motivating the students will yield useful results for instrument educators in terms of developing correct teaching methods and approaches. Factors motivating the students are addressed from the perspective of several motivational theories in the relevant literature.

Purpose of the Study: In this research, factors motivating students to play their instruments are explained in light of the perspectives of expectancy-value and flow theories. Moreover, I tried to tie these factors to variables such as the school of the students, sex, etc.

Method: This study was performed at institutions providing professional music education in Antalya and Burdur, Turkey. The study group consisted of 190 students and data were collected by a questionnaire developed to determine the motivations of students from the perspectives of flow and expectancy-value theories. The questionnaires consisted of two parts. In the first part, the personal characteristics of the students (sex, age, school, grade, daily instrument practise duration, number of years of playing, pass mark of instrument class, etc.) were recorded. In the second part, questions were prepared to determine the motivation of students within the scope of expectancy-value and flow theories. While preparing the questions, four sub-aspects of the expectancy-value theory were taken into consideration. Descriptive statistical techniques were applied to determine the demographic characteristics of the participants. A chi-squared test was conducted for two variables to determine whether the answers varied as according to sex, age, school, grade, daily instrument practise time, and number of years of playing.

Findings and Results: The questionnaire answers showed significant differences based on several personal characteristics of the students.

* Dr. Akdeniz University, Antalya, Turkey. Email:buraksabahat@gmail.com.

Conclusions and Recommendations: Instrument educators should observe of the abilities of their students to motivate them and increase their daily practise time and success. Educators should be careful about giving instructions in accordance with the levels of their students.

Keywords: Instrument education, motivation, expectancy-value, flow

This study focuses on using the correct teaching techniques to instruct students at playing instruments and getting students to adopt a habit of conscious practise. In addition, student lacking willingness (motivation) to play and instrument or practise is a problem that instrument educators frequently face. Recognizing factors motivating the students creates useful results for instrument educators in terms of developing correct teaching methods and approaches. Factors motivating the students are addressed from the perspective of several motivation theories in the relevant literature.

Expectancy-Value Theory

Theories have been developed relating to achievement motivation to try to explain which tasks are preferentially selected by people. These theories also investigate how people make efforts to achieve their goals. There are many motivating factors and theories that explain these factors. According to expectancy-value theory, the choice of task determines a person's performance and effort, perception about how well this person performs this task and his/her esteem about the task (Wigfield & Eccles, 2000). With regards to the expectancy-value theory, the expectancy is the probability that behaviour will achieve the aim; the value is the level of significance of that aim (Açıkgöz, 2005, p. 227). According to expectancy-value theory, individuals may consider many options, compare them with each other and may choose the task that they regard as the highest (and whose realization probability is the highest; Açıkgöz, 2005, p. 228). The person considers tasks to be attractive, easy and logical based on the theory; if he believes that he will accomplish that task, he will be motivated to perform the task. According to another point of view, behaviours of the individual are the outcome of his desires or values and his beliefs are the judgment about the world and himself (Scheibe, 1970). The perception of an individual performing a task is related to the perception about how useful he deems the task to be in the future. For a student to be motivated to complete a task, he needs to value and place emphasis on the outcome. Furthermore, the student needs to believe in achieving the task at that time or in the future. Wigfield and Eccless (2000) discuss that these definitions may be compared with very similar definitions. For instance, Bandura (1997) addressed the concept of expectancy while addressing self-efficacy. This author distinguished efficacy expectancies or the belief that a person will complete a task and outcome expectancies or beliefs that efforts will translate into the desired outcome. Bandura (1997) expressed that expectancy-value theorists are interested in outcome expectancy in the models they develop. These individuals see the models as an aim relating to the future and they present data predicting expectancies of efficacy relating to performance and choice of the person more than outcome expectancies (Wigfield & Eccless, 2000, p.70).

Studies in fields other than music show that students decide which fields are significant to them at a very young age and make judgments about their efficacies for a particular task (Wigfield 1994; Wigfield & Eccless, 1992). In a study conducted in expectancy-value theory in music education, 133 instrument students participated. The ages of the students ranged between 7 and 9 years and all of the students were in at the beginning stages of playing instruments. The study concluded that the students' expectancies and the values that they placed on music education were the elements that determined their progression in music. Although students in the study group had not yet started music education, they expressed clear expectations and values about music education. Students showed specific levels of interest in learning to play instruments and were conscious of the costs required to be engaged in music. The students were also aware of being good at music and the benefits of music for short-term and long-term goals. While many students considered music to be a sport, hobby or other means of entertainment, the significant majority of students were interested in music intrinsically. However, students do not view music as a career field for the future. It was understood that the intrinsic motivation levels of some students were low; these students they were aware of the benefits of being successful at music for their overall education. Although being engaged in music is useful for the vast majority of students, it is not a very likely significant occupation for the future. Few students considered music as a career field. Another interesting finding of the study is the relationship between the comments of students learning to play an instrument and their musical performances over the last 9 months. Students stating that they would play their instrument for a few years showed the least progress, no matter how long they practised at home; students indicating that they would continue to play their instruments achieved the highest performance levels (McPherson, 2000). Expectancy-value theory constitutes an important aspect of studies on motivation (Pintrich & Schunk, 1996; Barry, 2007) and has four sub-aspects:

Attainment Value relates to the importance that a student places on accomplishing a particular task (Barry, 2007). This term refers to how important a student believes it is to do well on a task (O'Neill & McPherson, 2002). Here, the value that a student places on the outcome of the task is in question. For instance, if the student wants to be regarded as a good musician by his friends, he will be motivated to play at a concert; the student lacking such motivation will not be similarly prompted to participate in a concert. A student desiring to be a good musician will consider playing his instrument as a way to reach this aim and will be motivated to practise.

Intrinsic Motivation describes the personal enjoyment and satisfaction that a student derives from making music (Barry, 2007). This term can also be described as the feeling of enjoyment that an instrumentalist has when performing for the sheer pleasure of making music (O'Neill & McPherson, 2002). For instance, students playing instruments since they enjoy the sound of instruments (as opposed to being concerned about grades or other external stimuli) have intrinsic motivation; these students love and enjoys the task whatever it is.

Extrinsic motivation refers to being interested in music to achieve an aim not having a direct relation to the musical performance. O'Neill and McPherson (2002) describe extrinsic motivation as the extrinsic utility value of learning. Here, the

important aspect is the extrinsic benefits of playing the instrument and importance attributed to these benefits by the student. These extrinsic benefits may be targets for future, such as career choices. For instance, practising an instrument for the purpose of obtaining a passing mark, external awards and compliments of parents or teachers without enjoying the process of making music shows that a student has extrinsic motivation. While extrinsic motivation is deemed necessary and useful for some cases in education, excessive use of extrinsic motivation may occasionally cause unfavourable situations. The student may depend on extrinsic stimuli such as awards, marks or compliment to be engaged in music; when these stimuli disappear, interest may disappear, too.

Perceived Cost The perceived negative aspects of learning an instrument such as the amount of practise required for continual improvement are defined as the perceived cost of engaging in the activity. Children may decide that the cost of practising every day is not worth the effort, because it does not leave sufficient time for other activities in their life, such as sports (O'Neill & McPherson, 2002).

Flow Theory

Another theory we investigate by examining theories of motivation for instrument education is the theory of flow developed by Csikszentmihalyi. Csikszentmihalyi (1990) questioned the happiness of life; his theory expressed that being happy started at the point that the person established control over his conscious. Experiences that we feel when our actions are under our control and we feel great pleasure performing tasks are called optimal experiences (Csikszentmihalyi 1990; Özşahin, 2003). An optimal experience is recognized as the most important part of Csikszentmihalyi's theory. It is necessary to achieve a balance between the level of difficulty perceived for a task and the efficacy of skills of the person to achieve that task to experience. (O'Neill & McPherson, 2002). Achieving a balance between the task and skill by definition means that the individual finds that the task is pleasant and is motivated to complete that task. Failing to achieve a balance between the level of difficulty of the task and the level of skill leads to negative outcomes in terms of motivation. If the task is very easy and the level of skill is very high, boredom will ensue. If, on the other hand, the task is very difficult and the level of skill required is very low, anxiety will arise. If the task is easy and the level of skill is low, apathy will become evident. If the level of challenge of the task and the level of skill are both high, flow will occur (O'Neill & McPherson 2002; Özşahin, 2003). Balance between skill and challenge occurs consistently during a period of education. For instance, a student beginning to play an instrument may have difficulty perceiving the skills taught at the beginning. Anxiety may arise since he will not consider his level of skill to be sufficient to play at the level instructed by the teacher. As he practises, he will dominate the study and flow will occur while practising. Then, once he learns very well and exceeds the level of skill, he will get bored with practising and lose the motivation to practise.

The following criteria are required for flow: activities requiring skill that compel the person, clear goals and feedback, concentration on the task at hand, sense of control, loss of self consciousness and transformation of time. Although the theory of flow is discussed as one of the theories of motivation, the flow process is the most ideal learning environment based on the theory. As a result, when individuals are

faced with a difficult task for which they have highly developed skills, they derive the highest pleasure for that task; their thoughts are in flow without being attached to anything. This case translates into an ideal learning environment based on the theory (Custodero, 2005).

Scientific research about the theory of flow started with the self-reports of adults and adolescents about their daily lives (Csikszentmihalyi, 1975; Csikszentmihalyi & Larson 1984; Csikszentmihalyi & Csikszentmihalyi, 1988; Özşahin, 2003). Additional studies on sports (Jackson & Marsc, 1996) and musical activities (O'Neill, 1999; Custodero, 1999, 2005) also contributed to this field of research. O'Neill (1999) tried to explain the effects of motivational and social factors of instrument students using the process of musical development with the flow model. Custodero (1999) developed a method to observe the flows of students during music activities and examined the flow experiences of music education in early childhood. The flow experiences of students decreased with age. Byrne (2003) analysed the relations between the flow experiences of students and creative products and came to the conclusion that there was a significant relation between musical compositions and flow experiences of university students.

According to the literature, many factors motivating the students are applicable to instrument education. It is important to determine the factors motivating the students in terms of forming the instructional programme and raising the performance level. In this research, I tried to explain the factors motivating the students in terms of expectancy-value and flow theories. Moreover, it was tried to benefit the relation of these factors with variables such as school of students, sex, etc. We believe that revealing these relations will shed light on teaching students how to play instruments and will serve as a resource for future research.

Method

Research Sample

This study was performed at institutions providing professional music education in Antalya and Burdur, Turkey Country. These schools included the Akdeniz University Faculty of Fine Arts, the Department of Music (FFA), the Turkish Music Conservatory (TMC) and the Western Music Conservatory (A.U. Cons) in Antalya and Mehmet Akif Ersoy University Faculty of Education Department of Music Education (MAKU) in Burdur, Turkey Country. A total of 190 students attending these institutions participated in the study. The demographics of the students are as follows: 53.2% were females and 46.5% were males and 18.9% were between the ages of 17 and 19. Nearly one third (28.9%) of students attended the FFA; 12.6% were students of the TMC and 8.4% were students of the Western Music Conservatory. Moreover, 28.9% of students attended until grade 1, 37.4% attended until grade 2, 15.8% attended until grade 3 and 17.9% attended until grade 4. Nearly one quarter (24.7%) of students practise their instruments a minimum of 1 hour per day; 52.1% of students practise for 1–2 hours and 23.2% practise for 3 hours or more per day. About one third (32.6%) of students have been playing an instrument for 0–2 years, 30.5% of students have been playing instruments for 3–5 years, 25.8% of students

have been playing instruments for 6–8 years and11.1% of students have been playing instruments for more than 9 years.

Research Instrument and Procedure

The data were collected by a questionnaire developed to determine the motivations of the students with respect to their instruments in light of the theories of flow and expectancy value. The questionnaires consisted of two parts. In the first part, personal characteristics such as sex, age, school, grade, daily practise duration, and number of years of playing and pass mark in the instrument class were determined. In the second part, questions were prepared to determine the motivation of students with respect to their instruments within the scope of expectancy-value and flow theories. The Cronbach α coefficient of the scale was found to be α=0.719.

Table 1

Factors Motivating Students to Play Instruments

Theory	***Item***
Attainment Value, Expectancy-Value Theory	I play the instrument because I want to be regarded a good musician by my friends
Extrinsic Motivation, Expectancy-Value Theory	I play the instrument because I think being a musician will yield good money
Intrinsic Motivation, Expectancy-Value Theory	I play the instrument because I enjoy playing the instrument very much
Extrinsic Motivation, Expectancy-Value Theory	I play the instrument because I think if I am good at playing, I will achieve a good mark
Perceived Cost, Expectancy-Value Theory	I play the instrument because playing the instrument is a more important occupation for me than daily tasks
Theory of Flow	If the work that I should practise is lower than my level of skill, I don't want to practise because I get bored
Theory of Flow	If the work that I should practise is higher than my level of skill, I am very worried and don't want to practise that work
Theory of Flow	I don't regard playing the instrument at all, because my level of skill is very low and the effort needed to practises is very low

While preparing the questions, four sub-aspects of the expectancy-value theory were taken into consideration (Barry, 2007, p. 24). These aspects are attainment value, intrinsic motivation, extrinsic motivation and perceived cost. The questionnaire was given by the researcher at the school within class hours. Eight scales that were missing or completed incorrectly were not included in the study.

Data Analysis

Descriptive statistical techniques were applied to determine the demographic characteristics of the participants. A chi-squared test was conducted for two variables

to determine whether the students' answers varied according to personal variables such as sex, age, school, grade, daily practise duration and year of playing. This technique tests whether there is a significant relation between two categorical variables (Büyüköztürk, 2010, p. 148).

Results

Means and standard deviations of answers to the questionnaire items were calculated to determine which factors motivated students to play instruments the most. The item "I play the instrument because I enjoy playing instrument very much" had the highest point average (4.37) and was an intrinsic motivation element; the expression "I don't regard playing the instrument at all because both my level of skill is very low and the effort needed to practises is very low" was the element of the flow theory has and had the lowest point average (2.17).

The rate of responses of "I play the instrument because I want to be regarded as a good musician by my friends" was 47.4% for prospective teachers attending MAKU, 40.0% for students of FFA and 18.8% for Western Music Conservatory students. The rate of students answering "I agree" to the same expression was 25.3% for students of MAKU, 36.4% for students of FFA, 58.3% for students of TMC and 43.8% for students of the Western Music Conservatory. The variance observed for the answers of playing instruments to be regarded as a good musician by others was significant (χ^2 (6, N=190) =13.263, p= .039). No significant relations were found between answers and other variables (sex, age, grade, daily practise duration, number of years of playing).

The majority of students who practised for less than 1 hour per day agreed with the expression "I play the instrument because I enjoy playing the instrument very much" (72.3%). The rate increased to 88.9% for students who practised 1–2 hours a day and rose to 93.2% for students practicing 3 hours or more. According to the chi-squared results of answers to the above expression, there was a significant difference with daily practise duration (χ^2 (6, N=190)=18.521, p= .005). No significant relation was found between answers to this question and other variables (sex, age, grade, school, number of years of playing).

Considering the sample of females, 16.8% selected the expression "I play the instrument because I think if I am good at playing I think I will achieve a good mark," 27.7% answered "I slightly agree" and 55.4% answered "I agree." Considering the sample of males, 30.3% answered the same expression with "I don't agree," 16.9% answered "I slightly agree," and 52.8% answered "I agree." Answers to this expression differed significantly according to sex (χ^2 (2, N=190) =6.256 p= .044). No significant relations were found between answers to this question and other variables (school, age, grade, daily practise duration, number of years of playing).

The rate of the answers of "I don't agree" for "I play the instrument because I think being a musician will yield good money" was 40.0% for prospective teachers attending MAKU, 21.8% for students of FFA, 8.3% for students of TMC, and 18.8% for Western Music Conservatory students. While students of FFA provided the answer "I agree" at a rate of 52.7%, students of Western Music Conservatory and

TMC gave an answer of "I slightly agree" with a rate of 50%. A significant difference was found by the schools of students thinking that the reason for playing an instrument was the good income (χ^2 (6, N=190) =18.521, p= .005). No significant relation was found between the answers to this question and other variables (sex, age, grade, daily practise duration, number of years of playing).

Students practising for less than 1 hour per day provided the answer "I don't agree" for the expression of "I play the instrument because playing the instrument is a more important occupation for me than daily tasks" at a rate of 25.5%, 40.4% of students gave the answer "I slightly agree," and 34.X% gave the answer of "I agree." The rate of students practising for 1–2 hours a day for the same expression was 71.7% and the rate of students practising for 3 hours or more for the same expression was 65.9%. Answers to the expression "I play the instrument because playing the instrument is a more important occupation for me than daily tasks" show significant differences according to daily practise duration (χ^2 (4, N=190) =20.319, p= .000).

We now examine the results according to grade of students; 72.7% of grade 1 students, 60.6% of grade 2 students, 63.3% of grade 3 students and 41.2% of grade 4 students provided the answer "I agree" to the expression "I play the instrument because playing the instrument is a more important occupation for me than daily task." The difference between answers to this expression was found to be significant (χ^2 (6, N=190) =18.246, p= .006).For students practising less than 1 hour per day, 61.7% gave the answer "I agree" for the expression "If the work that I should practise is lower than my level of skill, I don't want to practise because I get bored." The corresponding rate was 41.4% for students practising 1–2 hours a day and 38.6% for students practising for 3 hours or more each day. Based on the results of the chi-squared test for the answers of the above expression, the answers showed significant differences according to daily practise duration (χ^2 (6, N=190) =12.521 p= .005). No significant relation was found between other variables (sex, age, grade, school, number of years of playing) and answers to this question. The rate of students providing the answer "I don't agree" for the expression "If the work that I should practise is higher than my level of skill, I am very worried and don't want to practise that work" was 30.5% for prospective teachers attending MAKU, 36.4% for students of FFA, 66.7% for students of TMC and 62.5% for students of the Western Music Conservatory. These differences were significant (χ^2 (6, N=190) =14.882 p= .022).

Students practising for less than 1 hour a day gave the answer "I agree" for the expression "If the work that I should practise is higher than my level of skill, I am very worried and don't want to practise that work" at a rate of 59.6%; students that practised more than 3 hours per day gave the answer "I don't agree" at a rate of 61.4%. Pursuant to the results of the chi-squared test for the answers of the above expression, the answers of students differed significantly according to daily practise duration (χ^2 (4, N=190) =20.835, p= .000).

Students who had played an instrument for 9 or more years gave the answer "I don't agree" at a rate of 76.2% for the expression "If the work that I should practise is higher than my level of skill, I am very worried and don't want to practise that work." A corresponding rate of 14.3% students provided the answer "I agree," students playing for 3–5 years gave the answer "I agree" at a rate of 37.9% and students playing for 6–8 years gave the answer "I agree" at the rate of 40.8%. The

answers to the above expression showed significant difference according to the number of years that the students had been playing an instrument (χ^2 (6, N=190) =14.490, p= .025).

Discussion and Conclusion

Answers to the questionnaire about motivation showed significant differences based on the personal characteristics of the students. The answer "I agree" for students in the Turkish music conservatory for the expression "I play the instrument because I want to be regarded as a good musician by my friends" (the element of attainment value) was calculated to be significantly higher than the corresponding fractions of students from other schools who responded similarly. Attainment value is related to the importance that a person attaches to a task (O'Neill & Mcpherson, 2002). Based on these results, students of Turkish music wanted to be regarded as a good musician by their friends in terms of social and cultural structure of the school.

The answer of "I agree" for the expression "I play the instrument because I enjoy playing the instrument very much" (an element of intrinsic motivation) for students practising for 3 hours or more each day was calculated to be given significantly more frequently than other answers. Intrinsic motivation is defined as a pleasure that derives from making music (O'Neill & Mcpherson, 2002). Based on this result, a student enjoying practising will carry on practising to sustain this pleasure. This result shows parallelism with the findings of Schmidt (2005), who found that performance and effort are related to self-concept and intrinsic motivation in his study on the relationships among motivation, performance achievement and musical experience. Moreover, practise time was found to be primarily related to intrinsic motivation.

Answers of "I agree" of female students for the expression "I play the instrument because I think if I am good at playing, I will achieve a good mark" (an element of extrinsic motivation) occurred significantly more frequently than similar answers from male students. This result does not support the findings of Rusillo and Arias (2004), whose research concluded that female students developed lower extrinsic motivation than male students in their study when they examined academic success and sex relations.

40% of MAKU students gave the answer of "I don't agree" for the expression of "I play the instrument because I think being a musician will yield good money in the future" (an extrinsic motivation element). FFA students answered similarly at a rate of 52.7%. Extrinsic motivation relates to students practising for extrinsic reasons, such as future targets and career preferences (O'Neill & McPherson, 2002). It is observed that students of the faculty of education that did not have the goal of earning money from playing the instruments provided the answer "I don't agree" mostly for this expression. In addition, students in the department of music planning to earn money by playing the instrument mostly gave the answer "I agree" for the same expression.

Considering answers to the expression "I play the instrument because playing the instrument is a more important occupation for me than daily tasks" as being

elements of perceived cost, positive answers to the expression increased as the duration of daily practise increased and reduced as the students got older. Perceived cost is related to the extent of preference of students for playing instruments at that moment and coping with the difficulties (Barry, 2007). Accordingly, additional practise rather than completing other tasks can be considered a usual outcome. In addition, reduction of answers of the same expression for lower-grade students can be interpreted a reduction in motivation as the students get older.

Answers to the expression "If the work that I should practise is lower than my level of skill, I don't want to practise because I get bored" varied according to the duration of daily practise. It is possible to draw the conclusion that the reason behind the minimal practise of students can be due to a mismatch between ability levels and assigned work. Over two thirds (66.7%) of students of Turkish music provided the answer "I don't agree" to the expression "If the work that I should practise is higher than my level of skill, I am very worried and don't want to practise that work" and 44.2% of students of the faculty of education gave the answer "I agree." One can conclude that students in the Turkish music conservatory achieved a better balance between skill and challenge. Again, it is seen that answers of the same expression differed according to the daily practise duration of the students. Accordingly, 61.4% of students practising for 3 hours or more each day gave the answer "I don't agree" and 59.6% of students practising for less than 1 hour gave the answer "I agree." One can conclude that the balance between skill and challenge and flow significantly affects daily the practise durations of the students. Students who had been practising for 9 years or more gave the answer "I don't agree" at a rate of 76.2% and 41.9% of students practising for 0–2 years gave the answer "I agree." Concern diminishes with additional years of playing and the balance between skill and challenge improves.

The following recommendations can be presented in accordance with the results of this study:

Instrument educators should observe levels of their students to motivate them and to increase daily practise duration and success. Educators should be careful about instructing works in accordance with the levels of their students. Intrinsic motivation mechanisms of theory of flow are an important step in this flow process. Even if the teacher determines a workload convenient for the level of a student, self-regulation, self-control, concentration, awareness and motivation may affect the processes of learning and teaching adversely. For this reason, the theory imposes the task of achieving a balance between the motivation of the student and the individual and social different motivation sources to affect this motivation beyond choosing the correct repertoire in practice (Özmenteş, 2010). In addition, due to the reasons discussed above, knowledge about how students can be motivated is required. Studies on motivation for instruments and music education should be sustained, the relation between motivation level and instrument performance should be analysed and studies and research about reflections of other motivation theories for instrument education should be conducted. Socio-cultural variables to direct motivation sources of students should furthermore be determined. Qualitative research methodologies for music/instrument education research should be developed and employed. The subject of "musician psychology" should be addressed during the process of teacher/academician education.

References

Açıkgöz, K.Ü. (2005). *Etkili öğrenme ve öğretme* [Effective learning and teaching]. İzmir: Eğitim Dünyası Yayınları.

Büyüköztürk, Ş. (2010). *Sosyal bilimler için veri analizi el kitabı.* [Data analysis handbook for social sciences]. Ankara: Pegem Akademi.

Barry N. (2007).Motivating the reluctant student. *American Music Teacher* 4, 23-27.

Bandura, A. (1997). *Self efficacy: The exercise of control*. New York: W.H. Freeman.

Byrne, C., MacDonal R. & Carlton L. (2003). Assessing creativity in musical compositions: Flow as an assesment tool. *British Journal of Music Education*, 20 (3), 277-290.

Csikszentmihalyi M. (1975). *Beyond boredom and anxiety*. San Francisco CA: Jossey-Bass.

Csikszentmihalyi M. & Larson R. (1984). *Being adolescent: Conflict and growth in the teenage years.* New York: Basic Books.

Csikszentmihalyi M. & Csikszentmihalyi I.S. (1988). *Optimal experience psychological studies of flow in conciousness.* New York: Cambridge University Pres.

Csikszentmihalyi M. (1990). *Flow.* New York: Harper &Row.

Custodero, L. A. (1999). Constructing musical understandings: The cognition-flow interface. *Bulletin of the Council for Research in Music Education,* 142, 79–80.

Custodero L. A. (2005). Observable indicators of flow experience: A developmental perspective on musical engagement in young children from infancy to school age. *Music education Research* 7(2), 185–209.

Jackson, S.A. & Marsh, H. (1996). Development and validation of a scale to measure optimal experience: The flow state scale. *Journal of Sport and Exercise Psychology*, 18 (1), 17–35.

McPherson, G.E. (2000). Commitment and Practice: Key ingredients for achievement during the early stages of learning a musical instrument. *Bulletin of the Council for Research in Music Education,* 147, 122–127.

O'Neill S. A.(1999). Flow theory and the development of musical performance skills. *Bulletin of the Council for Research in Music Education,* 141, 129–134.

O'Neill S.A. &McPherson G.E. (2002). Motivation. In R. Parncutt and G. McPherson(Eds.) *The Science and Psychology of Music Performance: Creative Strategies for Teaching and Learning*, (pp. 31–46). New York: Oxford University Press.

Özmenteş G. (2010). *Müziksel Kimlik Gelişiminde Güdüsel ve Sosyal Psikolojik Etkenler* (The motivational and socio-physcological factors in the development of musical identity).*18. EAS Congress* : (pp. 370-380). Bolu, Turkey.

Özşahin N. (2003). *Lise öğrencilerinin günlük yaşamdaki akış deneyimlerinin incelenmesi* [Investigation of flow experiences of high school students in daily lives]. Unpublished thesis, Ankara Üniversitesi Eğitim Bilimleri Enstitüsü, Ankara.

Pintrich, P.R., & Schunk, D. H. (1996). *Motivation in Education: Theory, Research and Applications.* Englewood Cliffs, NJ: Prentice Hall.Eccles, J. S.

Rusillo, M.T.C.&Arias, P.F.C. (2004). Gender differences in academic motivation of secondary school students. *Electronic Journal of Research in Educational Psychology, 2(1), 97-112.*

Schmidt C.P. (2005). Relations among motivation, performance achievementand music experience variables in secondary instrumental music students. *Journal of Reseach in Music Education,* 53(2), 134-147.

Scheibe L.E. (1970). *Beliefs and Values*. New York: Holt, Rinehart.&Winston.

Wigfield. A. (1994). Expectancy-value theory of achievement motivation: A developmental perspective. *Educational Psychology Review, 6, 49–78.*

Wigfield A. &Eccles J. (1992).The development of achievement task values: A theoretical analysis. *Developmental Review,* 12, 265–310.

Wigfield A. &Eccles J.S. (2000). Expectancy-Value theory of achievement motivation *Contemporary Educational Psychology, 2, 68-81.*

Çalgı Eğitiminde Motivasyon: Beklenti-Değer ve Akış Kuramları Perspektifinde bir İnceleme

Atıf

Burak, S. (2014). Motivation for instrument education: A Study with the perspective of expectancy-value and flow theories, *Eurasian Journal of Educational Research,* 55, 123-136. http://dx.doi.org/10.14689/ejer.2014.55.8

Özet

Problem Durumu: Genellikle bireysel dersler şeklinde gerçekleşen çalgı eğitimi sürecinde, çalgılarını çalmaya ya da çalışmaya yönelik isteklilik (güdü) duymayan öğrenciler çalgı eğitimcileri tarafından sıklıkla karşılaşılan bir sorundur. Öğrencileri çalgılarına güdüleyen etmenlerin bilinmesi çalgı eğitimcileri açısından doğru öğretim yöntem ve yaklaşımları geliştirmeleri açısından yararlı sonuçlar doğuracaktır. İlgili

alanyazın incelendiğinde öğrencileri çalgılarına güdüleyen etmenlerin bazı güdü kuramları perspektifinde el alındığı görülmektedir. Bu kuramlardan biri olan beklenti değer kuramına göre bir kişinin bir işteki seçimi, gösterdiği performans ve çabasını, o kişinin o işi ne kadar iyi yapabileceğine yönelik algısı ile aynı işe ne kadar değer verdiği belirlemektedir. Beklenti-değer kuramında beklenti, o davranışın amaca ulaştırma olasılığı, değer ise o amacın önem derecesidir. Bu kurama göre bireyler, çeşitli seçenekleri değerlendirebilir, birbirleri ile karşılaştırabilir, sonunda kendi değer verdiği ve gerçekleşme olasılığı en yüksek olan işi seçebilir. Çalgı eğitiminde güdü kuramları incelendiğinde karşımıza çıkan bir başka kuram olan akış kuramında ise yapılacak işin algılanan güçlük derecesi ile kişinin kendi yeteneğinin o işi başarmaya yönelik yeterliği arasındaki dengenin sağlanması gerekmektedir. Eğer görev çok kolay ve beceri düzeyi çok yüksek ise can sıkıntısı başlayacaktır. İş çok zor ve beceri düzeyi çok düşük ise kaygı ile sonuçlanacaktır. Eğer hem iş kolay hem de yetenek düzeyi düşük ise öğrencide ilgisizlik başlayacaktır. Eğer işin güçlük düzeyi yüksek ve beceri düzeyi de yüksek ise akış gerçekleşecektir.

Araştırmanın Amacı: Bu araştırmada öğrencileri çalgılarına güdüleyen etmenler beklenti-değer ve akış kuramları perspektifinden açıklanmaya çalışılmıştır. Ayrıca bu etmenlerin öğrencilerin okudukları okul, cinsiyet gibi değişkenleri ile olan ilişkilerinin belirlenmesi amaçlanmıştır.

Araştırmanın Yöntemi: Bu araştırma, Akdeniz Bölgesi'nde mesleki müzik eğitimi veren kurumlarda okumakta olan toplam 190 öğrenci üzerinde gerçekleştirilmiştir. Araştırmada veriler, öğrencilerin beklenti değer ve akış kuramları perspektifinde çalgılarına yönelik motivasyonlarını belirlemek amacı ile geliştirilmiş olan anket ile toplanmıştır. Çalışma grubundaki öğrencilerin demografik özelliklerinin belirlenmesi amacı ile betimsel istatistik tekniklerine başvurulmuştur. Öğrencilerin ankete verdikleri yanıtların cinsiyet, yaş, okul, sınıf, günlük çalışma süresi, çalgı çalma yılı gibi kişisel değişkenlerine göre farklılaşıp farklılaşmadığını belirlemek üzere iki değişken için ki kare testi uygulanmıştır.

Araştırmanın Bulguları: Araştırma sonuçlarından öğrencilerin motivasyon anketine verdikleri yanıtların onların bazı kişisel özelliklerine göre anlamlı farklılıklar gösterdiği anlaşılmıştır. Buna göre bir elde etme değeri (attainment value) öğesi olan "çalgı çalıyorum çünkü diğer arkadaşlarım tarafından iyi bir müzisyen olarak görülmek istiyorum" ifadesine Türk Müziği Konservatuarı öğrencilerinin verdikleri katılıyorum yanıtlarının diğer okullarda okumakta olan öğrencilere göre anlamlı derecede yüksek olarak hesaplandığı anlaşılmıştır. Bir içsel motivasyon öğesi olan " çalgı çalıyorum çünkü çalgı çalmaktan büyük bir keyif alıyorum" ifadesine günlük çalışma süreleri 3 saat ve üzeri olan öğrencilerin verdikleri katılıyorum yanıtları diğerlerine göre anlamlı oranda yüksek olarak hesaplanmıştır. Dışsal motivasyon öğesi olan "çalgı çalıyorum çünkü çalgımda başarılı olursam iyi bir not alabilirim diye düşünüyorum" ifadesine kız öğrencilerin verdikleri katılıyorum yanıtlarının erkek öğrencilere göre anlamlı derecede yüksek olarak bulunmuştur. Yine bir dışsal motivasyon öğesi olan "çalgı çalıyorum çünkü müzisyenliğin bana ileride iyi bir gelir getireceğini düşünüyorum" ifadesine müzik öğretmeni adaylarının % 40'ının katılmıyorum, Güzel Sanatlar Fakültesi öğrencilerinin ise %52,7'sinin katılıyorum yanıtını verdikleri anlaşılmaktadır. Verilen değer (perceived cost), öğesi olan "çalgı çalıyorum çünkü çalgı çalmak benim için günlük işlerden çok daha önemli bir

uğraştır" ifadesine verilen yanıtlar incelendiğinde bu ifadeye verilen olumlu yanıtların günlük çalgı çalışma süresi yükseldikçe yükseldiği, öğrencilerin sınıfları yükseldikçe azaldığı anlaşılmaktadır. "Çalgımda çalışmam gereken eser yetenek düzeyimin çok altında ise çalışmak istemiyorum çünkü sıkılıyorum" ifadesine verilen yanıtların öğrencilerin günlük çalgı çalışma miktarına göre farklılık gösterdiği anlaşılmaktadır.

Araştırmanın Sonuçları ve Önerileri: Çalgı eğitimcileri öğrencileri motive etmek, günlük çalışma sürelerini arttırmak ve çalgı başarılarını yükseltmek için öğrencilerinin seviyelerini çok iyi gözlemlemeli ve onların seviyelerine uygun eserler vermeye özen göstermelidir. Akış kuramında içsel güdülenme mekanizmalarının bu akış sürecinde önemli bir adımdır. Öğretmenin öğrencinin seviyesine göre eser belirlemesi durumunda bile öğrencinin güdü, farkındalık, yoğunlaşma, özdüzenleme ve öz denetleme becerilerinde yaşadığı bir sorun öğrenme-öğretme süreçlerini olumsuz etkileyebilecektir. Bu nedenle kuram uygulamada doğru dağar seçiminin ötesinde, öğrencinin güdüsü ile bu güdüyü etkileyebilecek bireysel ya da sosyal farklı güdü kaynakları arasında denge kurma görevi de yüklemektedir. Bununla birlikte yine yukarıda sıralanan nedenlerden dolayı öğrencilerinin ne şekilde motive oldukları konusunda bilgi sahibi olunmalıdır. Çalgı eğitiminde ve müzik eğitiminde motivasyon ile ilgili çalışmalar devam ettirilmeli, motivasyon düzeyi ile çalgı performansı arasındaki ilişkiye bakılmalı ve diğer motivasyon kuramlarının çalgı eğitimindeki yansımaları ile ilgili çalışma ve araştırmalar yapılmalıdır. Öğrencilerin güdü kaynaklarına yön verebilecek sosyo-kültürel değişkenler belirlenmelidir. Buna uygun olarak müzik/çalgı eğitimi araştırmalarında nitel araştırma metodolojisinin kullanımı geliştirilmelidir. Öğretmen/öğretim elemanı yetiştirme sürecinde "müzisyen psikolojisi" konusuna yer verilmelidir.

Anahtar Kelimeler: Çalgı eğitimi, motivasyon, beklenti-değer, akış

Eurasian Journal of Educational Research, Issue 55, 2014, 137-158

Stories about Children with Disabilities: The Writing Process and the Opinions of the Storywriters

Sezgin VURAN*

Suggested Citation:
Vuran, S. (2014). Stories about children with disabilities: the writing process and the opinions of the storywriters**.** *Eurasian Journal of Educational Research*.55, 137-158. http://dx.doi.org/ 10.14689/ejer.2014.55.9

Abstract

Problem Statement: Successful inclusion is established through understanding and respecting differences among individuals. This study emerged from the idea that books play an important role in this understanding and from the lack of published children's books about disabilities. Although, stories are very important in any educational curriculum, there are no example stories including children with disabilities in Turkish children's literature (C'sL).

Purpose of Study: The purpose of this research is to examine the opinions of pre-service teachers about their experiences during the storybook writing process.

Methods: This qualitative study was conducted in two phases. The first phase focused on how stories about successful inclusion situations in the community were developed by college students. In the second phase the experiences of the storywriters were examined through the use of semi-structured interviews. The data were analyzed inductively.

Findings and Results: The outcomes of the interviews revealed that the story writers gained positive experiences, and the writing process contributed to their individual and career development. The interviews further showed that the stories would increase the social acceptance of children with disabilities.

Conclusions and Recommendations: Attitudes, opinions, expectations, feelings and thoughts can be changed by reading storybooks about children with disabilities in Turkey. These changes are based on greater familiarization of special education, the development of positive

* Dr. Anadolu University, svuran@anadolu.edu.tr

intentions toward individuals with disabilities (ID), and the encouragement of positive interactive relationships among children of different abilities. This could help the society improve their view of what professional practice could be by developing insights to explore alternative ways of looking at practices and providing access to storybooks about integrated early childhood and primary literacy experiences.

Keywords: Stories for children, children with disabilities, inclusion, storybook writing process.

Education provides children with an understanding of their social positions, the era and the society in which they live. They benefit from the knowledge and experiences throughout their lives to develop their personalities. In this respect, the books that are read in childhood are particularly significant (Bozdag, 2000). Starting from an early age, most children start to realize the differences and similarities of the people around them and themselves. Those who are two years old or younger can usually differentiate the physical properties such as skin and hair colour. This awareness sets the stage for children noticing unfamiliar characteristics such as facial hair, glasses and disabilities. Although they may be worried about these differences, it is important to give them time and opportunities where they can talk about this and express how they feel (Williams, Inkster & Blaska, 2005).

The content of books that correspond to children's requirements, interests, mental, emotional and psychological development, and most importantly that can be read by children with pleasure, should address their interests and life experiences. They should be age-related and comprehensible. The story should have a simple and realistic plot; the actions should have reasonable results; and the characters should be so real that there should be no suspicions in the child's mind (Ataseven & Inandı, 2000). In addition, the pictures in the books should be related to the topics, explanatory, interpretative, enjoyable and attractive (Sever, 2007). When children's books are written in a way that leads the children to fill in certain blanks, their limited life experience is enriched, as they can think about different kinds of people and their developing values and culture become more apparent. In this way, children can adapt more easily to their social and cultural environment (Ataseven & Inandı, 2000).

Can children's books about differences help the reader adapt to society? This is a recently argued topic in Turkey. Regarding this point, Alpoge (2000) emphasizes that children's stories should express that a different child or one with disabilities has a lot of characteristics in common with the normally developing children, and these different people can be successful and talented in some subjects and share these experiences with others. It should also be expressed that the differences are nothing to fear, and that they bring diversity to the community. In the stories, it is important to note that the possibilities of communication will be lost if we divide the world into 'us' and 'them'. Success can be achieved by creating characters with whom the children can identify (Alpoge, 2000; Alpoge, 2003).

In 1992, a study by Blaska and Lynch reviewed 500 award-winning books for children, published 1987-1991, for the inclusion and depiction of individuals with disabilities (ID). Of the books that were reviewed, ten (2%) included ID in the story line or illustrations. Within those ten books, ID was integral to the story line in only six of the books (Blaska, 2003).

In recent literature, there are several stories and books written for children with various disabilities and chronic illnesses, such as attention deficit disorders, attention deficit and hyperactivity disorders, AIDS, autism, Down's syndrome, hearing impairment, hydrocephalus, mental retardation, visual impairment and other types of disabilities (Ashton, 2006; the National Dissemination Centre for Children with Disabilities, 2001). These stories involve texts about different groups of disabilities supported with pictures and examples derived from real life. Reading books about ID helps children to express their feelings and to ask questions. They can have the opportunity to develop empathy and an understanding for disabled people (Williams et al., 2005).

In terms of characters, Turkish stories and novels mainly feature normally developing individuals. Having scanned the stories for children, we could find only one story about a person with a disability (Ural, 1993). However, those with ID are also members of society. The success of inclusion, which allows children with disabilities to be educated with their peers, depends on the acceptance of the children with disabilities by both society and their peers. C'sL, which has an important role in children's lives, must be enriched in the aspects of the lives with similar and different characteristics of ID. Starting from an early age, children must be guided to be more sensitive, insightful and tolerant towards others. They must acquire the skills to cooperate and support each other. To this end, books about people with disabilities are extremely important. If the stories show the problems and the solutions within the lives of the people with disabilities, children can better understand characters with disabilities and their differences and can thus develop tolerance for them.

The fact that there are no books for children that are about children with disabilities has motivated the researcher of this project to educate pre-service teachers to write books for children that are about ID. Stories can have an important role in the education of teachers in the field of special education to explain the implications of an identified need and identify strategies that could be used to support children with and without disabilities (Jarvis, Dyson, Thomas, Graham, Iantaffi & Burchell, 2004). This could help pre-service teachers not only advance in their understanding in the field and knowledge of richer practical repertoires, but also present their material in a child's voice, that offers a significant 'reframing' for many, which has the potential to lead to practical change (Jarvis et al., 2004). The purpose of this research was to examine the opinions of pre-service teachers about their experiences during the storybook writing process.

Method

This qualitative study was conducted in two phases. The story writing process was used in the first phase to conduct an action process and to collect and analyse the data. Action process workshops were conducted to prepare children's storybooks about children with disabilities. During the second phase, the data were collected through semi-structured interviews about story writing processes from the participants and analysed inductively.

Participants

The participants of this study were pre-service teachers (college students) from the Departments of Early Childhood Education and Special Education at Faculty of Education at Anadolu University. With the aim of writing children's literature that addressed children with special needs, it was announced to undergraduate students at the Faculty of Education, which includes special education, early childhood education and primary education, that a study on facilitating the acceptance of students with special needs by their peers in inclusive classes would be conducted. Volunteers were asked to register to participate in this study (in the related department). Considering this announcement, 67 undergraduate students registered for the study. At the pre-meeting held with these students, a consent form was given to the volunteers. This document informed students that a long period (maximum ten weeks) study was planned, their attendance to the study was important in order to implement the study successfully, and during the study process, volunteers who wanted to leave the study would be able to do so. They were given one week to make their decision. During this time, 19 volunteers agreed and signed the consent form. Later 2 out of 19 volunteers left during the study. The remaining students (17) from special education and early childhood education departments attended all phases of the study. Volunteers included 12 students from the Department of Special Education, and 5 from the Department of Early Childhood Education (Table 1). All participants had taken at least one course related to special education, and six of them had taken a course entitled "C'sL".

Table 1
Participants in the Story Writing Process

	Special Education Department					*Early Childhood Education Department*	
Sex of participants	Female			Male		Female	Male
Number of Participants	6			6		5	-
School Years/Grades	2/Sophomore	4/Senior	2/Sophomore	1/Junior	4/Senior	1/Junior	
Number	2	4	2	1	3	5	-

Data Collection and Procedure

Story writing process. During the story writing process, nine workshops were conducted during seven months, usually at fortnightly intervals. The first of these was organized to ascertain the determination of the participants and provide general explanations. The participants shared their experiences during the story writing

process and their storybooks with the other participants in these workshops. The workshops lasted approximately 1.5 to 2.5 hours. Twenty-five pages of field notes were written by the researcher, including workshop agendas and the responses to the stories of the children, other stakeholders and the participants. Three days before the first workshop, the topic of the workshop was determined and announced to the participants via email and on the school board. The first workshop was directed by the researcher. The following ones were directed by a selected participant and the decisions about who would direct the following workshop were determined at the end of each workshop. The researcher participated in all the workshops and supervised all participants. The aims, activities and decisions of the workshops are shown in Table 2.

Table 2

The aims, activities and decisions of the workshops

Workshop Number	**Aim**	**Activity**	**Decision (decision was taken)**
1	• to inform the participants about children with disabilities and inclusion. • to determine what could be provided in order to increase the acceptance of children with disabilities by their peers.	Discussion about: • the topics of children with disabilities and inclusion • what happened in the inclusive classes • what we could do to promote inclusive classes • selecting a moderator for each of the following workshops	• storybooks about children with disabilities should be written • the participants were required to examine the Turkish children's stories (15 day period) • A participant was selected to direct the following workshops.
2	• to discuss the story writing process	• content, writing styles, target age group; illustration styles of the obtained stories • discussion of the reasons why there are no SCD	• two participants who had experience of children with disabilities were chosen to prepare a presentation in order to share their experiences
3	• to share participants' experience about children with disabilities	• two participants shared their experiences of children with intellectual disabilities and their parents	• all the participants should observe both children with disabilities and their parents both at home and at school • the support meetings would be held for the participants who wanted to meet with children with disabilities and their families

Table 2 Continue

Workshop Number	Aim	Activity	Decision (decision was taken)
4	• to share participants' observations	• participants related their observation and their story plots.	• to read the stories aloud to each other
5	• to discuss story writing principles • to share participants' first draft	• the researcher and participants discussed the narration principles and criteria (length, content, view point, etc.) related to C'sL, and selected the vocabulary for children with disabilities. • the comprehension level of the primary students was discussed. • five participants read their story/stories aloud • the participants gave recommendations to each other about their the stories	• to read the stories aloud to each other
6	• to read participants' storybooks	all participants read their storybooks aloud	• to get permission from the elementary schools, which have inclusive classes, to read the storybooks created by the participants aloud in the inclusive classes
7	• to revise participants' storybooks	the participants read their stories aloud and revised	• the participants should take notes about questions and suggestions coming from the inclusive class students
8	• to revise participants' storybooks	all the participants presented their experiences in classes all the participants shared the children's reactions and the corrections they had made and considered these reactions	• to ask for assistance for illustrations of the storybooks from the Art Department of the Departments of Education and Fine Arts
9	• to complete the storybooks	the final drafts of nineteen written and illustrated stories were typed and saved on computer. the final drafts of the stories were revised with the participants	

At the end of the story writing process about children with disabilities, nineteen stories were completed related to different disabilities. Table 3 presents the titles and content of the stories, which were written in Turkish.

Table 3

The Titles and Content of the Stories

Title	Content
Rabbit without a Tail	The adventures of a rabbit without a tail who copes with his friends' making fun of him and who is later accepted by his friends
Ahmet and His Friends	Ahmet, a boy in a wheelchair, cures a wounded pigeon that came to his balcony. This pigeon helps Ahmet build a relationship with his friends to share and join in their games.
Teacher Zeynep	The wheelchair adventures of regular students and teacher Zeynep, who helps a student in a wheelchair who is going to join this class.
Magic Feather	This is a fantasy story about a girl who cannot walk. In her dream, she talks about life to a toy soldier and a sailor who have lost their legs.
Hero with Three Legs	A lion with three legs. It tells of the difficulties that he experiences and his cooperation with his friends to cope with the problems.
My Wings: Two Little Falcons	The feelings, the difficulties and the struggles of a stork whose wings are broken and two little falcons that helps her.
Life is Beautiful	About a high school student who has to use a wheelchair. The story is a first person narration that tells of his achievements on the disabled basketball team and in the disabled dancing group. It also tells of his interaction with his environment and how he is positively affected by his achievements.
Little Chick	About a little chick with one eye and its relationships with its family.
Beautiful Blue Eyes	About a student whose sight has deteriorated. It is about his problems before the diagnosis, his period of adapting to his friends after the diagnosis and the regulations in the school, which are enacted for him.
Let's Play Guiding Eyes Game	A visually disabled student is about to join a new class. Before he comes to the class, the games that the other students are demonstrating develop the students' tolerance and understanding.
Rainbow	A blind student at high school; his interactions with his father and his achievements in music.
You Should Try	A primary school student who is trying to prepare homework about helping each other. She comes across a blind man on the street.
Birthday Present	The story of how a boy with visual disabilities changes direction after he receives a colouring set as a birthday present.
Dream of Omar	Omar is the son of a poor family. He needs to buy a hearing aid device for himself, and for that he needs to work in the bazaar after school.

Table 3 Continue

Title	Content
Mommy, What Does Rainbow Mean?	A blind girl hears about a rainbow from the kids in a park, and asks her mother 'Mommy, what is a rainbow?' After that, she develops an interaction with the kids in the park.
Celebration Present	Ali is a hearing impaired boy. He learns how to make shoes and makes a pair of shoes for his mother as a celebration gift.
School Love	About a child who has intellectual disabilities and spasticity and who cannot walk properly. The story draws attention to this child's happiness about starting school and achievements that he gains in skills.
Best Friendships	The characteristics of a student who has hydrocephaly, the negative reactions of his friends in the first days of school and the change of these reactions in a positive way with the help of the teacher.
Özgür's World	A child with autism; his reactions to changes in routines and repeating behaviours. It also tells about a relationship that is initiated by one of his peers.

All the stories included the problems that ID children encounter; they emphasized the positive and negative experiences of the characters with a solution to the problems. The main themes of the stories were about understanding, collaboration, and respect of differences. We are pleased to note that after this research, these 19 stories were published by an educational book company.

Interviews. Although all the participants were invited to attend an individual face-to-face interview, only 11 of them volunteered and had time to share their experiences (Table 4).

Table 4

Participants who Attended the Interview

	Special Education Department			***Early Education Department***	
	Female	Male		Female	Male
Number of Participants	3	3		5	-
School Years/Grades	4/Senior	1/Junior	2/Senior	1/Junior	-
Number of participants	3	1	2	5	

Semi-structured interviews were conducted with each participant individually by the researcher. All interviews were audio recorded. A code name was used for each

participant to assure anonymity. The interviews lasted from 18 to 25 minutes. The interview questions are given in Appendix 1.

Researcher Features

The researcher has a bachelor's, master's and doctoral degree from the Department of Special Education. She has worked as an instructor at the university since 1986. She supervised in instructional practice for pre-service teachers for 27 years at the Department of Special Education. In addition to this, she instructed Teaching Skills and Concepts to Individuals with Intellectual Disabilities, Applied Behavioral Analysis and Development of Individualized Education Program courses at the undergraduate level. She also teaches graduate courses (Qualitative Research, Applied Behavior Analysis and Developing Social Competence) and supervises theses in the same field.

Data Analysis and Credibility

All the interviews were transcribed by the researcher; the transcriptions were confirmed by another colleague studying in the area of special education. All the data sections that were indexed and interpreted were coded simultaneously using 20 different codes from the transcriptions. The coded data sections were omitted, and the data which had the same codes were collected in a file. Two copies of these files were prepared. Each file was analysed independently by the researcher and her colleague and main themes and sub-themes were formed. The researchers formed the themes through negotiation and agreement after comparing all the themes. Another colleague revised the themes and seven main themes were obtained. A third colleague revised results and research reports, and arranged subthemes. Finally, the themes were verified taking into consideration the field notes written at the workshops. Thus the researcher tried to provide credibility and reliability.

Results

Seven main themes were determined by evaluating the opinions of the participants about story writing process. These themes were: aim, insufficiency of Turkish C'sL about ID, observations, opinions and contributions of the stakeholders, benefits, writing process and problems, and suggestions for story writers when writing SCD (Table 5). Numbers given in parenthesis are the number (frequency) of participants stating similar opinions.

Table 5

Summary of Main Themes, Subthemes and Exemplary Quotes

Themes	***Subthemes - Explanations - Frequencies***	***Exemplary quote***
Aim	The aim included two subthemes. All of the story writers mentioned their *social aims*. Only one of the participants said that she had an individual aim.	
	Social aims • To provide the acceptance of ID by society (11) • To familiarize the characteristics of children with disabilities to normally developing ones (10) • To make contributions to create C'sL about children with disabilities (3) • To make contributions to the field of special education, and to give hope (2) • To reflect the emotions of ID (1)	*"My aim is … ID are not well known by society. Our basic aim in this study is to help normally developed individuals recognize children with disabilities. This group includes students, adults and regular primary class teachers. My basic aim is to familiarize ID and facilitate their acceptance by the community."*
	Individual aim • Personal satisfaction	*"I would like to receive personal satisfaction by making a contribution to the field."*
Insufficiency of Turkish Children's Literature about ID	Approximately 1000 children's stories in C'sL were researched by the participants during the story writing process. Eight of the participants stated that they could not find any children's SCD, and two of them stated that they found only one story.	*"When I searched children's libraries and the market, I scanned approximately 300 books, but none of them mentioned children with disabilities. This is terrible. In our environment and society, there are negative and insensitive attitudes toward people with a disability."*
Observations	The participants expressed their opinions about the experiences that they gained while reading their storybooks to ID, their parents and normally developing children. Therefore, the observation theme was formed into two sub-themes.	

Table 5 Continue

Themes	*Subthemes - Explanations - Frequencies*	*Exemplary quote*
	Observations on the children with disabilities and their parents • Educational and social necessities of the children with disabilities and their parents (7) • The feeling of shame of the families with children with mental retardation (5) • The attitude differences between families with children with disabilities and normally developing children toward their children (2) • ID need understanding rather than sympathy (2) • In inclusion classes, the children with disabilities were able to comprehend the stories (2) • The attitudes of two families, one of which is hopeful and the other one is desperate about the future of their children (1) • The success of a child with severe mental retardation (1)	One of the participants observed triplet siblings with mental retardation and their mother. *"Compared to the other mothers, their mother was the most optimistic and positive one. ... The triplets, who are thirteen years old, have been attending the school for five years. Their mother gets up at 5 a.m. to change their nappies and comb their hair. Their mother says that they are happy hours for her when they spend time together, and she is hopeful for them…there was another mother at school. The teacher thought her child would be able to read soon. The child was mentally retarded but not at a serious level. … The mother was always pessimistic; for example, she thought the child could not do anything, be educated and/or could even be stabbed on the street. The teacher gave this mother's child a welcoming task to the triplets. The mother criticized the teacher as she thought the child could not achieve this task. ... She did not let the child do it although she could have managed."* Seven participants stated that the observed families with children with disabilities have necessities for their *educational and social life*. *"It is quite normal for a normally developing child to finish her/his school. However, for this child (a child with severe mental retardation) it is miraculous to fasten their own buttons; to be able to button up their own clothes. In my view, it is something to proud of."*

Table 5 Continue

Themes	*Subthemes - Explanations - Frequencies*	*Exemplary quote*
	Observations on the normally developing children During the story writing process, all the storywriters read their stories to normally developing students both in pre-school and in primary school regular classes.	Participants/storywriters expressed that the students: "*were able to comprehend the stories*". "*received the messages of the stories*" "*discussed SCD*" "*asked why was the main character in the story not able to see?*" "would like *to dramatize the game of guiding eyes told in the story*" "*entitled one of the stories "Let's Play Guiding Eyes Game"* "*the students examined the rabbit in the toy corner, discovered its tail and expressed that rabbits had tails; but the rabbit in this story did not have one, although the rabbit was also able to do good things*".
	One student in the class perceived this story as defining his negative attitudes toward students with disabilities and became very upset.	This normally developing student called the storyteller: "*a disgusting person*".
Opinions and Contributions of the Stakeholders	Participant/s • shared their story writing process with their friends, families, families of the children with disabilities and received their opinions about writing stories for disabilities (11) • expressed that the people around them had positive attitudes toward the idea of writing SCD (11). • expressed that one of the people with whom he shared the stories gave a negative opinion (1).	"*there was a need for this kind of stories*", "*giving ideas about the conclusions of the stories*" "*the storybooks should include how children with disabilities learn*" "*these kinds of stories provide normally developing children with an awareness of the presence of children with disabilities*" "*writing this kind of story is a sensitive behaviour*" "*these stories could provide benefits to the teachers of children with disabilities*" "*these stories would create consciousness not only in normally developing children but also in teachers, families and other adults*." "*there was no need for these kinds of SCD*"

Table 5 Continue

Themes	*Subthemes - Explanations - Frequencies*	*Exemplary quote*
Benefits	***Personal benefits***	
	• Receiving information in detail about children with disabilities and recognizing these children (7)	*"I'm attending this faculty four years. I have learned in these workshops collaboration with others."*
	• Increased in self-confidence due to participating in such a study, resulting in the writing of SCD (5)	
	• Developing empathy towards children with disabilities and also their parents (5)	
	• Learning group work based on collaboration and sharing (4)	
	• Learning the ways of making contributions to ID (2)	*"I didn't know about developing some materials for normal children."*
	Professional benefits	
	• Learning how to develop materials for normally developing children (4)	
	• Learning the process of story writing (3)	
	• Increased interest in and love of special education profession (2)	*"People may see those [children with disabilities] on the streets, in their environment and in social settings. In order not to watch in a passive way, primarily something might be told to children at pre-school level by stories, something might be differentiated. This is important for teachers. They might not have encountered a child with disabilities. However, they will be informed thanks to our stories. At the same time, I think it will also make contributions to the families. With the help of these stories, they may understand better their view of life, feelings, what they experienced and felt."*
	• Learning how to prepare activities for children with disabilities (2)	
	• Using the written stories in professional life (1)	
	• Developing creative thinking skills (1)	
	Social benefits	
	• Contribution to an understanding and acceptance toward children with disabilities in society (11)	
	• Contribution to knowing and acceptance for normally developing children toward children with disabilities (11)	
	• Contribution to self-acceptance of the ID by exploring parts from their own lives in these stories (5)	
	• Providing more information about children with disabilities to families and teachers (4)	
	• Leading story writing focusing on the lives of the peoples with disabilities (2)	
	• Contribution to the positive change of the view points toward special education teachers in society (1)	

Table 5 Continue

Themes	*Subthemes - Explanations - Frequencies*	*Exemplary quote*
Writing Process and Problems	All the participants • expressed that they encountered some problems during the story writing process (11). • said that they had a strong need to share the process with classmates, roommates, special education teachers, primary education teachers, student advisors, relatives, colleagues and so on (11). • mentioned that there were no difficulties for them in observing children with disabilities, conducting interviews with the families of these children or reading the stories to the normally developing children who were attending regular classes (11).	*Problems are* *"not having example stories in Turkish literature"(10)* *"selecting appropriate word choices and sentence structures according to the level of the children"(3)* *"using a comprehensible style for the children to understand better"(2)* *"creating the theme of the story"(2)* *"writing the introductory sentence for the stories"(2)* *"choosing animals as story characters in such a way as to avoid labeling the children"(1)* *"difficulty of being empathic"(1)* *"creating a story"(1)*
Suggestions for Story Writers when Writing SCD	• To understand the ID and their families better, the future writer should observe these people and spend their time with them over a long period (11). • The future writer should read more stories about children (8). • The future writer should build empathy toward the ID and their families (3). • The future writer should work with ID (2). • The future writer should become familiarized with normally developing children and their development periods (1). • The future writer should research the culture and family structures in Turkey (1). • The future writer should read and follow scientific publications about ID(1)	*"They should recognize closely children with disability and their families"* *"They should recognize both normal children and children with disabilities. And they should compare the two groups."* *"They will need participant observation, especially with a disabled person and in their life area."*

Discussion and Conclusion

The purpose of this study was to explore the experiences of storywriters when creating SCD. Although stories are very important in any educational curriculum, there are no example stories including children with disabilities in Turkish C'sL. As

mentioned by Blaska (2003), the inadequate existence of children with disabilities focuses on the need for more stories that signify the diversity of society including persons with varying abilities. While more storybooks with characters with disabilities are published today in the world, the percentage is still very insufficient when compared to the total number of children's picture books published each year (Blaska, 2003).

Additionally, it is clear that these stories can help children with disabilities to adopt models for themselves and their daily problems. These stories can be useful for normally developing children to understand children with disabilities and for children with disabilities to understand and find themselves. The success of the inclusion depends on the acceptance of the students with disabilities by their peers and their considering themselves as members of their class. When interaction opportunities with peers are provided to students with disabilities, they can also represent appropriate social behaviours, improve their friendships and learn cooperation. At the same time, normally developed students learn that their peers with disabilities are individuals. Moreover, they learn to develop sensitivity toward people who are not exactly similar to themselves and to have social responsibilities due to having peers with disabilities in the classroom environment (Vaughn, Bos & Schumm, 2003; Friend & Bursuck, 2006).

The story writing process was extremely difficult for the storywriters, as there were no example stories, and they had no previous experience of writing storybooks. The storywriters expressed that the story writing process contributed greatly to their gaining more knowledge about children with disabilities. They also indicated that it provided them with the opportunity to better recognize those with disabilities, improve their self-confidence, developing collaboration skills, gain a higher interest in special education as a career and improve their creative thinking abilities. Similar outcomes were obtained as a result of a study on learning through writing stories about students with disabilities in inclusion classes conducted by Jarvis et al. (2004), where it was emphasized that in special education teacher training, writing stories has an important function. Moreover, attitudes, opinions, expectations, feelings and thoughts can be changed by reading storybooks about children with disabilities in Turkey based on making the field of special education better known, developing positive intentions toward ID (Blaska, 2003), encouraging positive interactive relationships among children of different abilities (Gross and Ortiz, 1994), avoiding stereotypes and bias in children's books (Walling, 2001), being supported in a creative and risky process, which could help society have a better view of what professional practice could be (Jarvis et al., 2004), developing insights to explore alternative ways of looking at practice (Chambers, 2003), and providing collection and access to storybooks about integrated early childhood and primary literacy experiences (Williams et al., 2005).

Teachers have a crucial role in providing both positive social interactions between students with disabilities and typical students. They must offer education

about all kinds of differences among individuals, which includes ID (Mastropieri & Scruggs, 2004). The curriculum should include the characteristics of ID, regardless of whether the teacher encounters only a few students with disabilities during her/his teaching period. All students should be educated on understanding ID and developing positive attitudes toward all other students (Friend & Bursuck, 2006). While explaining the characteristics of the peers with disabilities to normally developed students, stories will provide significant opportunities for teachers.

In Turkey, it is observed that a lot of people have erroneous and negative attitudes toward ID, since they do not have enough knowledge and experience on the subject. It is thought that SCD may make contributions to eliminate the knowledge deficiency in society.

References

Alpoge G. (2003). Çocuk edebiyatının çocuk gelisimine katkısı (Contribution of children's literature to child development). *Çoluk Çocuk*, *24*, 32-33.

Alpoge, G. (2000). Çocuk kitapları farklı olma konusunda çocuklara yardımcı olabilir mi? (Children's books can help children about being different?). *I. Ulusal Çocuk Kitapları Sempozyumu-Sorunlar ve Çözüm Yolları (I. National Children's Books Symposium-Problems and Solutions). 1*(1), 544-550.

Ashton, A.T. (2006). Books for Children Concerning Diseases, Disorders, and Learning Differences. Retrieved October 23, 2007 from http://www.monroe.lib.in.us/childrens/booklists/disabilitybib.html

Ataseven, F., & Inandı, Y. (2000). Çocuk kitaplarının çeşitli yönleriyle incelenmesi. [Examining various aspects of children's books]*I. Ulusal Çocuk Kitaplari Sempozyumu-Sorunlar ve Çözüm Yolları (I. National Children's Books Symposium-Problems and Solutions). 1*(1), 187-206.

Blaska, J.K. (2003). *Using Children's Literature to Learn About Disabilities and Illness. For Parents and Professionals Working with Young Children.* Troy, NY: Educator's International.

Blaska, J., & Lynch, E. (1994). Inclusion and depiction of individuals in award-winning and highly recommended children's books. In Blaska, J.K. (2003). *Using Children's Literature to Learn About Disabilities and Illness. For Parents and Professionals Working with Young Children* (p. 6). Troy, NY: Educator's International.

Bozdag, F. (2000). Çocuk kitaplarında metin, dil ve resimleme ilişkisi [Relationship of text, language and illustration in children's books]. *I. Ulusal Çocuk Kitapları Sempozyumu- Sorunlar ve Çözüm Yolları (I. National Children's Books Symposium-Problems and Solutions), 1*(1), 365-378.

Chambers, P. (2003). Narrative and reflective practice: recording and understanding experiences. *Educational Action Research*, *11*(3), 403-414.

Friend, B., & Bursuck, W.D. (2006). *Including Students with Disabilities. A Practical Guide for Classroom Teachers*. Boston: Pearson Education Company**.**

Gross, A.L., & Ortiz, L.W.(1994). Using children's literature to facilitate inclusion in kindergarden and primary grades. *Young Children, 49*, 32-35.

National Dissemination Center for Children with Disabilities (2001). Children's Literature & Disability. Retrieved September, 20, 2007 from http://www.nichcy.org/pubs/bibliog/bib5txt.htm

Jarvis, J., Dyson, J., Thomas, K., Graham, S., Iantaffi, A., & Burchell, H. (September 2004). Learning through creating stories: developing student teachers' understanding of the experiences of pupils with special educational needs in mainstream classrooms. Paper presented at the *British Educational Research Conference Annual Conference*, University of Manchester. Retrieved July 07, 2006, from

http://www.leeds.ac.uk/educol/documents/00003733.htm

Sever, S. (1995). Çocuk kitaplarında bulunması gereken yapısal ve eğitsel özellikler[Structural and Educatioanl Caharacteris are needed in Childern Boooks]. *Abece, 107*,14-15.

Vaughn, S., Bos, C.,S., & Schumm, J., S. (2003). *Teaching Exceptional, Diverse, and at-Risk Students in the General Education Classroom.* (3rd Ed.). Pearson Education, Inc.

Walling, L. L. (2001). Ability, disability and picture books. *School Libraries Worldwide*, *7*(2), 31-38.

Williams, S. Q., Inkster, C. D., & Blaska, J. K. (2005). The Joan K. Blaska Collection of Children's Literature Featuring Characters with Disabilities or Chronic Illnesses. *Journal of Children's Literature. 31*(1), 71-78.

APPENDIX 1

Interview Questions

1.Could you introduce yourself?

2.What was your aim in joining a study on writing stories for children with disabilities?

3.You scanned the children stories. In the stories you reached, did you encounter any parts from the lives of children with disabilities? Or did you encounter a

story which was completely dedicated to a child with disabilities or her/his parents? What did you think after you scanned these stories?

4.What kind of contributions did the writing a story for children with disabilities workshops make in recognizing individuals with disabilities?

5.What kind of benefits do you think you will receive for your career as a result of this study?

6.In your opinion, what are the benefits of these kinds of stories being on the market for children with disabilities?

7.With whom, except the study group, did you share the information that you wrote stories for children with disabilities? When you shared this information, what kind of reactions did you receive? How did these reactions affect you?

8.What kinds of problems did you come across while writing the stories?

9.What do you suggest to people who will write stories about children with disabilities?

Özel Gereksinimli Çocukları Anlatan Öyküler: Öykü Yazma Süreci ve Öykü Yazarlarının Görüşleri

Atıf:

Vuran, S. (2014). Stories about children with disabilities: the writing process and the opinions of the storywriters**.** *Eurasian Journal of Educational Research*.55, 137-158. http://dx.doi.org/ 10.14689/ejer.2014.55.9

Özet

Problem Durumu: Dünya'nın pek çok yerinde olduğu gibi Türkiye'de de yasalar okulöncesi dönemden başlayarak özel gereksinimli çocukların akranları ile birlikte normal sınıflarda eğitilmesini öngörmektedir. Özel gereksinimli öğrencilerin normal sınıflarda, akranları ile birlikte gerekli destek hizmetler sunularak eğitilmesine kaynaştırma denilmektedir. Başarılı kaynaştırma sınıfları farklılıkları anlama ve farklılıklara saygı duymaya dayalıdır. Kaynaştırma sınıfındaki öğrencilerin özel gereksinimli akranlarını kabul etmeleri, özelliklerinin farkında olmaları, onlara karşı hoşgörü anlayış ve işbirliği geliştirmeleri kaynaştırmanın başarısını artıracağı gibi öğretmenin işini kolaylaştıracaktır. Normal öğrencilerin kaynaştırmaya hazırlanmasında, özel gereksinimli çocukların özelliklerini anlatan resimli ve eğlenceli çocuk öykülerinin, bu bireylere karşı olumlu tutumları artırmak ve farklı yetenekleri olan çocuklar arasındaki olumlu akran ilişkilerini geliştirmek amacıyla kullanılabileceği belirtilmektedir. Türk çocuk alanyazınında, özel gereksinimli

çocuklara ilişkin kaynaklar yoktur. Bu nedenle özel gereksinimli çocukları anlatan kaynaklara gereksinim duyulmuştur.

Çalışmanın Amacı: Bu çalışmada normal öğrencileri kaynaştırmaya hazırlamak üzere özel gereksinimli çocukları anlatan çocuk öyküleri oluşturmak ve bu öykülerin yazarlarının (öğretmen adaylarının) görüşlerini belirlemek amaçlanmıştır.

Yöntem: Eğitim Fakültesi, Özel Eğitim ve Okulöncesi Öğretmenliği Bölümlerinden 12 gönüllü öğretmen adayı öykü yazma çalışmalarının tamamına katılmışlardır. Katılımcıların 7'si özel eğitim öğretmenliği bölümünde, 5'i okul öncesi öğretmenliği bölümündendir. Katılımcıların tamamı özel eğitimle ilgili en az bir ders, altısı çocuk edebiyatı dersleri almışlardır. Bu katılımcıların 11'i gönüllü olarak görüşmelere katılmışlardır. Görüşmelere okul öncesi eğitim bölümünden 5 kişi, özel eğitim öğretmenliği bölümünden 6 kişi katılmıştır. Bu nitel bir çalışmadır. İki evreden oluşmaktadır. İlk evrede özel gereksinimli öğrencilerinin kaynaştırma sınıflarında akranları tarafından kabul edilmelerini kolaylaştırmak üzere özel gereksinimli çocukları anlatan öyküler yazılmıştır. Öykü yazma sürecinde, yedi aylık bir sürede dokuz çalışma toplantısı yapılmıştır. Bunlardan ilkinde, "Katılımcılarla özel gereksinimli çocuklar, kaynaştırma, kaynaştırma sınıflarında neler oluyor?", "Biz kaynaştırma sınıfları için neler yapabiliriz?" konuları tartışılmıştır. Kaynaştırma sınıflarında özel gereksinimli öğrencilerin akranları tarafından kabul edilmemeleri üzerinde odaklanılmıştır. Özel gereksinimli öğrencilerin akranları tarafından kabulünü artırmak için "Neler yapılabilir?" üzerinde tartışılırken, özel gereksinimli çocukların özelliklerini anlatan kitapçıklar yazılması fikri ortaya atılmıştır. Daha sonra bu kitapçıkların, resimli öykü formunda olmasının çocuklar tarafından okunabilirliğini artırabileceği tartışılmış ve öykü kitaplarının yazılmasına karar verilmiştir. Daha sonraki çalışma toplantılarında katılımcılar öykü yazma sürecindeki deneyimlerini ve yazdıkları öyküleri ve gruptaki diğer gönüllü katılımcılarla paylaşmışlardır.

Toplantılar yaklaşık 1,5-2,5 saat sürmüştür. Bu süreçte araştırmacı tarafından 25 sayfalık saha notları tutulmuştur. Toplantıların gündemi üç gün önce belirlenip katılımcılara e-posta ve duvar ilanları aracılığıyla duyurulmuş ve ilk toplantı yazar tarafından yürütülmüştür. İzleyen toplantılar katılımcılardan biri tarafından yürütülmüştür. Her toplantının sonunda gelecek toplantının gündemine karar verilmiştir.

Toplantılarda 18 öykü yazılmıştır. Öykülerin tamamı özel gereksinimli bireylerin yaşadıkları sorunları içermekle birlikte, sorunların çözümünde ve çözümüyle birlikte ortaya çıkan olumlu yaşantıları dile getirmiştir. Tüm öykülerde özel gereksinimli olan ve olmayan bireyler arasında hoşgörü, işbirliği ve farklılıklara saygı temaları işlenmiştir. Bu öykülerin isimleri;

- Ömer'in Hayali
- Bayram Hediyesi
- Güzel Mavi Gözler
- Küçük Civciv
- Anne Gökkuşağı Ne Demek?
- Zeynep Öğretmen
- Okul Sevinci
- Ahmet ve Arkadaşları
- Sihirli Tüy
- Özgür'ün Dünyası
- En İyi Arkadaşlıklar
- Gökkuşağı
- Bir de Siz Deneyin
- Hayat Güzel
- Doğum Günü Hediyesi
- Üç Ayaklı Kahraman
- Ponpon Kuyruğu Olmayan Tavşan
- Haydi Gören Rehber Oyunu Oynayalım
- Benim Kanatlarım: İki Küçük Şahin

İkinci evrede özel gereksinimli çocukları anlatan öykülerin yazarlarının, öykü yazma sürecinde deneyimlerini ve beklentilerini incelemek amaçlanmıştır. Bu aşamada öykü yazma sürecine katılan öğretmen adayları ile süreçteki deneyimlerini paylaşmak amacıyla yaklaşık 20'şer dakikalık yarı yapılandırılmış görüşmeler yapılmıştır. Tüm görüşmelerin yazılı dökümleri yazar tarafından yapılmış ve ses kayıtları alanda çalışan bir başka araştırmacı tarafından dinlenerek doğrulanmıştır. Görüşmelerin dökümleri iki kopya olarak hazırlanmıştır. Dökümler araştırmacı ve bir başka uzman tarafından bağımsız olarak analiz edilmiştir. Bu süreçte ana ve alt temalar oluşturulmuştur. Bu temalar karşılaştırılarak uzlaşma sağlanmıştır. Üçüncü bir uzman tarafından temalar gözden geçirilerek yedi ana tema oluşturulmuştur. Sonuç olarak toplantılardaki saha notları dikkate alındığında alt temalar çeşitlendirilerek veri analizinin güvenilirliği ve inanırlığı sağlanmıştır.

Sonuçlar: Araştırma bulgularına göre Türk çocuk öyküleri literatüründe öykü yazarları için örnek oluşturabilecek özel gereksinimli çocukları anlatan öykülere rastlanmamıştır. Bu yüzden öykü yazma süreci, yazarlar için oldukça zorlayıcı

olmuştur. Araştırma bulguları bu sürecin öğretmen adaylarının bireysel ve mesleki gelişimine katkıda bulunduğu, özel gereksinimli çocukları anlatan öykülerin özel gereksinimli çocukların sosyal kabulünü artırdığına ilişkin olumlu deneyimler kazandırdığını göstermektedir.

Tartışma ve Öneriler: Türk toplumundaki pek çok kişi özel gereksinimli çocuklara ilişkin yeterli bilgi ve deneyimleri olmadığı için onlar hakkında yanlış ve dolayısıyla olumsuz tutumlara sahip olabilmektedir. Bu yüzden de toplumda özel gereksinimli çocukların kabulü ile ilgili sorunlar devam etmektedir. Özel gereksinimli çocukları anlatan öykülerin toplumdaki bilgi eksikliğini kapatmaya bir ölçüde katkıda bulunacağı düşünülmektedir. Kaynaştırma sınıflarında, özel gereksinimli çocukları anlatan öykülerin kullanılmasının, özel gereksinimli olan ve olmayan çocuklar, öğretmenleri ve ailelerine olumlu katkılar sağlayacağı söylenebilir ve başka araştırmalarla desteklenebilir.

Özel gereksinimli çocuklar hakkında öykü kitaplarının gerek okulöncesi gerekse ilköğretim döneminde okutulması bu çocuklara/bireylere karşı tutumları, beklentileri, düşünceleri değiştirebilir. Farklı yetenekleri olan çocuklar arasında etkileşimleri cesaretlendirebilir. Bu çocuklar büyüdüklerinde de onların bu hoşgörülü tutumları toplumun özel gereksinimli bireylere olumlu bakış açısına katkıda bulunabilir. Bu öykülerin tutum değişikliğine neden olup olmadığı araştırılabilir.

Eurasian Journal of Educational Research, Issue 55, 2014, 159-176

Determination of Disaster Awareness, Attitude Levels and Individual Priorities at Kocaeli University

Serpil GERDAN*

Suggested Citation:

Gerdan, S. (2014). Determination of disaster awareness, attitude levels and individual priorities at Kocaeli University, *Eurasian Journal of Educational Research*, 55, 159-176. http://dx.doi.org/ 4689/ejer.2014.55.10

Abstract

Problem Statement: In disaster prone countries, preparedness is an important factor in disaster mitigation. There are various disaster management approaches. However, one common point of these approaches is that they are "preventive." First and foremost of the principal components of the preventive approach is preparedness and education. It is possible to increase the capacity to cope with the disasters, which show variety in terms of their development periods and times and mostly involve uncertainty, by raising the awareness of all components, all individuals and communities in line with this common cause.

Purpose of Study: The goal of this study is to determine the levels of disaster awareness and attitude and the individual priorities of the personnel and the students at Umuttepe Campus of Kocaeli University.

Methods: In this survey, a relational scanning model was applied and the data were collected by a measurement tool via the Internet. The data were analyzed with percentage, frequency, arithmetic means, t-test, F-test (one-way ANOVA) and Scheffe test by using SPSS 14.00 statistical program.

indings and Results: The difference between the awareness levels of academic and administrative personnel is associated with the positive influence of education level and responsibilities. Level of education is an important factor in reducing disaster damages. Comparison of age groups shows similar results for both personnel and student groups. This result is anticipated, because older groups are supposed to be more sensitive and responsible to the problems in their Turkish communities in regard to their experiences.

Students in the Department of Engineering have the highest awareness level of all. Most of these students are from the Departments of Geology

*Ph.D., Asst. Prof., Kocaeli University, Izmit Vocatioanl School, Turkey, sgerdan@kocaeli.edu.tr

and Geophysics and have the privilege of taking courses related to disasters.

Conclusion and Recommendations: After the devastating 1999 Kocaeli earthquake in Turkey, some key institutions initiated and developed several disaster preparedness training programs, which included basic disaster awareness, awareness of structural and nonstructural earthquake hazards mitigation. Those were undoubtedly very beneficial programs, none of which was included in a formal education system, however. For this reason, most of the disaster prone countries initiated disaster education programs, considering the major disasters on their land in their curriculum. Our results support the world's science-based developments and emphasize that education and training in disaster awareness in formal education is very important.

Keywords: Disaster, earthquake, disaster awareness, attitude, disaster education.

Thanks to the developing and changing approaches to the fights against disasters, all the institutions need to prepare "disaster and emergency plans" in order to preplan what to do in case of an emergency. In disaster prone countries, preparedness is an important factor in disaster mitigation. There are various disaster management approaches. However, one common point of these approaches is that they are "preventive." First and foremost of the principal components of preventive approach is preparedness and education, as they are considered to be the most important parts of disaster and emergency management (Baldwin, 1994; Quarantelli, 1986; Ford & Schmidt, 2000). It is possible to increase the capacity to cope with the disasters, which show variety in terms of their development periods and times and mostly involve uncertainty, by raising the awareness of all components, all individuals and communities in line with this common cause. In this system, known as *integrated disaster management* in the developing world, the right "intervention" could be possible by healthily carrying out the pre-event works.

In previous studies, it has been reported that disaster awareness develops in a positive way after the disasters. Training gains speed and public preparations of communities living in disaster prone regions are higher than in the other regions (Doung, 2009; Tanaka, 2005). The studies of Tierney et al. (2001) and Palm and Carroll (1998), emphasize that factors, such as gender, age, disaster experience, ethnicity, and social class significantly affect public activities in earthquake preparedness and urban vulnerability studies. Additionally, marital status, number of children, home ownership status and level of education are also effective in the development of these activities. In order to mitigate the effects of the disasters after the 1999 earthquakes, which wounded our country deeply, and to develop the behavior pattern at the time of the disaster, training programs were developed by many institutions, such as the Ministry of Education, Boğaziçi University, Kandilli Observatory and Earthquake Research Institute, Turkish Red Crescent, universities,

municipalities and non-governmental organizations (MEB, 2011; Sanduvac & Petal, 2010; GHI, 2011). Unfortunately, these training programs could only be continued for a short time after the great losses.Thet could not go beyond social activities and could not be integrated into the education system. In a study carried out by Karancı et al. (2005), it is stated that such short disaster preparedness trainings increase the individuals' motivation, but do not cause a permanent change in behavior. The same study emphasized that education reduces the anxiety for potential disasters, and as the education level increases, anxiety decreases (Karancı et al., 2005). Therefore, determination of existing awareness, attitude and individual priority levels from the individual to the society for the development of community-based disaster trainings and programs, and inclusion of courses on disaster trainings in all levels of education will serve the development of social awareness. In addition, awareness at the corporate level, knowing attitudes and individual priorities will develop the capacities of institutions to cope with disasters in a positive way. It is quite important for personnel and students to know how to behave at the time of an event, especially in educational institutions, to reduce vulnerability. It is the group with the power of educated people that will realize the fastest, the most accurate and the most effective intervention in case of an emergency or disaster. In a study conducted by Sudarmadi et al. (2001), it is reported that educated people are the center of the future and their environmental sensitivity is higher than others'.

The purpose of the study

This study aims to determine the related awareness, attitudes and individual priorities of the personnel (academic and administrative) and the students at Umuttepe campus. For this purpose, answers for the following questions were researched.

- What are the awareness and attitude levels of personnel and students related to natural disasters (especially earthquakes)?
- Is there a significant correlation between the titles of the personnel and their awareness and attitude?
- Do the awareness and attitude levels of students related to disasters differ according to classes they attend?
- Do the awareness and attitude levels of individuals related to disasters differ significantly according to certain factors (disaster experience, age, gender and disaster training they received)?
- Do the awareness and attitude of students related to disasters differ significantly according to the departments in which they study?
- What are the individual priorities of participants in the research regarding disasters?

Method

Research Design

The relational scanning model was applied in this survey. This is an analysis method carried out to determine if there is a correlation between two or more variables (Karasar, 1994). The comparison method used in the relational scanning model is another method used in this study.

Research Sample

The group participating in this research consisted of academic and administrative personnel working at Umuttepe Campus of Kocaeli University and studying 1st and 4th year students. Within the scope of the research, 190 personnel (10% of the staff of Umuttepe Campus), 129 of whom were academic, 61 of whom were administrative and 735 students (10% of students of Umuttepe Campus) were contacted. In total, 466 students in their first year and 269 students in their 4th year were reached.

Research Instrument and Procedure

Reviewing the literature examining the awareness and attitude levels regarding disasters, a great number of question repositories expedient to the purpose were constituted. The measurement instruments of Yakut (2004a; 2004b), Fişek and Kabasakal (2008) were of benefit in the construction of the items. To examine the intelligibility and scientific competence, the items were presented to ten faculty members/instructors working in different disciplines (earth sciences engineering, experts in Turkish language and literature, disaster and emergency, and assessment and evaluation) to get their expert opinion. After receiving their feedback, corrections were made in the measurement instruments. A pilot study was conducted with 156 first-year students of the Department of Medicine with the aim of testing the intelligibility of the items in the measurement instrument. This number is considered appropriate by the experts working in the field of assessment and evaluation. According to Büyüköztürk (2002), in the cases when the number of variables is not very high, a sample size between 100 and 200 is sufficient.

Validity and Reliability

A factor analysis was conducted in order to determine the validity level of the scale. It consisted of 52 items in total, 25 of which were for awareness, 19 for attitude, and the graded items were prepared for the determination of priorities and independent variables after the pilot implementation. For the evaluation of the scale in terms of reliability, the coefficient of internal consistency was examined. Internal consistency means that the items have a certain conceptual structure. As a result of the conducted factor analysis, 6 of the 25 items in the awareness section were eliminated, as they were below the 0.45 factor value and 19 items were left behind. Seven of the 19 items in the attitude section were eliminated and 12 items remained (Gerdan, 2010).

As a result of the item analysis, pilot implementation coefficient of internal consistency (reliability) was calculated as alpha=0.82 for the awareness part and alpha=0.67 for the attitude part. These values are defined as "good" according to the

measurement instrument development criteria. The measurement of awareness and attitude in the measurement instrument were ranked with a triple Likert scale. The Likert scale is a type of scale frequently used by social scientists to measure attitude (Yurt, 2008).

A group of grading items, which could not be defined in the awareness and attitude sections, but were important in terms of awareness level, aimed at determining the individual priorities regarding disasters was also presented to the practitioners. Each ranked item is intended to determine the individual priorities of the participants in certain situations, and ranked as 1: The most, 2: A lot, 3: Little, 4: The least.

Data Analyses

Statistical analysis of the survey was conducted using the SPSS 10.0 program. A one-way ANOVA-test (F-test) was applied to test the differences among two or more independent groups, such as age groups. Also, t-tests were applied in the survey in order to compare the means of two groups, e.g. academic and administrative personnel, female and male groups.

Results

This study aimed to determine the levels of disaster awareness and attitudes of the personnel working at residences re-structured after the 1999 earthquake in terms of construction techniques and the students of Kocaeli University at Umuttepe campus. This objective is important in terms of the development of response capacity of the students and the personnel and the determination of the priorities in the awareness-raising training.

The study aimed that items including the awareness and attitude levels for the personnel group would be associated with the items defined as independent variables, such as duty type (academic, administrative), gender, age group, whether or not they had experienced a prior devastating disaster, whether or not they had received disaster training at an institution, whether or not they had taken precautions to recover non-structural damages (fixing furniture) and whether or not they had DASK (Turkish Catastrophe Insurance Pool).

It was aimed to obtain a relational result by carrying out the same application for the student group with independent variables including question items related to faculty, department type (numerical, verbal), class, gender, age group, whether or not they had experienced a prior devastating disaster, whether or not they had received disaster training from an institution, whether or not they had taken precautions to recover non-structural damages (fixing furniture) and whether or not they had DASK (Turkish Catastrophe Insurance Pool) for themselves or their families.

Furthermore, an evaluation including the ranked choices to determine the individual priorities was carried out for each group.

Personnel Findings

The results of the relational analysis obtained for the determination of the awareness and attitude levels for the personnel are given below.

The limits used in statistical evaluations for the significance value (p), which is used to determine whether there is a significant correlation (significance of the difference between the groups) between two comparison groups (t-test) and among more than two groups (ANOVA), are p<0,01, p<0,05, p<0,001 and p<0,005. In addition, in the cases when the p significance value is in the specified limits, the sample means (M) belonging to the groups are also expected to vary from each other.

The results of the t-test for the awareness and attitude level's correlation to duty type are given in Table 1.

Table 1

The Results of the Awareness and Attitude Level t-Test According to the Duty Types of Personnel

		N	*M*	*S*	*t*	*P*
Awareness	Administrative	61	40.77	5.96	2.48	0.014
	Academic	129	43.07	5.99		
Attitude	Administrative	61	29.47	2.79	-1.28	0.200
	Academic	129	29.96	2.30		

Table 1 shows a remarkable difference between the two groups of the personnel [t(188)=-2.48, p<0.01 or p<0.05]). The awareness level of the academic personnel (M=43.07) is higher than the administrative personnel (M= 40.77). This finding can be interpreted as meaning that there is a significant correlation between the duty types and the awareness.

There is no significant difference in t-test results for the attitude levels of the personnel associated with their duty type [t(188)=-1.28, p<0.05]. The result of the F-test for the awareness of the personnel shows a significant difference according to age group [F(4-185)= 7.237; p<0.001]. The Scheffe-test was applied to determine the differences in the age groups, and the results show that the awareness level is the highest (M= 44.51) in the age group of 40 and over. The values subsequently decrease in a positive correlation with the age group: ages 36-40 (M=43.80), ages 26-30 (M=41.68), ages 31-35 (M=40.07) and ages 20-25 (M=35.50), respectively.

Similarly, the result of the F-test for the attitude of the personnel shows a significant difference according to age group [F(4-185)= 3.342; p<0.01 p<0.05].. The Scheffe-test was applied to determine the difference in the age groups, and the results show that the attitude level is the highest (M= 30.55) in the age group of 40

and over. It is followed by 31-35 age group (M=30.17), 36-40 age group (M=29.60), 26-30 age group (M=28.89), and 20-25 age group (M=29.50) respectively.

There is no significant difference in t-test results [$t_{(188)}$=1.05, p<0.001] for the awareness and attitude level associated with gender. The t-test was applied to determine the effects of people fixing the threatening materials in the places they lived to remove the non-structural damages on their awareness and attitudes. While a significant difference is observed in terms of the effects of fixing the furniture on the awareness [$t_{(188)}$=5.59, p<0.001], no significant difference is observed in terms of its effects on attitude [$t_{(188)}$=1.80, p<0.001]. The ANOVA results for the effects of personnel's benefiting from the insurance systems for natural disasters, especially earthquakes on their awareness levels are given in Table 2.

Table 2

Personnel's Insurance (DASK) Awareness, Attitude ANOVA Results

			sd	*(KO)*	*F*	*P*
Awareness	Between Groups	1276.32	3	425.44	13.927	0.000
	Within Groups	5682.11	186	30.549		
	Total	6958.44	189			
Attitude	Between Groups	5.637	3	1.879	0.304	0.823
	Within Groups	1151.542	186	6.191		
	Total	1157.179	189			

While the results show that there is quite a significant correlation between having DASK and one's awareness level, no significant correlation is observed in terms of the attitude levels.Although no permanent behavior change is observed in individuals due to the negative effects of the disasters being forgotten over time and the inadequacy of the informal training received, the need to take precautions in living spaces is in question because of the expected (potential) earthquakes and various legal requirements. Statements made by scientists and the media, which remained on the agenda for a long time after the 1999 earthquakes, related to taking individual precautions (earthquake kits, fixing furniture, etc.) bear an encouraging qualification in this regard.

In the study, ranked items (1: The most, 2: A lot, 3: Little, 4: The least) take place in the last part of the measurement instrument in order to reveal certain individual and local changes during the periods before, during and after the 1999 earthquakes, and reveal the situation related to the individuals' preferences after the 1999 earthquakes. The frequency and percentage values calculated with 190 ranked items in total belonging to the personnel, 108 of whom are females, 126 of whom have experienced a disaster and 17 of whom have received disaster training, are given in Table 3.

Table 3

Frequencies and Percentages of Individual Priorities of the Personnel

N	*p*	*n*	*p*	*n*	*p*	*n*	*p*
Please order the events which affected you the most after the earthquake in 1999.							
Deaths		Wreckages		Panic and fear		Chaos in Social order	
133	68,9	24	12.4	11	5.7	25.0	13.0
What do you think a potential major earthquake affects the most in the region you live? Please order.							
People		Houses		Public Buildings		Industrial Institutions	
138	71.5	17	8.8	13	6.7	25	13.0
What are the threatening factors during a potential earthquake in the region you live? Please order.							
Buildings, furniture		Industrial Institutions		Panic		Natural Gas Leaks	
95	49.2	35	18.1	27	14.0	36	18.7
Please order the reasons if you did not take earthquake-resistance test for the building you live in after the 1999 Marmara Earthquake.							
Financial Condition		Finding it Unnecessary		Construction after 1999		Failing to Achieve a Consensus	
20	10.4	25	13.0	34	17.6	114	59.1
What do you look for when you buy a new house? Please order.							
Construction after 1999		Ground Study		Structural Reliability		Proximity to Certain Centers	
60	31.1	88	45.6	28	14.5	17	8.8

Table 3 shows what is looked for when buying a new house, "ground study" at the rate of 45.6% for the personnel ranks first. The most important factor reported among the reasons for not having an earthquake-resistance test for the building lived in after the 1999 Marmara Earthquake is "failing to achieve a consensus" with a rate of 59.1%; the least important factor is "Financial Condition" with a rate of 10.4%.

Student Findings

A significant correlation is observed between the type of faculty and the levels of awareness in the results of ANOVA obtained associating the students' faculty types to their awareness and attitude levels [$F(7\text{-}727)= 5.547$; $p<0.001$]. Among the student groups, the awareness levels of the students in engineering are higher than the students of the other departments. However, a significant correlation can be established between the faculty type and the attitude levels [$F(7\text{-}727)= 2.142$; $p<0.05$]. In terms of attitude levels, the school with the highest value is the School of Health Sciences. The School of Health Services has the highest arithmetic mean value with $M=30.4583$.

As a result of the analyses of the student groups, a correlation depending on gender is not observed in parallel with the results obtained from the personnel data. However, the remarkable point here is that the gender of the students of the School of Health Sciences, differing in terms of attitude levels, are female. This situation can be interpreted as gender affecting the attitude levels among student groups to some extent. It is a foregone conclusion that the awareness levels of the students of engineering are higher than the others. A part of the students of the departments located in Umuttepe campus attend the Department of Earth Sciences (Departments of Geology and Geophysics) and take courses related to disasters, so they constitude an exception in this regard. The results of the t-test for the awareness and attitude levels to the department type (numerical, verbal) are given in Table 4.

Table 4

The Results of the Awareness and Attitude Level t-Test According to the Department Type of the Students

		N	*M*	*S*	*t*	*P*
Awareness	Numerical	541	38.88	6.45	0.090	0.928
	Verbal	194	38.83	6.34		
Attitude	Numerical	541	29.31	2.96	0.377	0.706
	Verbal	194	29.22	3.06		

There is no significant difference for the levels of awareness [t(733)=0.090, p<0.001] and attitude [t(733)=0.377, p<0.001] according to the department types (numerical, verbal). The results of the t-test for the awareness and attitude levels to classes of the students are given in Table 5.

Table 5

The Results of the Awareness and Attitude Level t-Test According to the Classes of the Students

		N	*M*	*S*	*t*	*P*
Awareness	1st grade	466	38.3605	6.3651	-2.849	0.005
	4th grade	269	39.75446	6.4316		
Attitude	1st grade	466	29.2532	3.0090	-0.453	0.651
	4th grade	269	29.3569	2.9598		

The scores of the awareness levels regarding natural disasters according to the classes of the students vary significantly [t(733)=-2.849, p<0.005]. The awareness levels of the 4th year students (M= 39.7546) are higher than the 1st year students (M=

38.3605). This finding can be interpreted as meaning that there is a significant correlation between the awareness levels and the students' classes. However, no correlation has been established between the attitude levels regarding natural disasters and the students' classes. [t(733)=-0.453, p<0.001].

No significant correlation is observed between the awareness levels of the students [t(733)=0.201, p<0.001] and their gender. However, a significant correlation at the least can be established between the gender of the students and their attitude levels [t(733)=2.695, p<0.05]. The results of the F-test for awareness levels of the students show a significant difference according to age group [F(2-732)= 6.719; p<0.001]. The Scheffe-test was employed to examine the difference in the age groups, and the results show that awareness level is the highest (M= 43.53) in the 26-30 age group. It is followed by the 21-25 age group (M=39.38) and 15-21 age group (M=38.18), respectively.

Similarly, the results of the F-test for attitude levels of the students show a significant difference according to age group [F(2-732)= 3.619; p<0.05]. The Scheffe-test was employed to examine the difference in the age groups and the results show that attitude level is the highest in the 26-30 and 21-25 age groups. The fact that the awareness and attitude levels of the students at older ages (26-30) are the highest of the student age groups supports both the results of the personnel age groups and the awareness levels of the 4th year students to be higher than the others.

A significant difference was obtained [t(733)=7.944, p<0.001] on the awareness level between the students who had experienced a disaster before and those who had no such experience. However, no significant difference is observed in terms of the effect of the disaster experience on the attitude levels [t(733)=0.061, p<0.001]. According to the results, a significant difference is observed in terms of the effect of the students receiving a previous disaster training on their awareness levels [t(733)=6.416, p<0.001]. A less significant difference is observed in terms of the attitude [t(733)=2.404, p<0.05].

The awareness level of a student group with a disaster experience is higher than the others. This situation can be interpreted as experiences and acquirements gained at a young age are more permanent. No significant difference can be observed in terms of the attitude.

According to the results of the analyses, there is a significant correlation between the students' fixing the furniture and their awareness [t(733)=12.642, p<0.001]. It is observed that the awareness levels of the ones who fix their furniture (M=42.6063) are much higher than the others. A significant correlation in the level of [t(733)=1.455, p<0.05] is observed between fixing the furniture and the attitude.

The number of people who take precautions for disaster training and non-structural damages in the student groups is quite high compared to the numbers in the personnel group. The training programs they received during the university period (Department of Engineering) are also included in these training programs. It can be said that students are interested in disaster training, these training programs

have positive impacts on their awareness levels and they provide permanent behavior changes in students.

A significant correlation is established between the students' having DASK and their awareness levels [F(4-730)= 63.224; p<0.001]. There is a difference between the means of the awareness level values of the ones who took out DASK between the years 2000 and 20008 (M=42.60) and the ones who did not (M=36.60). On the other hand, the results show that there is even a little significant correlation between the attitude levels and taking out DASK (in the level of p<0.05). The results of the Scheffe test for the ones who did not take out DASK in terms of their attitudes (M=27.8140) .is quite low compared to the others. The frequency and percentage values calculated with the graded items for the students in the study are given in Table 6.

Table 6

Frequencies and Percentages of Individual Priorities of Students

N	**p**	**n**	**p**	**n**	**p**	**n**	**p**
Please order the events which affected you the most after the 1999 earthquakes.							
Deaths		Wreckages		Panic and Fear		Chaos in Social Order	
484	65.6	104	14.2	53	7.2	97	13.0
What do you think a potential major earthquake affects the most in the region you live? Please order.							
People		Houses		Public Buildings		Industrial Institutions	
551	74.7	86	11.7	18	2.4	83	11.2
What are the threatening factors during a potential earthquake in the region you live? Please order.							
Buildings, furniture		Industrial Institutions		Panic		Natural Gas Leaks	
375	50.8	146	19.8	106	14.4	111	15.0
Please order the reasons if you did not take earthquake-resistance test for the building you live after the 1999 Marmara Earthquake.							
Financial Condition		Finding it Unnecessary		Construction after 1999		Failing to Achieve a Consensus	
89	12.1	115	15.6	135	18.3	162	22.0
Those whose parents reside out of Kocaeli							
237	32.1						
What do you look for when you buy a new house? Please order.							
Construction after 1999		Ground Study		Structural Reliability		Proximity to Certain Centers	
120	16.0	123	17.0	192	26.0	303	41.0

Table 6 shows what people look for when purchasing a new house. "Proximity to certain centers" at the rate of 41% for the students ranks first. Except for students whose parents reside outside of Kocaeli, the most important factor given for reasons not taking earthquake-resistance tests for the building you live in after the 1999 Marmara Earthquake is "failing to achieve a consensus" with a rate of 22%.

Discussion and Conclusion

Although numerous different programs have been developed for preparedness and damage mitigation related to disasters, unfortunately there are very few studies for the determination of disaster awareness of communities, especially educational institutions. (Horan, Ritchie, Meinhold, Gill, Hougheton, Gregg, et al, 2010). In one of these studies, the correlation between the level of disaster preparedness and the demographic factors of the educational institution was investigated, and no significant correlation was established between them (Kano and Bourque, 2008). The lack of studies for the determination of the awareness and knowledge levels of the society prior to the development of the programs for disaster preparedness can be thought to be one of the reasons for this result. It is quite important that the personnel and the students know how to behave in case of disasters or emergencies, especially in the educational institutions, to reduce the potential harm. It is necessary to know the initial awareness levels of the communities in order prepare training programs and to ensure the correct reactions in the face of unexpected hazards such as earthquakes.

In comparing Table 3 with Table 6, "deaths" after the 1999 earthquakes are seen to be the most important event affecting both the personnel (68.9%) and the students (65.6%). Also, the percentages for the answers given by both the personnel and the students for the item "What do you think a potential major earthquake affects the most in the region you live?" are very close to each other. "People" are thought to be affected the most with a percentage of over 70% for both groups. In another graded item examining what the threatening factors are during a potential earthquake in the region lived, "buildings and furniture" at the rate of 49.2% for the personnel and 50.8% for the students ranks first. While the most important factor when buying a new house is "ground study" for the personnel group with a rate of 45.6%, "proximity to certain centers" is preferred for the student group with a rate of 41%.

According to the results of the study, the awareness level of the academic personnel being higher shows that there is a significant positive correlation between the level of education and disaster awareness. Similarly, the fact that the education level is an important factor in disaster mitigation is also stated in a study by Rüstemli and Karancı (1999).

A comparison of the age groups shows similar results both for the personnel and the student groups. This result was anticipated, because, in Turkey, older age groups

are expected to be more sensitive and responsible to the problems in their communities, based on their experiences.

It is quite interesting that no correlation can be established between the awareness and attitude levels of the personnel depending on their gender. However, in a study of Bourque et al. (2012), females described themselves at higher risk in the face of potential disasters. Furthermore, in most studies conducted on societies, a significant difference is observed between the behavior patterns and the attitudes of females and males in the face of events. One of the most important resources of this difference is that females have lower education and income levels than males. In the application realized in our campus, the fact that no difference is observed in terms of gender or none of the groups have gained an advantage over the others can be explained as the personnel profile having the same level of education and similar level of income in their own groups.

It is surprising that the awareness and attitude levels of the personnel who have experienced a destructive natural disaster before and received disaster training at an institution do not differ significantly from the others. This situation can be explained as the effects of the natural disasters being forgotten over time, the informal training programs provided by various institutions not being given properly and not being continuous or the trainings received after a certain age not being able to cause permanent behavior change in individuals. First of all, it is necessary to fully understand what the short, medium and long-term impact of the disasters on the societies and the national economy are, and the studies on disaster awareness of all the institutions from individuals to the society should be maintained in accordance with this purpose.

According to the research findings, a significant difference is found between the education level of the students and their disaster awareness levels. In addition, the fact that the students at the Department of Engineering have higher disaster awareness levels than the students in the other departments can be interpreted as "Undergraduate education period" and in particular, and the fact that the disaster related courses given in the 3rd year provide a positive contribution to awareness raising.

Various training programs were conducted in our country. However, none of these training programs, which are undoubtedly useful, are included in the formal education system. Yet, the information learned at school is more scientific and permanent than the information learned by chance from family and the environment (Tsai, 2001).

The lack of disaster awareness is the first obstacle encountered in disaster response. An approach perceiving the damages caused by disasters as reparation or reconstruction of the buildings and facilities cannot meet the needs of communities affected by disasters.

Above all, disaster mitigation can be possible by meeting psychological and physical needs of the society. It is possible for the post-disaster psychology of the society to be affected the least by raising the awareness before the disaster happens.

Disaster awareness development can be achieved in many ways. However, turning the awareness into a permanent behavior change in individuals is one of the important issues to be emphasized. It is feasible with the development of sustainable mitigation strategies and active participation of the individuals in these activities.

Therefore, the strategies to be implemented should focus on informing, training and raising awareness of individuals from a young age. Disaster trainings are increasing rapidly in the world, and many countries are including disaster training programs in their curriculum. The findings of this study also support the inclusion of disaster training in the formal education system.

For individuals to produce rational solutions for survival when disasters occur can only be possible with the development of awareness at the national level. Individuals should know the surrounding hazards, be aware of the potential risks and have the knowledge and the skills to take precautions. The study by Sudarmadi et al. (2001) emphasizes that educated groups are more knowledgeable and have a higher awareness level of environmental problems. Further training is required to increase this knowledge in developing countries.

A study conducted by Ronan and Johnston (2001) on adult and student groups emphasizes that the knowledge, awareness and risk perception levels of student groups are much higher than those of the adult groups, and training programs provide a positive contribution to this development. The study by Tanaka (2005) stresses that even if there are social differences; development of more effective disaster training programs for potential disasters is one of today's major needs for research.

Results of this study show that raising disaster awareness in our country, which is a country of natural disasters, is possible by integrating sustainable information and education programs into our education system. In the studies to be conducted in the future, practices to develop the disaster awareness of the society and to standardize the contents of the formal and informal education should be carried out.

References

Baldwin, R., (1994). Training for the management of major emergencies. *Disaster Prevention and Manage*, 3(1), 16-31.

Bourque, L.B., Mileti, S.D., Kano, M., Wood, M.M. (2012). Who prepares for terrorism?. *Environment and Behavior,* 44(3) 374–409.

Büyüköztürk, Ş., (2002). Faktör anailizi: Temel kavramlar ve ölçek geliştirmede kullanımı [Factor analysis: Basic concepts and their use in scale development]. *Educational administration in theory and practice*, 8(4), 470-483.

Doung, K., (2009). Disaster education and training of emergency nurses in South Australia. *Australasian Emergency Nursing Journal*, 12, 86-92.

Fişek, G .O. & Kabasakal. H., (2008*). The Human Side of Disasters: Reflections on the 1999 Marmara Earthquake.* İstanbul: Boğaziçi University Publications.

Ford, J. & Schmidt, A. (2000). Emergency preparedness training. *J. Hazard. Mater.*, Vol: 17(3), 3-7.

Disaster preparedness education program in Turkish schools. (n.d.) Retrieved October 10, 2011 from Geo Hazards International (GHI) website, http://www.geohaz.org/projects/turkishschools.html.

Gerdan, S., (2010). Kocaeli Üniversitesi afet ve acil durum yönetim sistemi modeli [A model for disaster and emergency management system of the Kocaeli University]. Unpublished doctoral dissertation, Kocaeli Üniversitesi, Türkiye.

Horan, J., Ritchie, L.A., Meinhold, S., Gill, D. A., Hougheton, B. F., Gregg, C. E., et all, (2010). Evaluating disaster education: The National Oceanic and Atmospheric Administration's TsunamiReadyTm community program and risk awareness education efforts in New Hanover County, North Carolina. In L.A. Ritchie & W. MAcDonald (Eds.), Enhancing disaster and emergency preparedness, response, and recovery through evaluation. *New Directions for Evaluation*, 126, 79-93.

Kano, M., & Bourque L.B., (2008). Correlates of school disaster preparedness: Main effects of funding and coordinator role. *Natural Hazards Review*, 9 (1), 49-59.

Karancı, N., Akşit, B., Dirik, G., (2005). Impact of a community disaster awareness training program in Turkey: Dos it influence hazard-related cognitions and preparedness behaviors. *Social Behavior and Personality*, 33(3), 243-258.

Karasar, N., (1994). *Bilimsel Araştırma Yönetimi [Scientific Research Method]*. Ankara: Tekışık Press.

Palm, R., & Carroll, J. (1998). *Illusions of safety: Culture and earthquake hazard response in California and Japan.* Boulder: Westview Press.

Quarantelli, E.L., (1986). *The need for planning, training, and policy on emergency preparedness.* Symp. 1985 Training and education for emergency preparedness in Canada today and tomorrow, M.E. Logan ed., Emergency planning Canada, Ottawa, Canada, 80-86.

Ronan, K.R. & Johnston D.M., (2001). Correlates of hazard education programs for youth. *Risk Analysis*, Vol. 21, No. 6.

Rüstemli, A. & Karancı, A.N., (1999). Correlates of earthquake cognitions and preparedness behavior in a victimized population. *The Journal of Social Psychology*, Vol:139 (1),91-101.

Sanduvac, Z., M. & Petal, M., (2010) "History of school seismic safety in Turkey." *Seminar Series on Disaster Education in the UK.*

Sudarmadi, S., Suzuki, S., Kawada, T., Netti, H., A.,T., (2001). A survey of perception, knowledge, awareness and attitude in regard to environmental problems in a sample of two different social groups in Jakarta, Indonesia. *Environment, Development and Sustainability*, 3: 169–183.

Tanaka, K., (2005). The impact of disaster education on public preparation and mitigation for earthquakes: a cross-country comparison between Fukui, Japan and the San Francisco Bay Area, California, USA. *Applied Geography,* 25 (2005) 201–225.

Türkiye temel afet bilinci eğitimi projesi [Turkey basic disaster awareness training project]. (n.d.) Retrieved October 10, 2011 from Republic of Turkey Ministry of national Educatin (MEB) website, *http://www.meb.gov.tr/duyurular/duyurular/temelafetegitimiprojesi/temelafetegitimiprojesi.htm*.

Tierney, K. J., Lindell, M. K., & Perry, R. W. (2001). *Facing the unexpected: disaster preparedness and response in the United States*. Washington, DC: Joseph Henry Press.

Tsai, C.- C., (2001). Ideas about earthquakes after experiencing a natural disaster in Taiwan: an analysis of students' Worldviews. *International Journal of Science Education*, 23, 10,: 1007- 1016.

Yakut., İ., (2004a). *Toplumun deprem tehlikesine hazırlıklı olması (yerel toplumsal gruplarla iletişim [Preparedness of the society for the earthquake hazard (Interaction with the Local Social Groups)]*. Kocaeli: Kocaeli University, Jour.No:150.

Yakut, İ., (2004b). *Deprem tehlikesine karşı hazırlanmada kitle iletişim araçlarının işlevleri (İzmit Saraybahçe'de yapılan araştırma [The function of mass media in preparation for the earthquake hazard (The research carried out in İzmit Saraybahçe)]*. Kocaeli: Kocaeli University, Jour.No:149.

Yurt, S., (2008). *Likert Ölçeği [Likert scale]*. Retrieved February 05, 2009, from http://yunus.hacettepe.edu.tr/~tonta/courses/spring2008/bby208/.

Kocaeli Üniversitesinin Afetlerle İlgili Farkındalık, Tutum Düzeyleri ve Bireysel Önceliklerinin Belirlenmesi

Atıf:

Gerdan, S. (2014). Determination of disaster awareness, attitude levels and individual priorities at Kocaeli University, *Eurasian Journal of Educational Research*, 55, 159-176. http://dx.doi.org/ 4689/ejer.2014.55.10

Özet

Problem Durumu: Dünyada gelişen ve değişen afetlere müdahale ve mücadele yaklaşımları, tüm kurumların herhangi bir afet veya acil durum anında nasıl davranılacağının bilinmesi için kurumsal düzeyde afet ve acil durum planlarını hazırlamalarını gerektirmektedir. Afet riski olan ülkelerde, hazırlıklı olmak afet zararlarını azaltmak için önemli bir unsurdur. Afet yönetimi için geliştirilmiş olan

yaklaşımların ortak yanı "önleyici" olmasıdır. Önleyici yaklaşımın en temel bileşenlerinin başında ise hazırlıklı olma ve eğitim gelmektedir. Gelişim süreleri ve zamanları konusunda farklılıklar gösteren ve çoğu zaman belirsizlik içeren afetlerle baş edebilme kapasitesini arttırmak tüm bileşenleri, tüm bireyleri ve toplulukları bu ortak amaç doğrultusunda bilinçlendirmekle mümkün olabilir. Gelişen dünyada bütünleşik afet yönetimi olarak adlandırılan bu sistemde, doğru "müdahale" olay öncesi çalışmaların sağlıklı yürütülmesi ile mümkündür.

Araştırmanın Amacı: Bu çalışma ile Kocaeli Üniversitesi Umuttepe yerleşkesinde çalışan personel (akademik ve idari) ve 1999 sonrası yeniden yapılanan bu yerleşkede okuyan öğrencilerin afetlerle ilgili farkındalık, tutum ve bireysel önceliklerinin belirlenmesi amaçlanmıştır.

Araştırmanın Yöntemi: Bu çalışmada ilişkisel tarama modeli kullanılmıştır. İlişkisel tarama modeli, iki veya daha fazla değişken arasındaki ilişkinin var olup olmadığına yönelik yapılan bir analiz yöntemidir. İlişkisel tarama modellerinde kullanılan "karşılaştırma yöntemi" ise bu çalışmada kullanılan bir diğer yöntemdir.

Araştırmanın Bulgular: Çalışma sonuçlarına göre, akademik personelin farkındalık düzeyi idari personele göre daha yüksek bulunmuştur. Buna karşılık tutum düzeyleri açısından personel görev türüne bağlı anlamlı bir farklılık gözlenmemiştir. Analiz sonuçları, hem personelin hem de öğrencilerin farkındalık ve tutum düzeyleri arasında yaş grupları açısından anlamlı bir fark olduğunu göstermektedir. Her iki grup için ileri yaş gruplarının farkındalık ve tutum düzeyleri diğerlerine oranla daha yüksektir. Benzer şekilde cinsiyete bağlı olarak personel ve öğrenciler için farkındalık düzeyine yönelik anlamlı bir fark gözlenmemiştir.

Öğrencilerin eğitim gördükleri fakültelerinin türüne göre farkındalık ve tutum düzeyleri ile ilişkilendirilmesinden elde edilen ANOVA sonuçlarında fakülte türü ile farkındalık düzeyleri arasında anlamlı bir ilişki gözlenmektedir. Fakülte türüne göre, mühendislik fakültesi öğrencilerinin diğer fakülte öğrencilerine göre afetlerle ilgili farkındalık düzeylerinin daha yüksek olduğu görülmektedir. Öğrencilerin sınıflarına göre, doğal afetlerle ilgili farkındalık düzeyi puanları anlamlı bir farklılık göstermektedir. 4. sınıf öğrencilerinin farkındalık düzeyi (M= 39.7546), 1. sınıf öğrencilerinden (M= 38.3605) daha yüksektir. Öğrenci t-testi sonuçlarına göre, daha önce afet yaşamış öğrencilerin farkındalık düzeyi (M=40.4614) yaşamamış olanlara göre (M=36.8193) daha yüksektir.

1999 depremleri sonrasında "ölüm"ler hem personel hem de öğrencileri etkileyen en önemli olay olarak görülmektedir. Personeller içerisinde %68.9 ve öğrenciler içerisinde ise %65.6 olan bu değerler birbirine oldukça yakındır.

Yine olası bir depremin yaşanan bölgede en çok neleri etkileyeceği hakkındaki sonuçların yüzdesi de birbirine çok yakındır. Burada da her iki grup için %70'in üzerinde "insanlar"ın etkileneceği düşünülmektedir.

Araştırmanın Sonuçları ve Önerileri: Özellikle eğitim kurumlarında afet ve acil durumlarda personel ve öğrencilerin nasıl davranacaklarını bilmeleri görebilecekleri zararları azaltmak açısından oldukça önemlidir. Eğitim programlarının hazırlanması

ve deprem gibi ani gelişen tehlikeler karşısında doğru tepkilerin güvence altına alınabilmesi için toplulukların başlangıçtaki farkındalık seviyesinin bilinmesi gerekir.

Çalışma sonuçlarına göre; akademik personelin farkındalık düzeyinin daha yüksek olması, eğitim düzeyi ile afet farkındalığı arasında pozitif yönde anlamlı bir ilişkinin olduğunu göstermektedir. Araştırmanın bulgularında gerek farkındalık gerekse tutum açısından yaş grubuna bağlı olarak hem personel hem de öğrenci grupları için anlamlı bir ilişki kurulmuştur. Bu durum, Türkiye şartlarında ileri yaş grubundaki insanların daha fazla sorumluğa sahip olmaları ve hayat tecrübeleri ile orantılı olarak farkındalık ve tutumlarında olumlu gelişmelerin gözlenmesi ile açıklanabilir.

Araştırma bulgularına göre afet eğitimi almış öğrenciler ile almamış öğrenciler arasında farkındalık ve tutum düzeyleri açısından afet eğitimi almış öğrencilerin lehine anlamlı bir fark gözlenmiştir.

Afet farkındalığı ve afetlere yönelik olumlu tutumların eksikliği afetlere müdahale ve mücadele de karşılaşılan ilk engeldir. Afetlerin yol açtığı zararları yalnızca hasar gören yapıların ve tesislerin onarımı veya yeniden yapılanması olarak algılayan bir yaklaşım afetlerden etkilenen toplulukların ihtiyaçlarına cevap veremez. Her şeyden önce afet zararlarının azaltılması toplumun fiziksel ihtiyaçlarının giderilmesinin yanısıra psikolojik ihtiyaçlarının da giderilmesi ile mümkün olabilir. Yaşanan afetler sonrası ölümler her yaş grubundaki insanı en fazla etkileyen olaylardır. Toplulukların afetlerden en az seviyede etkilenmesi, afetler olmadan önce farkındalığın arttırılması ve afetlerle mücadelede olumlu tutumlar geliştirilmesi ile mümkündür. Bunların geliştirilmesi birçok yolla sağlanabilir. Fakat sonucun bireyde kalıcı davranış değişikliğine dönüştürülmesi üzerinde durulması gereken önemli konulardan biridir. Bunu sağlamak sürdürülebilir zarar azaltma stratejilerinin geliştirilmesi ve bireylerin bu faaliyetler içerisine etkin katılımı ile mümkün olabilir. Bu nedenle uygulanacak stratejiler bireylerin küçük yaşlardan itibaren bilgilendirilmesi, eğitilmesi ve bilinçlendirilmesi üzerine yoğunlaşmalıdır. Dünyada afet eğitimleri hızla artmakta ve her ülke sahip olduğu tehlikeleri içeren afet eğitim programlarını müfredat programları içerisine dahil etmektedir. Ülkemizde de özellikle 1999 depremleri sonrası farklı kurumlar tarafından afet farkındalığının arttırılması, yapısal ve yapısal olmayan tehlikelerin belirlenmesi ve azaltılmasına yönelik birçok eğitim gerçekleştirilmiştir. Ancak, şüphesiz ki faydalı olan bu eğitimlerin hiçbiri formal eğitim sistemi içerisinde değildir.

Bu çalışmanın bulguları bireyde farkındalığın artması ve kalıcı davranış değişikliğine katkı sağlaması için afet eğitimlerinin formal eğitim sistemi içerisine dahil edilmesini desteklemektedir.

Anahtar Sözcükler: Afet, deprem, afet farkındalığı, tutum, afet eğitimi.

Eurasian Journal of Educational Research, Issue 55, 2014, 177-200

The Effects of Mothers' Educational Levels on University Students' Environmental Protection Commitments and Environmental Behaviors

Sinan SARAÇLI[*]

Veysel YILMAZ[**]

Talha ARSLAN[***]

Suggested Citation:

Saraçlı, S., Yılmaz V., & Arslan T. (2014). The effects of mothers' educational levels on university students' environmental protection commitments and environmental behaviors. *Eurasian Journal of Educational Research*, 55, 177-200. http://dx.doi.org/ 10.14689/ejer.2014.55.11

Abstract

Problem Statement: The damage caused by recent environmental problems has led to increased environmental concerns and the development of environment-friendly consumption behaviours in almost every society. Environment-friendly consumption involves the consideration of environmental benefits by minimizing any damage done to the environment at all stages of consumption. Studies researching the effects of parents in environmental problems have demonstrated that mothers were more concerned and worried about environmental issues than fathers.

Purpose of Study: This study investigates the environmental sensitivities of university students and the causal relationships between their environmental protection commitments and environment-friendly consumption behaviors through using Structural Equation Model (SEM) which takes into consideration their mothers' educational levels.

[*] Corresponding author. Asist. Prof. Dr., Department of Statistics, Faculty of Science, Afyon Kocatepe University, ssaracli@aku.edu.tr

[**] Prof. Dr., Department of Statistics, Faculty of Science, Eskişehir Osmangazi University, vyilmaz@ogu.edu.tr

[***] Res.Asist. Department of Statistics, Faculty of Science, Eskişehir Osmangazi University, mtarslan@ogu.edu.tr

Methods: As a pilot study, the prepared scale was applied to 60 randomly chosen students. The final version of the scale was applied after extracting any unclear questions.

After determining sampling, the scale was administered randomly to 520 students at Eskişehir Osmangazi University. Cronbach's α values were used to assess the reliability of the scale, and items with low reliability scores were omitted. After reliability analysis, Exploratory Factor Analysis (EFA) was applied, and the structural equation model was developed after removing items which had factor loadings lower than 0.45.

Findings and Results: Environmental sensitivity/insensitivity significantly affected the environmental protection commitment. Those with higher environmental protection commitment levels exhibited more environment-friendly consumption behaviour. It was also found that the students' genders, their families' place of domicile and particularly the parents' educational levels were significant factors in determining differences in the development of students' environmental sensitivities and behaviours.

Conclusion and Recommendations: Students whose mothers have graduated from a university promise to be active environmentalists by joining related organizations. Our results also show that the inclination toward environmentalism is similar among women as it is among students' whose mothers have graduated from a university. This result may suggest that women tend to be more environmentalist and that this tendency increases with education level. Considering that just 3.7% of mothers in Turkey have graduated from a university, it is made clear once again how important it is to encourage girls, some of whom will be mothers in the future, to pursue a university education.

Keywords: Environmental sensitivity, environment-friendly consumption, environmental protection commitment, Structural Equation Modelling.

Introduction

The damage caused by recent environmental problems has led to increased environmental concern and the development of environment-friendly consumption behaviour in almost every society. Environment-friendly consumption involves the consideration of environmental benefits by minimizing any damage done to the environment at all stages of consumption. It may be regarded as a sub-component of environmental behaviours, which include consuming ecologic and recyclable products and purchasing from companies that produce non-polluting, environmentally supportive, and environment-friendly products.

Even though most researchers consider Rachel Carson's book, *Silent Spring,* published in 1962, the start of the ecologic revolution, the ecological consciousness in

fact started at the end of the 1960s and evolved into a mass movement in the 1970s (Önder, 2009). With the widespread acceptance of the notion of environment-behaviour interaction, a conceptual model of environment-oriented behaviours was immediately required. Many researchers have thus developed various models related to the associations among environmental sensitivity, environmental attitudes and behaviours based on their own theoretical priorities or backgrounds (Wiseman & Bogner, 2003; Frick, Kaiser & Wilson, 2004). For instance, the "Responsible Environmental Behaviour Model" developed by Hinnes, Hungerford, and Tomera (1986/87) constitutes one of the most noteworthy models in the field. Previous studies have revealed that some researchers tended to examine the relationship between environmental attitudes and environmental behaviours (Kaiser, Wölfing & Fuhrer, 1999; Fraj & Martinez 2007; Steg & Vlek, 2009; Dono, Webb & Richardson, 2009; Yılmaz, Çelik & Yağızer, 2009), whereas others were more likely to focus on environmental sensitivity and environmental attitudes (Kaiser & Shimoda, 1999; Çabuk & Nakıboğlu, 2003; Tilikidou & Delistavrou, 2006; Tilikidou, 2007; Mostafa, 2007; Yılmaz, Çelik & Yağızer, 2009).

Regardless of the particular focus, the relevant literature contains abundant studies aimed at determining environmental concerns, attitudes and behaviours such as cultural issues and socio-demographic factors like age, gender and parental conditions. For instance, in terms of environmental attitude-behaviour consistency, Fuji (2006) suggested that the perceived easiness of behaviours was the most effective factor in individuals' decisions. As a cross-cultural study, Iuzuka (2000) suggested that citizens of highly-developed and developing countries had different point of views toward environmental issues, especially regarding the distribution of responsibility of environmental protection. More specifically, the citizens of highly-developed countries were found to be more likely to believe that environmental protection is a part of state responsibility, contrary to the common wisdom of citizens of developing countries, who are more likely to believe that this responsibility belongs to citizens rather than the state. Regarding socio-demographic factors, Bhate and Lawler (1997) revealed that some psychological and socio-demographic factors, including age, gender, educational level, salary, and profession, had significant effects on environmental behaviours. In a similar vein, Van Liere and Dunlap (1980) found that age had a significant effect on environmental concerns, indicating that young individuals were more open to discuss environmental issues than elders. Likewise, Mohai and Twight (1987) suggested that age had a direct, significant effect on environmental concern, whereas the place of residence had an indirect effect. In terms of educational level, there is a positive correlation between educational level and concerns about environmental issues (Kohut & Shriver, 1989; Vining & Ebro, 1990; Mainieri et al., 1997). More educated individuals tend to display more interest and become more sensitive to environmental problems.

Regarding the association of gender and environment, it has been found that women are potentially more sensitive toward environmental issues when compared to men (Diamond & Orenstein, 1990; Stern, Dietz & Kalof, 1993; Iizuka, 2000), who are more likely to concern themselves with economic issues than with the

environment (Passino & Lounsbury, 1976; Vanlier & Dunlap, 1980; Iizuka, 2000). Similarly, in terms of parental conditions, studies have demonstrated that mothers were more concerned and worried about environmental issues than fathers (George & Southwell, 1986; Dietz, Stern & Guagnano, 1998). More specifically, while mothers were more concerned about issues relating to the family's welfare and health, including quality of local environmental conditions such as water, air, and solid wastes, fathers were more concerned about the monetary and economic issues of the family (George & Southwell, 1986; Dietz, Stern & Guagnano, 1998). This difference is mostly derived from gender roles of parents. In sum, there have been many studies on the socio-demographic factors which determine environmental attitudes and behaviours. In the context of this body of research, this study aims to examine the extent to which students' environmental protection commitments are affected by environmental sensitivities/insensitivities and whether these two factors would be predictors of environment-friendly consumption behaviours, using the Structural Equation Model (SEM) with a particular emphasis on the mothers' educational levels.

Method

Research Design

The aim of this study is to determine the effects of mothers of university students on the students' environmental protection commitments and environmental behaviours. The population under study is the mothers of students at Eskişehir Osmangazi University.

Sample

Since the general proportion of the attitudes and behaviors of the population within the frame of research was not obvious, the contingent sampling technique was not applicable. Assuming the normality assumption is met, the method that grounds on the acceptable error level was used to determine the volume of the sample. In the equation, which is calculated by using the formula indicating that the number of units to which the scale is carried out, $n= \{(z^2) (\sigma^2)\}/ (d^2)$, the volume of sample was calculated as 500, with 0.05 significance level, z=1.96, d (sensitivity) =0.043, and p and q values of 0.5. After determining sampling, the scale was administered randomly to 520 students at Eskişehir Osmangazi University. Out of 520 scales, 43 were excluded from the study due to incorrect or insufficient administration.

Research Instruments

As a pilot study, the prepared scale was applied to 60 randomly chosen students. As a result, the scale was re-modified following the removal of non-understandable items. The scale used in the study consists of three dimensions: Environmental Protection Commitment (A), Environment-Friendly Consumption (B), Environmental Sensitivity (C1) / Insensitivity (C2). The Environmental Protection Commitment dimension, consisting of 20 items, is a 5-point Likert-type subscale ranging from 1 (cannot definitely commit) to 5 (can cefinitely commit) and was

developed by the authors. The Environment-Friendly Consumption dimension, which consists of 7 items, is 5-point Likert-type subscale ranging from 1 (never) to 5 (always). The Environmental Sensitivity/Insensitivity dimension is a 12-item, 5-point Likert-type subscale ranging from 1 (definitely disagree) to 5 (definitely agree). The Environment-Friendly Consumption and Environmental Sensitivity/Insensitivity dimensions were constructed on the basis of the studies conducted by Fraj and Martinez (2007), Tilikidou and Delistavrou (2008), Yılmaz, Çelik and Yağızer (2009).

Data Analyses

The theoretical premise of this study is based on the theory of planned behavior. The theory of planned behavior was formulated by Ajzen (1985) within the development of the theory of reasoned action (Ajzen & Fishbein, 1980). According to this theory, human behavior is determined by certain factors and exhibits itself in a planned manner. First, an "intention" has to emerge in order to motivate people to demonstrate planned behavior. Factors affecting intention include "attitude towards the behavior", "subjective norm", and "perceived behavioral control". Secondly, "behavior" is directly influenced by intention (Ajzen, 1985; Ajzen, 1991; Ajzen, 2005; Ajzen & Fishbein, 2000). The theory of planned behavior is shown in Figure 1.

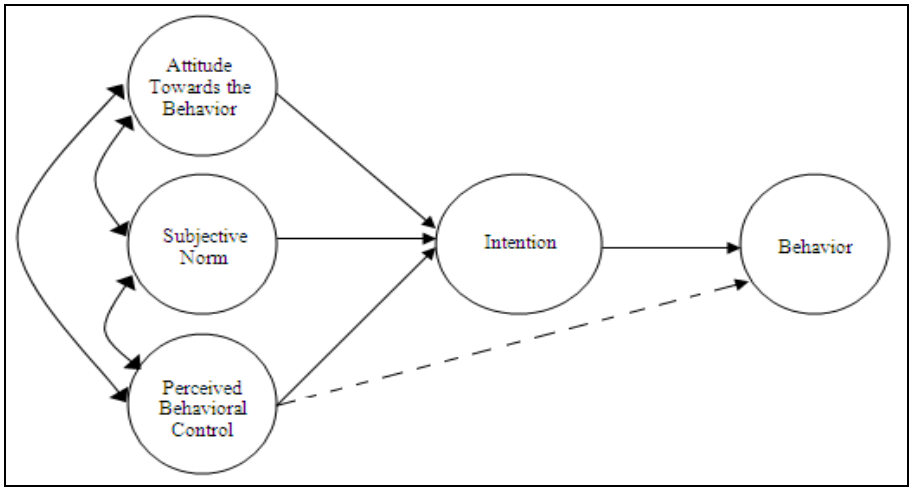


Figure 1. *Theory of Planned Behavior (Ajzen, 2005)*

In this study, the Environmental Sensitivity and Environmental Insensitivity factors were used as substitutes for the attitude towards the behavior, subjective norm, and perceived behavioral control factors. The Environmental Protection Commitment factor was used as a substitute for intention, and the Environment-Friendly Consumption factor replaced the behavior factor on the basis of planned behavior theory. In this study, then, the theory of planned behavior constituted a theoretical basis in explaining the causal relationships among factors.

Our model suggested Environmental Sensitivity (C1) and Environmental Insensitivity (C2) as the predictors of Environmental Protection Commitment (A) and the Environmental Protection Commitment (A) as the predictor of Environment-Friendly Consumption (B) (see Figure 2). This study examined three hypotheses – H_1, H_2 and H_3 – which, in reference to Figure 2, represent relationships C1→A, C2→A and A→B, respectively.

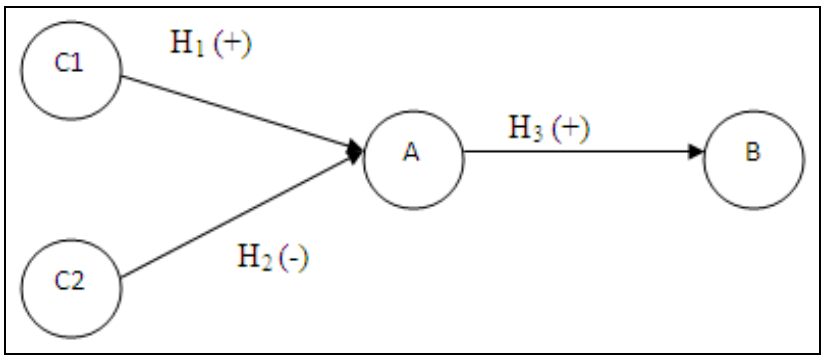


Figure 2. *Proposed Model*

So far, a review of the literature has displayed that environmental sensitivity and insensitivity lead to an increase and decrease in environmental attitude, respectively, and that this attitude determines environmental behavior (Kaiser, Wölfing & Fuhrer, 1999; Fraj & Martinez, 2007; Tilikidou & Delistavrou, 2006; Tilikidou, 2007; Yılmaz, Çelik & Yağızer, 2009). As can be seen in Table 1, it is assumed that a one-unit increase in the suggested model in the students' Environmental Sensitivity (C1) would result in an increase in their volunteering for Environmental Protection Commitment (A); that a one-unit increase in their Environmental Insensitivity (C2) would result in a decrease in their Environmental Protection Commitments (A); and that an increase in their Environmental Protection Commitments (A) would lead to an increase in their Environment-Friendly Consumption (B) behaviors.

Table 1

Study Hypotheses

H_1	As the students' environmental sensitivity increases, their environmental protection commitment increases.
H_2	As the students' environmental insensitivity increases, their environmental protection commitment decreases.
H_3	As the students' environmental protection commitment increases, their environment-friendly consumption behaviors increase.

Structural Equation Model (SEM)

Structural Equation Modeling (SEM) is a statistical technique for testing and estimating causal relationships using a combination of statistical data and qualitative causal assumptions. It is used in social, behavioral and educational sciences, particularly in psychology, biology, economy, marketing and medicine. SEM is a comprehensive statistical method used in testing hypotheses about causal relationships among observed and unobserved (latent) variables and has proved useful in solving problems in formulating theoretical constructions (Schumacker & Lomax, 2004; Reisinger & Turner, 1999; Raykov & Marcoulides, 2006; Yılmaz, 2004). SEM also can expand the explanatory ability and statistical efficiency for model testing with a single comprehensive method (Pang, 1996). While it has potential for decision support modeling, it is probably most useful for theory testing, which is a key phase in developing models (see Byrne, 1998; Cheng, 2001; Cudeck, Toit, & Sörbom, 2000; Hayduk, 1987; Jöreskog & Sörbom, 2001).

There are more than one goodness of fit indices for Structural Equation Model. The most commonly used test statistics in SEM are likelihood ratio chi-square statistics (χ^2), root mean square error of approximation statistics (RMSEA), goodness of fit index statistics (GFI) and adjusted goodness of fit index statistics (AGFI). If the value of $\{\chi^2/df\}$ is less than 3, it means that there is an acceptable fit. If the RMSEA is less than 0.05, it shows the perfect fit, $0.05 <$ RMSEA < 0.1 is close to perfect, whereas RMSEA > 0.1 indicates a poor fit. Statistics of GFI is used similar to the statistics of coefficient of determination (R^2) in Regression Analysis. Statistics of AGFI is used similar to the statistics of adjusted coefficient of determination in Regression Analysis. Statistics of AGFI and GFI have value between 0 and 1, where values close to 1 gernerally means that the model fits well. Otherwise, if the value of Mardia-Based Kappa is close to 0 and the value of Relative Multivariate Kurtosis is close to 1, it means that the model has the assumption of normality (Tabachnick & Fidell, 2007; Schumacker & Lomax, 2004; Raykov & Marcoulides, 2006; Jöreskog & Sorbom, 2001).

As seen in Table 5 and Table 4, our findings revealed that the mother's education level significantly affected the C1, C2, A and B factors. Therefore, the hypotheses given in Table 2 were further developed in order to investigate the extent to which the mother's education level would affect the relationships in the model.

Table 2

Hypotheses Tested by the Mother's Educational Level

H_1	Educational levels of students' mothers have a significant effect on their environmental sensitivity.
H_2	Educational levels of students' mothers have a significant effect on their environmental protection commitment.
H_3	Educational levels of students' mothers have a significant effect on their environment-friendly consumption behaviors.

Validity and Reliability

As seen in Table 3, the Cronbach's α values were used to assess the reliability of the scale, and items with low reliability scores were omitted. After reliability analysis, Exploratory Factor Analysis (EFA) was applied, and the structural equation model was developed after removing items which had factor loadings lower than 0.45. The findings related to all items in the Environmental Protection Commitment dimension in the scale can be seen in Table 4.

Table 3

Items in the Measurement Tool

Factors / Cronbach Alpha(a) / Averages	***Averages***
Environment Protection Commitment(A)/ Cronbach Alpha(a)= 0.708 /Average= 3.54	
a1. That I will take part in tree-planting activities (That I will plant at least one tree every year).	3.41
a2. That I will set aside the wastes of products consumed for recycling.	3.67
a3. That I will take action about nature polluters with the authority in question.	3.23
a4. That I will warn those in my immediate vicinity to refrain from any unnecessary consumption.	3.74
a5. That I will warn those harming trees and flowers in parks and gardens.	3.66
Environment-Friendly Consumption(B)/ Cronbach Alpha(a)= 0.716 / Average = 3.07	
b1. I prefer using products produced from renewable raw materials.	3.14
b2. I am buying products with recyclable packaging.	3.31
b3. I am buying ecological products although they are more expensive.	2.76
b4. I am buying the products of companies backing environment projects.	3.08
Environmental Sensitivity(C1)/ Cronbach Alpha(a)= 0.784 / Average = 4.08	
c1.1. It annoys me to see that factory wastes cause environment pollution.	3.95
c1.2. Environmental pollution worries me.	4.20
c1.3. I am concerned about the effects of air pollution on my family's and me.	4.02
c1.4. I am afraid environmental pollution will made the world an uninhabitable place.	4.15
Environmental Insensitivity(C2)/ Cronbach Alpha(a)= 0.814 / Average = 2.12	
c2.1. I never have serious concerns about issues like water and marine pollution.	2.08
c2.2. I don't believe that the extinction of animals and plants will destroy the World.	2.09
c2.3. I believe environmental issues are being exaggerated.	2.18

Table 4
Summary of items of Environmental Protection Commitment

Items	Gender		Mother Education Level			t	t
	Female	Male	Elementary School	Secondary School	University	(Gender)	(Mother Education level)
a1. That I will take part in tree-planting activities	3.56	3.31	3.38	3.29	3.60	2.60**	3.86**
a2. That I will set aside the wastes of products consumed for recycling	3.90	3.51	3.71	3.56	3.77	4.30***	2.14N.S.
a3. That I will take action about nature polluters with the local authorities	3.36	3.14	3.27	3.08	3.38	2.24*	3.70*
a4. That I will warn those in my immediate vicinity to refrain from any unnecessary consumption	3.87	3.64	3.83	3.57	3.87	2.89**	6.38**
a5. That I will warn those harming trees and flowers in parks and gardens	3.85	3.56	3.70	3.60	3.74	3.46***	1.05N.S.
a6. That I will fight those endangering the nature	3.70	3.41	3.54	3.45	3.62	3.47***	1.44N.S
a7. That I will show no violence and aggression towards the environment I live in and what is inside it	4.19	3.89	4.08	3.98	3.99	3.38***	0.41N.S.
a8. That I will not directly and indirectly harm my environment with economic concerns in my business and private life	3.96	3.72	3.81	3.75	3.92	3.01**	1.48N.S.
a9. That I will do my best to make the environment I live in more livable	3.96	3.86	4.01	3.84	3.89	1.31N.S	1.62N.S.
a10. That I will take part in environmental cleaning campaigns	3.44	3.07	3.14	3.05	3.50	3.91***	9.10***
a11. That I will resist the destruction of world resources irresponsibly thinking that they are limited	3.95	3.72	3.88	3.71	3.90	2.88**	2.33N.S.
a12. That I will make no unnecessary consumption to make sure pollution is eliminated at its source	3.91	3.68	3.83	3.68	3.85	2.94**	2.14N.S.
a13. That I will use products produced from non-renewable resources like underground oil, coal, natural gas and mines in an economical manner because we will be unable to replace them with new resources	3.91	3.68	3.95	3.64	3.8	2.81**	4.33**
a14. That I will turn it off/fix it, when I see a dripping tap	4.32	4.07	4.31	4.12	4.16	3.22***	2.24N.S.
a15. That I will check and switch off unnecessarily used lights	4.32	4.15	4.35	4.15	4.20	2.24*	2.32N.S.
a16. That I will use the back of papers when I am studying	4.28	3.96	4.15	4.04	4.11	3.81***	0.60N.S.
a17. That I will warn those polluting the nature	3.74	3.53	3.66	3.52	3.70	2.44*	1.73N.S.
a18. That I will be an actively involved member of nature and environment organizations like Tema[a]	3.33	2.94	2.97	2.94	3.41	3.94***	10.30***
a19. That I will work on a voluntary basis for nature and human beings	3.57	3.06	3.23	3.11	3.49	5.55***	6.24**
a20. That I will observe the articles of this contract in order to leave a cleaner world to newer generations	3.96	3.66	3.87	3.66	3.88	3.61***	3.06*

Results

Among all participants, 40.9% were women and 59.1% were men. Regarding the mothers' education level, 26.8% of participants' mothers' were elementary school graduates, 40.7% were high school graduates and 32.5% were university graduates. In terms of the place of residence of the students' families, 69.4% lived in cities, 23.3% in districts and 7.3% in villages.

Regarding the factors used in the study, the mean scores of the Environmental Protection Commitment (A), Environment-Friendly Consumption (B), Environmental Sensitivity (C1) and Environmental Insensitivity (C2) factors were calculated as 3.54, 3.07, 4.08 and 2.12, respectively. On the basis of these mean scores, it can be concluded that the study participants' environmental sensitivity was high and that their environment-friendly consumption behaviours remained at a level close to the mean.

Gender had a significant effect on the Environmental Protection Commitment (A), Environmental Sensitivity (C1) and Environmental Insensitivity (C2) factors, but not on the Environment-Friendly Consumption (B) factor (see Table 5).

Regarding the place of domicile of the participants' families, no significant difference was obtained in relation to the Environment-Friendly Consumption (B), Environmental Sensitivity (C1) or Environmental Insensitivity (C2) factors in terms of the mean scores of living in the city and district. On the other hand, there was a significant difference between the mean scores in the village as compared to those for the city and district.

As to the mothers' levels of education, a significant difference was obtained between the mean scores of elementary school, high school and university graduates in relation to the Environmental Protection Commitment (A), Environment-Friendly Consumption (B), Environmental Sensitivity (C1) and Environmental Insensitivity (C2) factors. A significant difference was also found between the mean scores of Environmental Protection Commitment (A) among students whose mothers were university graduates and those whose mothers were elementary school and high school graduates. Table 5 shows ANOVA results related to socio-demographic variables such as gender, mother's educational level, father's educational level, and the family's place of domicile.

Table 5

The Effects of Socio-Demographic Variables on Mean Scores of Factors

		Mother's educational level			
		Elementary Scholl	High Scholl	University	*F* statistics
Factors	A	3.58	3.42	3.67	6.57**
	B	3.07	2.94	3.23	6.74***
	C1	3.98	4.22	4.08	5.24**
	C2	1.81	2.12	2.37	9.87***
		Father's educational level			
		Elementary Scholl	High Scholl	University	*F* statistics
Factors	A	3.64	3.51	3.53	1.23N.S.
	B	3.16	3.01	3.08	1.26N.S.
	C1	4.29	4.11	3.98	7.56***
	C2	1.84	2.03	2.29	6.56**
		The family's place of domicile			
		Village	Districts	City	*F* statistics
Factors	A	3.46	3.51	3.56	0.58N.S.
	B	3.39	3.06	3.04	3.77*
	C1	3.67	4.09	4.12	7.69***
	C2	2.69	2.06	2.08	5.50**
		Gender			
		Female		Male	*t* statistics
Factors	A	3.71		3.43	4.54***
	B	3.13		3.03	1.42N.S.
	C1	4.24		3.97	4.45***
	C2	1.99		2.20	-2.14*

Significance Level of F and t statistics: *** $p \leq 0.001$ ** $p \leq 0.01$ * $p \leq 0.05$

Findings relating to Structural Equation Models

In this study, three Structural Equation Models (SEMs) were analyzed using the LISREL 8.80 software (Jöreskog & Sorbom, 2001). The first one, named the

"Environmentalist Behavior Model" (Model No I), included all students. This model was used to determine the extent to which the mothers' educational levels would affect the causal relationships. The other models were Model No II: "Students Having Elementary School Graduate Mothers" and Model No III: "Students Having University Graduate Mothers".

Findings of Model No I

The model's goodness of fit indices yielded the following: $\chi^2(100) = 255.53$; $\chi^2/df = 2.55$, RMSEA=0.057, NFI=0.94, NNFI=0.96, PNFI=0.78, CFI=0.96; IFI= 0.96, RFI=0.93, RMR=0.054, GFI=0.94, AGFI=0.91. When examining the goodness of-fit indices, it can be concluded that the model was within acceptable limits (see Schermelleh-Engel, Moosbrugger & Müller, 2003; Byrne 1998; Hayduk 1987; Jöreskog & Sorbom 2001). Using the model-related normality hypothesis, the Mardia-Based Kappa values was calculated as 0.17 and the Relative Multivariate Kurtosis value as 1.17, indicating that the normality assumption was met. Table 6 presents the structural equations belonging to Model No I, the results related to the hypotheses and the standardized parameter estimate values.

Table 6

Standardized Parameter Estimate Values, t Values and Hypotheses (Model I)

Hypotheses	***Paths***	***Standardized parameter estimate values***	***t values***	***Results***
H_1	(C1)→(A)	0.73	6.96	Confirmed
H_2	(C2)→(A)	-0.34	-3.84	Confirmed
H_3	(A)→(B)	0.62	6.21	Confirmed
		Structural Equations		
	A = 0.73*C1 – 0.34*C2		(R^2=0.34)	
	B = A*0.62		(R^2=0.38)	
		Reduced Structural Equations		
	A = 0.73*C1 – 0.34*C2		(R^2=0.34)	
	B = 0.45*C1 – 0.21*C2		(R^2=0.13)	

As seen in Table 6, the findings revealed that the university students' Environmental Sensitivity (C1) and their voluntarism in Environmental Protection Commitment (A) had significant effects on Environment-Friendly Consumption (B). Model No I's correlation matrix is presented in Table 7.

Table 7

Correlation Matrix of Model No I

	A	B	C1	C2
A	1.00			
B	0.62	1.00		
C1	0.51	0.32	1.00	
C2	0.12	0.07	0.64	1.00

As seen in Figure 3, a one-unit increase in the Environmental Sensitivity (C1) and Environmental Insensitivity (C2) factors led to a 0.73-unit increase and a 0.34-unit decrease, respectively, in Environmental Protection Commitment (A). Figure 3 furthermore shows that a one-unit increase in the Environmental Protection Commitment (A) factor caused a 0.62-unit increase in Environment-Friendly Consumption (B). The indirect effects of Environmental Sensitivity (C1) and Environmental Insensitivity (C2) on Environment-Friendly Consumption (B) were calculated as 0.73*0.62=0.45 and -0.34*0.62=0.21, respectively, which were found to be statistically significant (*t* statistics is 5.72 for C1 and -3.58 for C2). Moreover, because the C1→A, C2→A and A→B relationships were found to be statistically significant, H_1, H_2 and H_3 were all confirmed. R^2 values of the SEMs related to factor B were calculated as 0.34, 0.38 and 0.13. An examination of the R^2 values shows that factor A uniquely explained 38% of the change in factor B, while factors C1 and C2 explained just 13%.

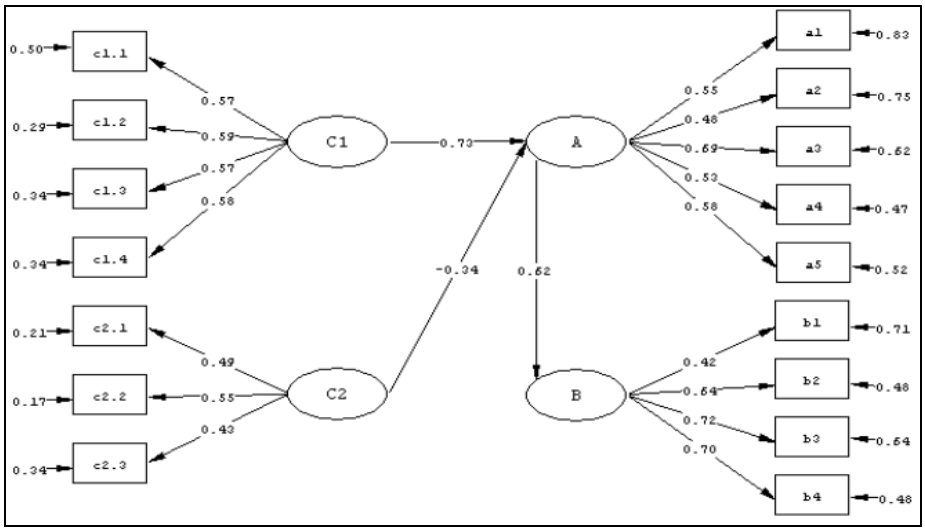


Figure 3 *Environmentalist Protection Commitment (Model No I)*

Two different models were also established to examine the effects of the education levels of students' mothers on the C1→A, C2→A and A→B relationships shown in Figure 3.

Findings of Model No II

Findings of the model established for students having elementary school graduate mothers are presented in Table 8. The model's goodness of fit indices were calculated as follows: χ^2 (100)=131.69; χ^2/df =1.32, RMSEA=0.05, NFI=0.86, NNFI=0.96, PNFI=0.71, CFI=0.96; IFI= 0.96, RFI=0.83, RMR=0.04, GFI=0.89, AGFI=0.84. These indices suggested a good fit of model without any need for modification.

Table 8

Standardized Parameter Estimate Values, t Values and Hypotheses (Model II)

Hypotheses	***Paths***	***Standardized parameter estimate values***	***t values***	***Results***
H_1	(C1)→(A)	0.42	1.60	*Not Confirmed*
H_2	(C2)→(A)	-0.29	-1.17	*Not Confirmed*
H_3	(A)→(B)	0.60	2.53	Confirmed
Structural Equations				
A = 0.42*C1 – 0.29*C2		(R^2=0.07)		
B = A*0.60		(R^2=0.36)		
Reduced Structural Equations				
A = 0.42*C1 – 0.29*C2		(R^2=0.07)		
B = 0.25*C1 – 0.17*C2		(R^2=0.03)		

As a result of the analysis, it was demonstrated that the Environmental Sensitivity (C1) and Environmental Insensitivity (C2) factors had significant effects on Environmental Protection Commitment (A) in Model No II.

Findings of Model No III

Model No III's findings are presented in Table 9. The model's goodness of-fit indices were calculated as follows: χ^2(100) =217.39, χ^2/df =2.17, RMSEA=0.087, NFI=0.87, NNFI=0.91, PNFI=0.73, CFI=0.93; IFI=0.93, RFI=0.85, RMR=0.085, GFI=0.85, AGFI=0.80. These indices indicate a good fit of model without any modification needed.

Table 9

Standardized Parameter Estimate Values, t Values and Hypotheses (Model III)

Hypotheses	Paths	Standardized parameter estimate values	t values	Results
H_1	(C1)→(A)	0.92	4.94	Confirmed
H_2	(C2)→(A)	-0.46	-2.89	Confirmed
H_3	(A)→(B)	0.69	4.05	Confirmed
Structural Equations				
	A = 0.92*C1 – 0.46*C2	(R^2=0.49)		
	B = A*0.69	(R^2=0.48)		
Reduced Structural Equations				
	A = 0.92*C1 – 0.46*C2	(R^2=0.49)		
	B = 0.64*C1 – 0.32*C2	(R^2=0.24)		

As a result of the analysis, it was demonstrated that for students with university graduate mothers, the Environmental Sensitivity (C1) and Environmental Insensitivity (C2) factors had a significant effect on Environmental Protection Commitment (A) and that the Environmental Protection Commitment (A) factor had a significant effect on Environment-Friendly Consumption (B).

The findings of Model No II and Model No III revealed that the mothers' educational levels significantly affect the students' attitudes and behaviors toward environmental issues (see the *t* statistics in Table 8 and Table 9). A summary of the C1→A, C2→A and A→B relationships in all three models is developed in Table 10 and is presented in the following section.

Table 10

Significant Test Results of the Relationships in Structural Equation Models

		Models Tested		
		Model I	**Model II**	**Model III**
Paths	**C1→A**	Confirmed	*Not Confirmed*	Confirmed
	C2→A	Confirmed	*Not Confirmed*	Confirmed
	A→B	Confirmed	Confirmed	Confirmed

Discussion and Conclusions

The objective of the current study was to investigate the extent to which students' environmental protection commitments are predicted by environmental sensitivities/insensitivities and to examine whether environmental sensitivities/insensitivities factors would predict environment-friendly consumption behaviors, using the Structural Equation Model (SEM) to take into account the education level of the students' mothers'.

The study demonstrated that men had a higher rate of environmental insensitivity compared to women. In other words, men were more unwilling and reluctant to commit to the protection of nature (see Table 5: t=4.54, p<0.001). This finding parallels many previous studies (Diamond & Orenstein, 1990; Stern, Dietz & Kalof, 1993; Iizuka, 2000). Some researchers have suggested that women are more interested in local environmental issues compared with men, but this difference was reduced in subjects concerning national environment. It has also been stated that women have lower participation in political movements in the name of environmental protection (Mohai, 1987; Stern, Dietz & Kalof, 1993; Iizuka, 2000). In addition, the students' families' place of residence had a significant effect on environment-friendly consumption and environmental sensitivity (Table 5: F=3.77, p<0.01, F=7.69, p.<0.001, respectively). Culturally, it is expected for students to maintain their lives with their family until they reach their university education. Therefore, this result indicates that the environment where the student has lived until his/her university education may influence his/her environment-related attitudes. With this finding in mind, questions related to the duration of family-rooted attitudes, change in attitudes and the direction of these changes can be topics for further study.

Another notable finding is that the mean scores of the Environmental Protection Commitment (A), Environment-Friendly Consumption (B), Environmental Sensitivity (C1) and Environmental Insensitivity (C2) factors were positively correlated with the educational level of the students' mothers. Interestingly, the mothers' educational level had a significant effect on Environmental Protection Commitment (A), Environment-Friendly Consumption (B) and Environmental Sensitivity (C) (Table 5: F=6.57, p.<0.01, F=6.74, p.<0.001, F=5.24, p.<0.01, respectively), whereas fathers' educational level had no significant effect on Environmental Protection Commitment (A) and Environment-Friendly Consumption (B) (Table 5: F=1.23, p. > 0.29, F=1.26, p.> 0.28, respectively). However, fathers' educational level did have a significant effect on Environmental Sensitivity (C1) and Environmental Insensitivity (C2) (Table 5: F=7.56, p.<0.001, F=6.56, p.<0.01, respectively). This surprising finding suggests that the educational levels of parents vary in determining their children's environment-related attitudes and behaviors. Because the social roles of mothers and fathers are different – largely a result of differences in gender roles – their children's environmental attitudes and behaviors are also different. During socialization, children acquire separate information from their parents through modeling. In a similar vein, there are various studies that resonate with this finding, indicating that mothers are more interested in family

welfare and health while fathers focus more on economic issues (George & Southwell, 1986; Dietz, Stern & Guagnano, 1998).

An additional important finding is that women had higher mean scores when compared to men in all items of the Environmental Protection Commitment dimension, as presented in Table 1. The lowest mean scores were obtained for items a3 ("That I will take action about nature polluters with the authority in question") and a18 ("That I will be an actively involved member of nature and environment organizations like Tema"). The highest mean scores were obtained for items a14 ("That I will turn it off/fix it, when I see a dripping tap") and a15 ("That I will check and switch off unnecessarily used lights"). These tendencies can be interpreted based on the perceived ease of these behaviors, a result which seems to parallel the findings of Fuji (2006).

To conclude, this study indicated that students' gender, their families' places of domicile and especially their mothers' educational levels lead to differences in environmental sensitivity, commitment to protect the environment and environment-friendly consumption behaviors. One of the most remarkable findings may be that the educational levels of the mothers proved to have a significant effect on the students' environmental protection commitment and environmental behaviors. More specifically, students whose mothers had graduated from a university displayed more responsibility toward their environment, engaged more frequently in environment-friendly consumption behaviors and were more willing to protect the environment when compared with students whose mothers had completed elementary school. This finding indicates that the more education their mothers have, the more the students will tend toward environmental protection and development commitments. Namely, those students with university graduate mothers were more likely to become members of environmentalist organizations and to commit to being active environmentalists. As seen in Table 1, there is a congruency between women and students having university graduate mothers when it comes to the commitment to environmental protection. This result demonstrates that more educated women tend toward environmentalism, becoming a role model for their children in terms of environmental issues. This finding is critical when one considers that only 3.7% of mothers in Turkey are university graduates. In raising future generations to be more sensitive and dynamic toward environmental problems, it will be important to support female children's education, since many of them will one day be mothers. Thus, additional funds could be reserved within nature protection programs for developing countries to help grant female children access to university education and to create equal educational opportunities.

In conclusion, this study demonstrates that the Environmental Protection Commitment (A) factor could be used to explain the Environment-Friendly Consumption (B) variable (A→B). Two possible shortcomings of the study are that it used a student sampling and that it relied on novel self-report measures. Nonetheless, based on the present findings, further studies should be engaged in order to clarify these results. In sum, one of this study's most important contributions is that the children of highly educated mothers are likely to become more environmentally friendly individuals.

References

Ajzen, I. (1985). *From intention to actions: A theory of planned behavior*. In J. Kuhl and J. Beckman (eds), Action-control: From cognition to behavior, 11-39. Heidelberg: Springer.

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50, 179-211.

Ajzen, I. (2005). *Attitudes, personality and behavior*. New York: Open University Press.

Ajzen, I. & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. Englewood-Cliffs, NJ: Prentice-Hall.

Ajzen, I. & Fishbein, M. (2000). Attitudes and the attitude-behavior relation: Reasoned and automatic process. In W. Stroebe and M. Hewstone (eds), *Europen Review of Social Psychology*, 11, 1-33. Chichester: Wiley.

Bhate, S. & Lawler, K. (1997). Environmentally friendly products: factors that influence their adoption. *Technovation*, 17(8), 457-465.

Byrne, M.B. (1998). *Structural equation modeling with LISREL, PRELIS and SIMPLIS*: Basic Concepts, Applications and Programming. New Jersey: Lawrence Erlbaum.

Cheng, E.W.L. (2001). SEM being more effective than multiple regression in parsimonious model testing for management development research. *Journal of Management Development*, 20 (7), 650-667.

Cudeck, R., Toit, D. S. & Sörbom, D. (2000). *Structural equation modelling: present and future*. Scientific Software International Inc., Chicago.

Çabuk, S. & Nakıboğlu, B. (2003). Çevreci pazarlama ve tüketicilerin çevreci tutumlarının satın alma davranışlarına etkileri ile ilgili bir uygulama. [Environmental marketing and an application about the effects of consumers' environmental attitudes on purchasing behaviors] *Çukurova Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 12(12), 39-54.

Dietz, T., Stern, P. & Guagnano, G. (1998). Social structural and social psychological bases of environmental concern. *Environment and Behaviour,* 30, 450-471.

Dono, J., Webb, J. & Richardson, B. (2010). The relationship between environmental activism, pro-environmental bahaviour and social identity. *Journal of Environmental Psychology*, 30(2), 178-186.

Fraj, E. & Martinez, E. (2007). Ecological consumer behaviour: an emprical analysis, *International Journal of Consumer Studies*, 31, 26-33.

Fujii, S. (2006). Environmental concern, attitude toward frugality, and ease of behavior. *Journal of Environmental Psychology*, 26, 262–268.

Hayduk, L.A. (1987). *Structural equation modeling with LISREL: Essentials and Advances*. Baltimore: John Hopkins.

Hines, J.M., Hungerford, H.R. & Tomera, A.N. (1986/1987). Analysis and synthesis of research on responsible environmental behavior. *Journal of Environmental Education*, 18, 1-8.

Frick, J., Kaiser, F. & Wilson, M. (2004). Environmental knowledge and conservation behavior: exploring prevalence and structure in a representative sample. *Personality and Individual Differences*, (37) 8, 1597-1613.

Jöreskog, K. & Sörbom, D. (2001). *LISREL 8: User's reference guide*. Chicago: Scientific Software International Inc.

Kaiser, F.G., Wölfing, S. & Fuhrer, U. (1999). Environmental attitude and ecological behaviour. *Journal of Environmental Psychology*, 19: 1-19.

Kaiser, F.G. & Shimoda, T.A. (1999). Responsibility as a predictor of ecological behaviour. *Journal of Environmental Psychology*, 19, 243-253.

Mainieri, T., Barnett, E.G., Valdero, T.R., Unıpan, J.B. & Oskamp, S. (1997). Green buying: the influence of environmental concern on consumer behaviour. *The Journal of Social Psychology*, 137(2), 189-204.

Mohai, P. & Twight, B. (1987). Age and environmentalism: an elaboration of the Buttel Model Using National Survey Evidence. *Social Science Quarterly,* 68, 798-815.

Mostafa, M.M. (2007). A Hierarchical analysis of the green consciousness of the egyptian consumer. *Psychology & Marketing*, 24(5), 445-473.

Önder, T. (2009). *Yeşil siyaset*. [Green Politics] M. Türköne, Ö. Çaha, T. Önder, B. B. Özipek, H. Çetin, H. E. Beriş, et al. içinde, Siyaset (s. 603). İstanbul: Opus Yayınları.

Pang, N.S.K. (1996). School values and teachers' feelings: a LISREL model. *Journal of Educational Administration*, 34(2), 64-83.

Raykov, T. & Marcoulides, G.A. (2006). *A first course in structural equation modeling*. London: Lawrence Erlbaum Associates.

Reisinger, Y. & Turner, L. (1999). Structural equation modeling with LISREL: application in tourism. *Tourism Management*, 20, 71-88

Schumacker, R.E. & Lomax, G.R. (2004). *A beginner's guide to structural equation modeling*. London: Lawrence Erlbaum Associates.

Steg, L. & Vlek, C. (2009). Encouraging pro-environmental behaviour: an integrative review and research agenda. *Journal of Environmental Psychology*, 29, 309-317.

Stern, P., Dietzi, T. & Kalof, L. (1993), Value orientations, gender, and environmental concern. *Environment and Behaviour*, 25(5), 322-348.

Tabachnick, B.G. & Fidell, L.S. (2007). *Using multivariate statistics.* New York: Pearson Education Inc.

Tilikidou, I. & Delistavrou, A. (2006). Consumers' ecological activities and their correlates. Access date: July 11, 2009 http://www.ctw-congress.de/ifsam/download/track_9/pap00169.pdf

Tilikidou, I. (2007). The effects of knowledge and attitudes upon greeks' pro-environmental purchasing behaviour. *Corporate Social Responsibility and Environmental Management*, 14, 121–134.

Tilikidiou, I. & Delistavrou, A. (2008). Types and influential factors of consumers' non-purchasing ecological behaviors. *Business Strategy and the Environment*, 18, 61-76.

Van Liere, K. & Dunlap, R. (1981), Environmental concern: does it make a difference how it's measured? *Environment and Behaviour*, 13(6), 651-676.

Wiseman, M. & Bogner, F.X. (2003). A higher-order model of ecological values and its relationship to personality. *Personality and Individual Differences,* 34, 783-794.

Yılmaz, V. (2004). Lisrel ile yapısal eşitlik modelleri: tüketici şikayetlerine uygulanması. [Structural Equation Modeling via Lisrel: Application on Consumer Complaints] *Anadolu Üniversitesi Sosyal Bilimler Dergisi*, 4(1), 77-90.

Yılmaz, V., Çelik, H. E. & Yağızer, C. (2009). Çevresel duyarlılık ve çevresel davranışın ekolojik ürün satın alma davranışına etkilerinin yapısal eşitlik modeliyle araştırılması. [Investigating the Effects of Environmental Sensitivity and Environmental Behavior on Ecological Product Buying Behavior through Structural Equation Modeling]. *Anadolu Üniversitesi Sosyal Bilimler Dergisi*, 9(2), 1-14.

Üniversite Öğrencilerinin Çevre Korumaya İlişkin Vaatleri İle Çevresel Davranışlarında Anne Eğitim Düzeyinin Etkisi

Atıf:

Saraçlı, S., Yılmaz V., & Arslan T. (2014). The effects of mothers' educational levels on university students' environmental protection commitments and environmental behaviors. *Eurasian Journal of Educational Research*, 55, 177-200. http://dx.doi.org/ 10.14689/ejer.2014.55.11

Özet

Problem Durumu: Son zamanlarda çevresel sorunların verdiği zararların ortaya çıkması toplumda çevresel kaygıyı arttırmış ve bu durum çevre dostu tüketim davranışının gelişmesine sebep olmuştur. Çevre dostu tüketim, tüketim eyleminin her safhasında çevreye verilecek zararı en aza indirerek çevresel faydayı düşünmek olarak tanımlanabilir. Çevre dostu tüketim çevresel davranışın alt bileşenlerinden biri olarak görülebilir. Çevre dostu tüketim; ekolojik, geri dönüştürülebilir ve ihtiyacımız kadar ürünleri tüketerek sergilenebileceği gibi doğayı kirletmeyen, çevre

projelerini destekleyen ve çevre dostu ürünler üreten firmaların ürünlerini satın alarak da gösterilebilir.

Anne ve babanın çevre konuları hakkında etkisinin araştırıldığı çalışmalarda annelerin çevresel konularda babalara oranla daha ilgili ve endişeli olduğu saptanmıştır. Bu farklılığın sosyal hayattaki rollerinden kaynaklandığı belirtilmektedir. Anne ailenin refahı ve sağlığı ile ilgili konular hakkında (bu konular yerel çevre şartlarının kalitesiyle alakalıdır örneğin su, hava, katı atıklar) endişe duyarken, baba ailenin maddi ve ekonomik konuları hakkında kaygı duymaktadır. Ayrıca eğitim-çevre ilişkisinin varlığını saptayan ve eğitim düzeyi yükseldikçe bireylerin çevresel konularda daha bilgili olduğu ve dolayısıyla çevresel konularla ilgi kaygılarının arttığını belirten çalışmalarda literatürde mevcuttur.

Araştırmanın Amacı: Bu çalışmanın amacı Yapısal Eşitlik Modeli (YEM) kullanarak üniversite öğrencilerinin çevresel duyarlılıklarını, çevreyi koruma vaatlerini ve çevre dostu tüketim davranışları arasındaki nedensel ilişkileri, annelerinin eğitim düzeylerini dikkate alarak incelemektir.

Araştırmanın Yöntemi: Araştırmaya başlamadan önce hazırlanan ölçek rassal olarak seçilen 60 öğrenci üzerinde uygulanmıştır. Pilot çalışma sonucunda anlaşılmayan ifadeler çıkarılarak ölçeğe son hali verilmiştir. Çalışmada kullanılan ölçek üç farklı boyuttan oluşmaktadır(Çevre Koruma Vaadi(A), Çevre Dostu Tüketim(B), Çevresel Duyarlılık(C1)/Duyarsızlık(C2)). "Çevre Koruma Vaadi" boyutu yeni geliştirilmiş ve literatürde ilk niteliğindedir. "Çevre Koruma Vaadi" 20 ifadeden oluşmaktadır ve 5' li Likert tekniği kullanılarak hazırlanmıştır(1.Kesinlikle Söz Veremem, 2.Söz Veremem, 3.Kararsızım, 4. Söz Veririm, 5.Kesinlikle Söz Veririm). "Çevre Dostu Tüketim" boyutu 7 ifadeden oluşmaktadır ve 5' li Likert tekniği kullanılmıştır (1.Hiçbir Zaman, 2.Bazen, 3.Ara Sıra, 4.Sıklıkla, 5.Her Zaman). "Çevresel Duyarlılık/Duyarsızlık" boyutu 12 ifadeden oluşmaktadır ve 5' li Likert tekniği kullanılarak hazırlanmıştır (1.Kesinlikle Katılmıyorum, 2.Katılmıyorum, 3.Karasızım, 4.Katılıyorum, 5.Kesinlikle Katılıyorum). Pilot uygulama tamamlandıktan sonra Eskişehir Osmangazi Üniversitesi Kampüsünde rassal olarak ulaşılan 520 öğrenci üzerinden çözümleme gerçekleştirilmiştir. Ölçeğin güvenilirliğini araştırmak için Cronbach Alpha(α) değerlerine bakılmış, güvenilirlik analizinden sonra açıklayıcı faktör analizi (EFA) uygulanmış ve faktör yükü 0.45' in altında olan ifadeler ölçekten çıkartılarak yapısal eşitlik modeli geliştirilmiştir.

Araştırmanın Bulguları:Araştırmaya katılanların %40.9' u kadınlardan ve %50.1' i ise erkeklerden oluşmaktadır. Annenin eğitim düzeyi dikkate alındığında, katılımcıların %26,8' i ilköğretim, %40,7' si orta öğretim ve %32,5' i ise üniversite mezunlarından oluşmaktadır. Ayrıca öğrencilerin ailelerinin yaşadıkları yer dikkate alındığında %69.4' ü şehirde, %23.3' ü ilçede ve %7.3' nün ise köyde yaşadığı saptanmıştır.

Araştırmada kullanılan faktörler dikkate alındığında "Çevre Koruma Vaadi (A)", "Çevre Dostu Tüketim (B)", "Çevresel Duyarlılık (C1)" ve "Çevresel Duyarsızlık (C2)" faktörlerinin ortalamaları sırasıyla 3.54, 3.07, 4.08 ve 2.12 olarak hesaplanmıştır. Araştırmaya katılanların çevresel duyarlılıklarının yüksek olduğu fakat çevre dostu tüketim davranışlarının ise ortalamaya yakın düzeyde kaldığı söylenebilir. Cinsiyet

değişkeni dikkate alındığında "Çevre Koruma Vaadi (A)", "Çevresel Duyarlılık (C1)" ve "Çevresel Duyarsızlık (C2)" faktörlerinde anlamlı etkiye sahip olurken "çevre dostu tüketim (B)" faktöründe anlamlı etkisinin olmadığı saptanmıştır.

Araştırmaya katılanların ailelerinin yaşadığı yer dikkate alındığında "Çevre Dostu Tüketim (B)", "Çevresel Duyarlılık (C1)" ve "Çevresel Duyarsızlık (C2)" faktörlerine ilişkin "il" ve "ilçe" de yaşayanların ortalamaları arasında anlamlı bir farkın olmadığı fakat "köyde" yaşayanlar ile "il" ve "ilçe" de yaşayanların ortalamaları arasında anlamlı bir farklılığın olduğu saptanmıştır.

Annelerinin eğitim düzeyi dikkate alındığında "Çevre Koruma Vaadi (A)", "Çevre Dostu Tüketim (B)", "Çevresel Duyarlılık (C1)" ve "Çevresel Duyarsızlık (C2)" faktörlerine ilişkin eğitim düzeyi "ilköğretim", "ortaöğretim" ve "üniversite" olanların ortalamaları arasında anlamlı bir farklılığın olduğu belirlenmiştir. Annesinin eğitim düzeyini "üniversite" olan öğrenciler "ilköğretim" ve "ortaöğretim" olanların "Çevre Koruma Vaadine(A)" ortalamaları arasında anlamlı bir farkın olduğu görülmüştür.

Bu çalışmada üç yapısal eşitlik modeli (YEM) LISREL 8.80 programı kullanılarak analiz edilmiştir. Bunlardan ilki tüm öğrenciler için geçerli olan "Çevreci Davranış" olarak isimlendirilen modeldir (Model No I). Öğrencilerin annelerinin eğitim düzeylerindeki farklılığın "Çevreci Davranış" modelindeki nedensel ilişkilerde farklılığa sebep olup olmadığını araştırılmıştır. Bunlar Model No II: "Annesi İlköğretim Mezunu Olan Öğrenciler" ve Model No III: "Annesi Üniversite Mezunu Olan Öğrenciler" olarak isimlendirilmiştir.

Model No I' e ait bulgular

Modelin uyum ölçütleri; χ^2 = 255.53(*s.d.*=100); χ^2 / s.d =2.55, *RMSEA*=0.057, *NFI*=0.94, *NNFI*=0.96, *PNFI*=0.78, *CFI*=0.96; *IFI*= 0.96, *RFI*=0.93, *RMR*=0.054, *GFI*=0.94, *AGFI*=0.91 olarak hesaplanmıştır. Uyum ölçütleri incelendiğinde modelin kabul edilebilir sınırlar içinde kaldığı söylenebilir. Modele ilişkin normallik varsayımını sınayan test istatistiklerinden; Mardia-Based Kappa değeri 0.17 olarak ve Relative Multivariate Kurtosis değeri ise 1.17 olarak hesaplanmış ve normallik varsayımının sağlandığı görülmüştür.

Model No II' ye ait bulguları

Annesi ilköğretim mezunu olan öğrenciler için kurulmuş modele ilişkin uyum ölçütleri; χ^2 = 131.69 (*s.d.*=100); χ^2 / s.d =1.32, *RMSEA*=0.05, *NFI*=0.86, *NNFI*=0.96, *PNFI*=0.71, *CFI*=0.96; *IFI*= 0.96, *RFI*=0.83, *RMR*=0.04, *GFI*=0.89, *AGFI*=0.84 olarak hesaplanmıştır. Uyum ölçütleri incelendiğinde modelin kabul edilebilir sınırlar içinde kaldığı söylenebilir. Analiz sonucunda annesi ilköğretim mezunu olan öğrencilere ait kurulan modelde "Çevresel Duyarlılık (C1)" ve "Çevresel Duyarsızlık (C2)" faktörlerinin "Çevre Koruma Vaadi (A)" üzerinde anlamlı bir etkisinin olmadığı saptanmıştır.

Model No III' e ait bulgular

Annesi üniversite mezunu olan öğrenciler için kurulmuş modele ilişkin uyum ölçütleri; χ^2 = 217.39 (*s.d.*=100); χ^2 /s.d =2.17, *RMSEA*=0.087, *NFI*=0.87, *NNFI*=0.91, *PNFI*=0.73, *CFI*=0.93; *IFI*= 0.93, *RFI*=0.85, *RMR*=0.085, *GFI*=0.85, *AGFI*=0.80 olarak hesaplanmıştır. Uyum ölçütleri incelendiğinde modelin kabul edilebilir sınırlar içinde kaldığı söylenebilir. Analiz sonucunda annesi üniversite mezunu olan öğrenciler için kurulan modelde "Çevresel Duyarlılık (C1)" ve "Çevresel Duyarsızlık (C2)" faktörlerinin "Çevre Koruma Vaadi (A)" üzerinde anlamlı etkisinin olduğu ayrıca "Çevre Koruma Vaadi (A)" faktörünün "Çevre Dostu Tüketim (B)" üzerinde anlamlı etkisinin olduğu saptanmıştır.

Model No II ve Model No III' e ait bulgular incelendiğinde annenin eğitim düzeyinin öğrencilerin çevreyle ilgili konulardaki tutum ve davranışları üzerinde etkili olduğu görülmektedir.

Araştırmanın Sonuçları ve Önerileri: Öğrencilerin annelerinin öğretim düzeyi yükseldikçe çevreyi koruma ve geliştirme vaatleri de yükselmektedir. Özellikle üniversite mezunu anneye sahip öğrenciler çevreci örgütlere üye olarak aktif bir çevreci olmaya söz vermektedirler. Cinsiyete göre kadınların çevre koruma vaatleri ile anneleri üniversite mezunu olan öğrencilerin vaatleriyle paralellik gösterdiği görülmektedir. Bu sonuç kadınların daha çevreci olma eğiliminde olduğu, eğitim düzeyi yükseldikçe bu eğilimde de artış olduğu değerlendirilmektedir. Türkiye'deki üniversite mezunu annelerin oranının %3.7, olduğu dikkate alınırsa geleceğin anneleri olan kız çocuklarının üniversite eğitimi için desteklenmelerinin ne kadar önemli olduğu bir kez daha anlaşılabilir.

Anahtar Sözcükler: Çevresel duyarlılık, çevre dostu tüketim, çevre koruma vaadi, yapısal eşitlik modeli.

Eurasian Journal of Educational Research, Issue 55, 2014, 201-222

Enriching Project-Based Learning Environments with Virtual Manipulatives: A Comparative Study

Ünal ÇAKIROĞLU*

Suggested Citation:

Çakıroğlu, Ü. (2014). Enriching project-based learning environments with virtual manipulatives: A comparative study. *Eurasian Journal of Educational Research*, 55, 201-222. http://dx.doi.org/ 10.14689/ejer.2014.55.12

Abstract

Problem statement: Although there is agreement on the potential of project-based learning (PBL) and virtual manipulatives (VMs), their positive impact depends on how they are used. This study was based on supporting the use of online PBL environments and improving the efficacy of the instructional practices in PBL by combining the potentials of PBL and VMs.

Purpose of the study: The purpose of this study is to investigate the effect of a PBL environment enriched with VMs by comparing it with a traditional PBL environment. The comparison is focused on academic achievements in Quadratic Equations and Polynomials subjects and attitudes towards mathematics courses.

Methods: Since randomly assigning students to groups was not possible, a quasi-experimental design was used in the study. One experimental group (EG; $N = 30$) and one comparison group (CG; $N = 30$) were used in the study. While the comparison group was taught with traditional PBL activities, the experimental group received some other PBL by using the web enriched with VMs. Participants in the EG and the CG were pre-tested and post-tested with an Achievement Test (AT), including 25 questions about Polynomials and Quadratic Equations subjects. The changes in attitudes were investigated by an attitude scale.

Findings and Results: The statistical analysis indicates that EG students significantly outperformed CG students with respect to AT results. The change in attitudes towards mathematics courses was not statistically significant among the two groups.

Conclusions and Recommendations: The results of the study provided some empirical evidence about the positive effects of VMs that are used to

* Assoc.Prof.Dr., Karadeniz Technical University, cakiroglu@ktu.edu.tr

enrich PBL environments. Although changes in attitudes have not been seen, positive academic achievements have been revealed in two subjects. Based on the study, it is concluded that the combination of VMs and PBL may be an effective way to enhance students' understanding of mathematics subjects and to improve their academic achievements.

Keywords: virtual manipulatives, project based learning, teaching mathematics, comparative analysis

Introduction

Project-based learning (PBL) suggests learning environments in which projects support learning. PBL has been used successfully in various courses in secondary and tertiary education (Hennessy, 2006; Jonassen, Howland, Moore, & Marra, 2003). Educators agree that working on projects is an engaging activity for students, and PBL has valuable potential for facilitating and enhancing learning (ChanLin, 2008). PBL includes problem-solving and exploration processes to drive learning. By working with the projects, students engage in real-world contexts by applying logical tasks that involve the skills and concepts to be learned. Bednar, Cunningham, Duffy, and Perry (1992) define PBL as an instantiation of education theory, research, and practice in constructivism. According to their definition, PBL guides students to assume a real-life role and apply the tools of a knowledge domain in creating a project.

Similarly, along with the improvements in information technology and the popularity of the Internet, educators have begun using e-learning technologies to improve learning outcomes (Hernández-Ramos & Paz, 2010; Linn et al., 2000; Şendağ & Odabaşı, 2009). The ePBL approach is derived from the PBL approach and combines the advantages of web-based learning environments (WBLE) with PBL. Krajcik, Czeniak, and Berger (1994) explain that PBL generally includes six steps: Refining questions, finding information, planning, designing and conducting experimental work, analyzing data, and sharing artifacts. In order to achieve these steps, various tools have been used to construct and enrich ePBL environments, such as webquests, blogs, forums, social networking or others. Most of these tools generally help in sharing information, collaboration, or cooperation. Liu, Lou, Shih, Meng, and Lee (2010) point out that PBL environment should provide an environment to acquire knowledge emerging from a student's work within experimental work. This gives us an idea that one of the key factors for designing ePBL environments is student-content interactivity. One type of useful tools for developing interactive learning environments on the web is virtual manipulatives (VMs). Although research studies on VMs have illustrated their positive effects on enhancing students' understanding, there is a limited number of studies showing that the VMs are used in PBL applications (Moyer, Bolyard, & Spikell, 2002; Steen, Brooks, & Lyon, 2006). Therefore, this study discusses the potential outcomes of combining VMs and PBL environments.

In related studies section, research studies about PBL, ePBL, and VMs are discussed briefly, and the need for this study is addressed.

Related Studies

PBL can be administered either in classrooms or in the outdoors. In contrast to outdoor activities, the web is generally used to facilitate activities in ePBL applications (Markham, Mergendoller, Larmer, & Ravitz, 2003). Students can be allowed to access the information in a variety of forms and use information for completing the tasks by ePBL. In this context, some researchers found that students in ePBL applications showed better performances than those who completed projects in the traditional way (Barak & Dori 2005; Jonassen et al., 2003; Guthrie, 2010), and they expressed that ePBL has enhanced the students' investigations of real-life problems in a scientific manner. In another study, the researchers investigated the positive effects of ePBL on students' attitudes (Morgil, Seyhan, Alsan, & Temel, 2008). While some ePBL applications exist in science, the examples for mathematics courses are limited. Al-A'ali (2008) focused on the challenges and opportunities of using ePBL in mathematics lessons. The study noticed improvement in grades and students' motivation. During project tasks, students should work on plans, experiments, or designs to solve problems. This will require students to interact with content or perform operations with information. Durmuş and Karakırık (2006) point out that, for mathematics education, VMs may provide interactive environments in which students could pose and solve their own problems to form connections between mathematical concepts and operations and then get immediate feedback that might lead them to reflect on their conceptualization.

VMs are digital objects that can be used as stand-alone resources or as components for constructing learning environments to enhance conceptual understanding (NCTM, 2000; Reimer & Moyer, 2005). Research studies have shown that VMs may have a positive impact on both the higher-order thinking and motivation of students (Finkelstein, Adams, Keller, Kohl, Perkins, Podolefsky et al., 2005; Huppert & Lazarowitz, 2002; Hsu & Thomas, 2002; Zacharia, 2007). Reimer and Moyer (2005) showed that students' interactions with the virtual base-10 blocks improved their expressions in both writing and drawings related to their conceptual understanding of the regrouping process in mathematics. Also, some other studies promulgated the idea that VMs can support or enhance the learning of mathematical concepts (Chin & Teou, 2009; Steen, Brooks, & Lyon, 2006) and can positively affect the attitude toward mathematics (Mc Neil & Jarvin, 2007; Patricia, 2001).

Analyzing the literature about ePBL environments shows that these environments have some limitations on student-context interactions. In addition, the distributed feature of information resources or the use of knowledge resources other than those teachers suggested may cause some challenges in ePBL.

In this sense, VMs can be used not only as a learning setting tools, but they can also be used as information resources solely by providing manipulations to the students. Thus, VMs can allow students to conduct experiments or to simulate procedures or processes. Therefore, this study aimed to combine the potentials of PBL and VMs to determine the efficacy of the ePBL instructional practices. The differences in this study are the provision of a learning environment enriched with

VMs so the students find information for their projects from the VMs and also the use of VMs to construct new knowledge through their manipulation.

Therefore, this experimental study aimed to evaluate students' learning outcomes of an ePBL environment enriched with VMs for teaching mathematics. The major purposes were:

1. To compare the learning outcomes (achievements and attitudes) of ePBL and traditional PBL environments.
2. To explore students' work and learning as a result of their experiences with the ePBL environment.

Method

Research Design

The study compared learning outcomes of two different PBL environments. Since randomly assigning students to groups was not possible, a quasi-experimental design was used in the study. The study utilized a pre-test/post-test nonequivalent control group design.

Research Sample

One experimental group (EG; N = 30: 14 male, 16 female) and one comparison group (CG; N = 30: 15 male, 15 female) were used in the study. Both of the students in the EG and the CG received a mathematics course from the same teacher in 9th grade. They have only a little introductory knowledge about quadratic equations and polynomials. Thus, their backgrounds about the subjects can be considered similar.

Research Instrument and Procedure

The first step of the study was developing fifteen VMs related to the *Polynomials* (n=6) and *Quadratic Equations* (n=9) subjects of a 10th grade mathematics curriculum. Two mathematics education academicians and two mathematics teachers' reviews were taken to revise the VMs. The objectives for the learning domains used in this study are presented in Table 1.

Table 1

The Learning Domains Used in this study

Learning Domains	Sub domains	Project #
Polynomials	Operations on Polynomials	Project 1
	Division of P(X) to (X – A). (X – B)	Project 1
Quadratic Equations	Solution of Equations which can be transformed in to quadratic equations	Project 2
	Relations among roots of equations and equation coefficient	Project 2
	Forming Quadratic Equations which the roots are given	Project 3

Some example screenshots from the VMs are shown on Figure1.

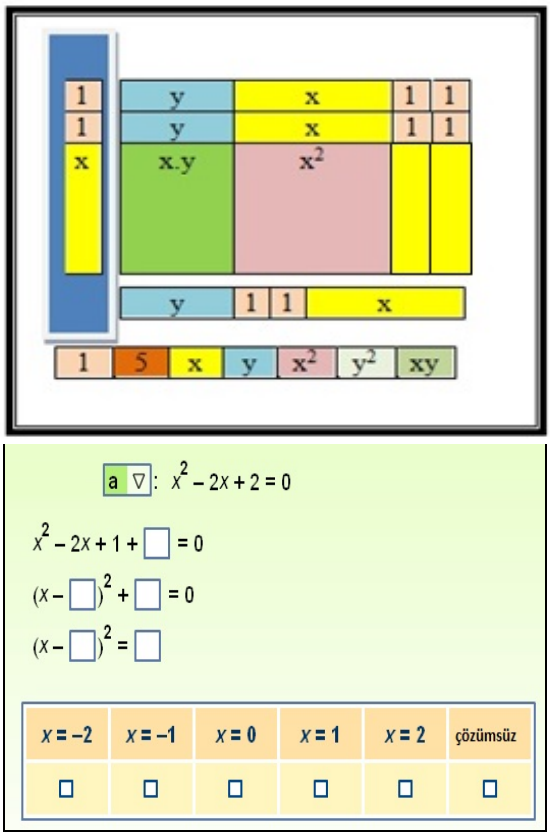


Figure 1. Example VMs used in the projects.

During the first four week process, both the EG and CG received the same lessons from the same teacher using a traditional method. The traditional teaching method was teacher-centered and included discussions in which the subjects were presented by or discussed with the instructor. The teaching materials were traditional mathematics materials, and knowledge was transmitted to students generally by writing on a board or presenting from a projector. The teacher provided the facts and presented some new concepts in this period. Before the experimental study, the researcher gave some information about VMs to the teacher so she gained experienced in using VMs, and she developed an idea about how to use them for PBL.

After four weeks, both the EG and CG groups received three projects about Polynomials and Quadratic Equations subjects. Two weeks for each project (6 weeks in total) were provided for the students. In two groups during the project process, the teacher delivered only short explanations about the projects. In the EG setting, to the teacher recommended that students use VMs for projects. She explained to the EG students how to use the VMs in projects. Both the EG and CG students worked in

groups of three students. In the EG and CG groups, most of the students were provided with almost all of the typical PBL stages. After the problem statement was given by the teacher; students tried to identify the information needed to understand the problem, find resources to gather information, generate possible solutions, and analyze the solutions. After completing the projects, both ePBL and traditional PBL groups presented their projects in the classroom. In both the EG and CG, the teacher gave the problems and evaluated the solutions in the classroom. Only the EG students used VMs in gathering information and in doing experiments to solve problems. In addition, both in the EG and CG, the teacher observed member behaviors in the groups, data they found, the method of doing the experiments, or the interaction of group members during the process. She did not allow students to interact across groups. She asked the EG students to write how they acted in using VMs while they were dealing with the projects.

During the intervention EG students could directly use VMs to solve two problems. One of the problems was about using algebra tiles in polynomials, and the other was related to degree of polynomials (Project 1.3). They referred to three different VMs that included concepts and procedures in order to complete Project 1.2. Students could enter the parameters related to the operations on polynomials. Project 2 was about the objective of "Relations among roots of equations and equation coefficient." In this sense, students practiced on three other VMs forming quadratic equations, identifying the factors of x and y. They provided solutions for Project 2.1 and Project 2.2 by using experiences they gained from these three VMs. The details of the projects and the selected correct answers for the projects are shown in Appendix 1.

In the CG, students were not aware of the VMs repository. They were told to complete projects, such as completing traditional homework, by performing research on the internet, by referring to teachers' notes, and by reading text books. They found various examples and used them to develop interpretations about the solutions for the problems in the projects. In addition, they used wiki, forums, and some web sites specialized for school mathematics.

Validity and Reliability

An Achievement Test (AT) was administered to EG and CG students. The test included 25 items about the learning outcomes regarding the polynomials and quadratic equations sub-learning domains. It was developed through the opinions of three field experts. The distributions of the item weights were determined according to the learning outcomes by using a table of specifications. The reliability of the test was calculated (α=0.81) by administering the test as a pilot study in two other (n1=36, n2=35) 10th grade students. The students' responses were evaluated over 100 points.

The changes in students' attitudes were measured by the Mathematics Attitude Questionnaire (MAQ) by administering it at the beginning and at the end of the study. The MAQ was developed and validated by Duatepe and Çilesiz (1999). The questionnaire consists of 38 items related to students' opinions about their mathematics courses. It has been used in similar research studies to determine

attitude changes towards mathematics (Çakıroğlu, 2010; Tekerek, Yeniterzi, & Ercan, 2011). To examine the students' attitudes, the ratings of the respondents were determined on a five-point Likert-type scale ranging from strongly disagree (1) to strongly agree (5). In addition, 8 selected students from the EG were interviewed to explore their work and learning as a result of their experiences in the ePBL environment. In interviews, most of the questions posed to the participants were similar; some extra questions related to respondent answers were asked as well.

Data Analysis

The findings were coded thematically, and the themes and frequencies are presented. The themes were interpreted and utilized to elaborate upon the quantitative data regarding changes in both achievement and attitude. The web statistics were also used to determine the users and use rates of VMs for the projects.

Results

The quantitative and qualitative data is analyzed for determining both the changes in academical achievements and attitudes and exploring the students experiences.

Comparison of Academic Achievements and Attitudes

Changes in academic achievements

The independent t-test results on pre-test scores (t(58)= -0.830; p= 0.410) show that there was no significant difference among the mean scores of the groups. The averages of pre-test scores were close to each other (EG(M= 40.4; SD= 10.41 and CG (M= 42.43; SD= 11.37)). This reflects the similar backgrounds of the students in the EG and in the CG before the intervention. According to the independent t-test results, a statistically significant difference between the mean scores of post-tests of EG (M= 60.20; SD= 13.88) and CG (M= 50.60; SD= 11.78) students was found ($t_{(58)}$= 2.88; p= 0.005) at the 0.05 level of significance. The result points out the students in the EG who received projects in ePBL were outperformed students in the CG. Table 2 summarizes the pre-test and post-test statistical results in the EG and in the CG.

Table 2

T-Test Results on Pre-test (AT) Scores of Students in the EG and in the CG

Tests	***Group***	***n***	***M***	***SD***	***df***	***T***	***p***
Pretest	EG	30	40.40	10.41	58	-.830	.410
	CG	30	42.73	11.37			
Posttest	EG	30	60.20	13.88	58	2.88	.005
	CG	30	50.60	11.78			

The effect of treatment on student achievements in the EG and CG was examined by a paired-samples t-test as illustrated on Table 3.

Table 3

T-Test Results for Pre-test and Post-test Scores in the EG and CG

Group	*Test*	*n*	*M*	*SD*	*df*	*t*	*p*
EG	Pre-test	30	40.4	10.41	29	-9.54	.000
	Post-test	30	60.2	13.88			
CG	Pre-test	30	42.73	11.37	29	-4.89	.000
	Post-test	30	50.60	11.78			

There was a significant difference in the mean scores in the EG for the pre-test (M= 40.4; SD= 10.41) and for the post-test (M: 60.2; SD= 13.88), and a significant difference exits in the means scores in the CG for the pre-test (M: 42.73; SD=11.37) and post-test (M= 50.6; SD= 11.78). This result reflects that both ePBL and traditional PBL treatments provided a positive effect on achievements.

Changes in attitudes

The mean scores come from the EG, and the CG attitude scales were analyzed by an independent samples t-test for two groups. The results of the t-test are shown in Table 5.

Table 5

T-Test Results on Pre-attitude Scale Scores of the EG and the CG

Scale	*Group*	*n*	*M*	*SD*	*df*	*t*	*p*
Pre- Attitude	EG	30	3.18	.85	58	.73	.46
	CG	30	3.03	.72			
Post- Attitude	EG	30	3.53	.74	58	1.70	.093
	CG	30	3.21	.72			

According to the independent t-test results, there was no statistically significant difference between the groups in the mean scores of pre-attitude scale (($t_{(58)}$= -0.73; p= 0.46) at the 0.05 level of significance). Also, after the intervention, no significant difference occurred among the EG and the CG [$t(58) = 1.70$, $p < .05$]. The influence of VMs to the students' attitudes in the EG and the CG was determined by a paired-samples t-test presented in Table 6.

Table 6

T-Test Results for Pre-attitude and Post-attitude Scale Scores in EG

Groups	Scale	n	M	SD	df	t	p
EG	Pre-attitude scale	30	3.18	.85	29	-4.04	.000
	Post-attitude scale	30	3.53	.74			
CG	Pre-attitude scale	30	3.03	.72	29	-2.7	.01
	Post-attitude scale	30	3.21	.72			

The results showed that a significant difference occurred for both EG and CG in the means for pre-attitude and post-attitude scores. For the EG: (M= 3.18; SD= .85 and M= 3.53, SD= 0.74); [$t_{(29)}$= -4.04, p<.05]. For the CG: (M= 3.03; SD= 0.72 and M= 3.21; S= 0.72); [$t_{(29)}$= -2.77, p< .05]. These results reflect that both the EG and CG students had positive attitudes after the projects. In sum, with the treatment, students in the EG had better performance compared with those in the CG, and in both the CG and the EG, the resulting attitudes after treatment were positive.

Work and Experiences of Participants

Web records. The web records shown in Table 9 were used as quantitative data for interpreting the support of VMs in achievement and attitude changes.

Table 9

Web Records to Interpret the Support of VMs

VM#	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Sub Domain	P1	P1	P2	P2, P3	P3	P3	Q1	Q1, Q2	Q2	Q2, Q3	Q2, Q3	Q2, Q3	Q3	Q1	Q3
Problems Used	1.1, 1.2	1.1	1.2, 1.3	1.2, 1.3	1.3	1.2 , 1.3	2.1	2.1, 2.2	2.2	2.2, 2.3	2.2, 2.3	2.2, 2.3	2.2, 2.3	3.1,	3.1,
Frequency	24	20	18	19	28	18	23	28	25	17	19	27	24	22	25

As shown on Table 9, all of the VMs are used in the EG for all projects in which the usage frequency is between 17 and 28. VM5 was most frequently preferred in doing Project 1. VM8, VM9, and VM12 were the most commonly used for studying on Project 2. VM14 and VM15 had similar usage rates for Project 3.

The data from the web statistics was used to choose eight participants to interview. Two of the eight students were below the average, four of them were at the average, and two were selected from students above the average. The questions posed to them were chosen considering their VM usage rates. The interviews generally included inquiry into how they benefited from VMs, behaviors during VM use, contributions of VMs on solving problems, and understanding concepts in projects. The responses of students were coded thematically, and the themes are listed in Table 8.

Table 8

The Interview Theme

Theme		Sub-Theme	*f*
Enhancing learning	Pos.	Understanding better	*8*
		Learning quickly	*7*
		Learning permanence	*2*
		Correcting misunderstandings	*5*
	Neg.	Proceeding Slowly	*1*
Attitude toward course	Pos.	Not feeling embarrassed	*8*
		Enjoy the course	*8*
		Interested in course	*7*
		Well motivated	*8*
		Spending too much time studying mathematics	*6*
	Neg.	Similar examples on projects	*7*
		Get tired	*2*
		Get stressed	*6*
		Distracted attention	*1*
		Anxiety about exams	*5*
Behaviors during the course	Pos.	Intensify the previous subjects	*8*
		Learn from mistakes	*6*
		Feel independent from teacher	*6*
		Take self responsibility in the course	*7*
	Neg.	Not enough time to do projects	*3*
Other		Technical problems	*2*

Pos: Positive, Neg: Negative

Enhancing learning. In this section, some responses that illustrate the main themes and ideas are selected from the interviews.

> Q: How can you describe the learning environment you met while working on the projects?
>
> Selected responses:
>
> S6: This site proved to be very useful for working on projects. It is difficult to find a large amount material together elsewhere. I have studied hard to complete the projects. I think the projects were beneficial for me and have given me good knowledge. The tasks in the problems have played an important role in my understanding.
>
> S8: I corrected some of my mistakes with regard to quadratic equations. Also, it was useful to understand the daily use of mathematical subjects. However, I would have liked to see some examples related to the exams here.

The opinions of S6 and S8 specify that an ePBL environment may be useful to enhance learning in permanency, correcting previous mistakes, and remedying the misconceptions by associating to the previous and the present knowledge. S8 identified the limitation of exam questions in VMs.

Attitude towards the course. In this section, responses that outline attitudes toward the course are selected.

> Q: While doing your projects, which activities did you enjoy or dislike? Please explain the reasons?
>
> S7: I believe all of the projects should be in this format. Before the projects, on occasions I did not understand why we need to learn certain subjects. However, I found the web made the studying of the projects very enjoyable.
>
> S6: Overall, it was a good experience, but I think some activities took a lot of time; sometimes there were similar problems which appeared to be repetitive.
>
> Q: What were the main differences between projects with VMs and your previous projects?
>
> S1: Here online, I don't see the teacher near me; it is very good for me. Because sometimes I forget what I will do when she is near me.
>
> S3: Course was not so difficult with the projects. I can say I felt very comfortable.
>
> S5: Sometimes the VMs were a teacher for me; I took quick feedbacks, and these feedbacks were very useful for completing the projects.

It was seen that participants stated feeling comfortable with independence from the teacher and they felt comfortable learning from mistakes.

Discusssion and Conclusions

In the study, the students' roles in the ePBL environment were almost similar to the students' roles of PBL in classroom. (Krajcik et al., 1994). The main roles of students in PBL may be summarized in Figure 2.

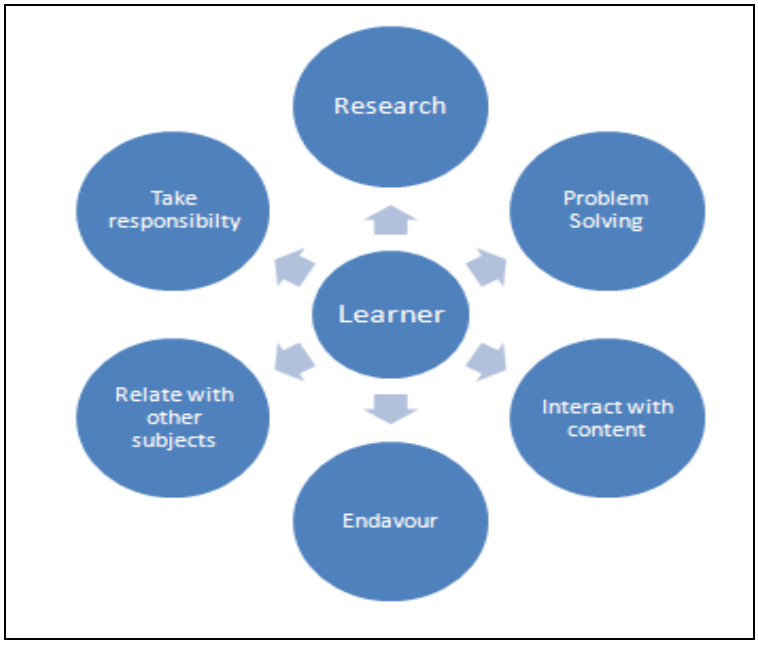


Figure 2. Students' roles in PBL settings.

In the study, students in the EG were not delivered the acquisitions directly; they were expected to explore the concepts while working on the VMs. In the ePBL environment, a number of students could benefit from VMs in order to solve the problems and construct new knowledge. Thus, in the research phase, students found the VMs that they needed to understand concepts and solve problems. In the problem solving phase, students tried to develop solutions for the problems. During this process they worked on the activities of VMs by manipulating parameters or other tools related to the problem. The nature of the projects determined that participants were responsible for research, trying alternatives, and finding the best solutions for the problems on VMs. It was a real endeavor for students to work on the VMs for the first time. The activities were related to different outcomes so they needed to work on more than one VM in order to perform the requirements. So, in the ePBL environment, students could construct new knowledge by building on their current knowledge through interactions with the VMs. This also refers to the constructivist theory that learners construct knowledge through activities and their

learning based on experiences (Hernández-Ramos & Paz, 2010). These results suggest that ePBL enriched with VMs does have a more positive effect on academic achievements than traditional PBL activities. In an ePBL environment, manipulating parameters, changing the figures on the activities, separating the shapes into segments, or joining the segments helped students to explore mathematical concepts and to solve problems.

There was no significant difference in the post-attitude scores for ePBL and PBL environments. One reason may be that both of the two group students did not have previous experience in projects that include all phases of the PBL. This was the first time they worked intensively on gathering information, discussing, making different predictions, making plans for solutions or experiments, or trying experiments. The point to be emphasized is that ePBL environments allow students to take pleasure in and take interest in working on projects using VMs. In both traditional PBL and ePBL groups, achievement and attitude scale scores had improved during the treatment. In this sense the idea of McGreal (2004), which is about learning with ePBL, can offer huge opportunities to access and act on much knowledge, and information supports the results of this research.

Students in the ePBL group enjoyed and were interested in working on VMs in the ePBL environment. They did not feel embarrassed. Also, the ePBL environment encouraged them to take responsibilities on their own learning and improved their abilities to do so. Taking their own responsibility may support them in completing their projects. Besides, there were some factors that influenced student attitudes towards mathematics courses. The students indicated that sometimes they got tired and got stressed about not being able to bring up the projects in the limited given time. Also, a few students explained that their attention grew distracted sometimes on the Internet. These kinds of responses were parallel to the results of some other web based PBL applications (Lee, 2001; Steen et al., 2006). As Hakkarainen (2009) emphasized, ePBL offers a good model to support students' knowledge and skills, and students will benefit from learning with and about technology. In addition, another study has presented that both academic achievements and attitudes were positively changed (Morgil et al., 2008). Muller, Buteau, Ralph, and Mgombelo (2009) focused on students' projects in which they developed and implemented their own VMs, and they observed that students also have dedication, pride, and ownership in their mathematical work. In another work about VMs, Salajan et al. (2009) found that the visual and interactive activities had the potential to induce positive outcomes in mediating the students' conceptualization of difficult theoretical notions. In spite of the fact that there are some similarities in the results of this study and other ePBL studies, the main difference is that, in those studies, VMs did not a play key role in the ePBL environment.

In addition, the study has some limitations. The style of teaching in two environments might have little influence on achievements. The teacher sometimes thought that students in the EG could have some technical problems in using VMs, so she may have spent more time for the EG students. The traditional teaching in both the EG and the CG in the first four weeks of the study may have provided

positive impact in improving the achievements. Besides, in both the EG and in the CG, the basic variables (subject, time, teacher) were the same, so this influence can be considered unremarkable.

Ultimately, researchers have come to an agreement that students learn best through a PBL approach in which they are able to explore knowledge with the advantage of technological tools (Blumenfeld et al. 1991; Linn et al., 2000). This study put forward some evidence that the potential of VMs may be considered in the context of these kinds of technological tools.

In this study a PBL environment enriched by combining the potentials of VMs and PBL was explored. Students enjoyed working with VMs and found the activities interesting and helpful for understanding concepts and solving problems. This paper provided hints that students may benefit from working with VMs in a PBL environment, just as they do in traditional PBL settings. In this sense, some of the major conclusions of the study are:

- The VMs in parallel with the curricula make it possible to develop projects and use them in PBL settings.
- The appropriate projects enriched with VMs may have positive effects on achievements and attitudes in mathematics classrooms. In order to develop good projects, repetitions in activities should not be allowed, and the duration of the projects should be tailored.
- It is not easy to prepare projects with VMs, so teachers should be encouraged to use VMs. Also, both the quality and the quantity of VMs must be adequate.
- Well-designed technological infrastructure is important for the success of ePBL environments.

In the current study, only one teacher's experiences with VMs in an ePBL environment were discussed. In future work, multiple teachers' perceptions should be investigated to determine the use of VMs in various contexts. Although in this study the data about academic achievements was collected with only test items and web statistics, this did not provide an opportunity to elaborate on the conceptual understanding. So, other data collection instruments like clinical interviews and open-ended questions may be required in future works.

References

Al-A'ali, M. (2008). A study of mathematics web based learning in schools. *American Journal of Applied Sciences*. 5 (11), 1506-1517.

Barak, M. & Dori, Y.J. (2005). Enhancing undergraduate students' chemistry understanding through Project-based learning in an IT environment. *Science Education,* 89 (1),117–139.

Beasley, N., & Smyth, K. (2004). Expected and actual student use of an online learning environment: a critical analysis. *Electronic Journal of E-learning*, 2(1), 43-50.

Blumenfeld, P.C., Soloway, E., Marx, R.W., Krajcik, J.S., Guzdial, M., & Palincsar, A.(1991). Motivating project-based learning. *Educational Psychologist*, 26, 369-398.

Boss, S., & Krauss, J. (2007). Reinventing project-based learning: Your field guide to real-world projects in the digital age. Eugene, OR: International Society for Technology in Education.

ChanLin, L. (2008). Technology integration applied to project-based learning in science. *Innovations in Education and Teaching International*, 45(1), 55-65.

Crawford, C., & Brown, E. (2003). Integrating internet-based mathematical manipulatives within a learning environment. *Journal of Computers in Mathematics and Science Teaching,*. 22(2), 169-180.

Downing, K., Kwong, T., Chan, S., Lam, T., & Downing, W. (2009). Problem-based learning and the development of metacognition. *Higher Education*, 57(5), 609-621.

Duatepe, A. & Çilesiz, Ş. (1999). Matematik tutum ölçeği geliştirilmesi. [Developing mathematics attitude scale] *Hacettepe University Journal of Education*, 16, 45–52.

Durmuş, S., Karakırık, E. (2006). Virtual manipulatives in mathematics education: a theoretical framework. *The Turkish Online Journal of Educational Technology*, 5(1), 117-123.

Finkelstein, N.D., Adams, W.K., Keller, C.J., Kohl, P.B., Perkins, K.K., Podolefsky, N.S., et al.(2005). Comprehension of text in an unfamiliar domain: Effects of instruction that provides either domain or strategy knowledge. *Contemporary Educational Psychology*, 20, 313-319.

Guthrie,C. (2010). Towards greater learner control: web supported project-based learning. *Journal of Information Systems Education*, 21(1), 121-130.

Hakkarainen, P. (2009). Designing and implementing a PBL course on educational digital video production: lessons learned from a design-based research. *Educational Technology Research and Development*, 57(2), 211-228.

Hennessy, S. (2006). Integrating technology into teaching and learning of school science: a situated perspective on pedagogical issues in research. *Studies in Science Education*, 42, 1-48.

Hsu, Y.S., & Thomas, R.A. (2002). The impacts of a web-aided instructional simulation on science learning. *International Journal of Science Education*, 24, 955–979.

Huppert, J., & Lazarowitz, R. (2002). Computer simulations in the high school: Students' cognitive stages, science process skills and academic achievement in microbiology. *International Journal of Science Education*, 24, 803–821.

Jonassen, D., Howland, J., Moore, J. & Marra, R. (2003). *Learning to solve problems with technology: a constructivist perspective* (pp.101-159) Upper Saddle River, NJ : Prentice Hall.

Jou, M., Wu, M. J., & Wu, D. W. (2008). Development of online inquiry environments to support project-based learning of robotics. In *Emerging Technologies and Information Systems for the Knowledge Society* (pp. 341-353). Springer Berlin Heidelberg.

Judd, C., Smith, E., & Kidder, L. (1991). *Research methods in social relations* (6th ed.). San Francisco: Holt, Rinehart and Winston, Inc.

Krajcik, J., Blumenfeld, P., Marx, R., & Soloway, E. (1994). A collaborative model for helping middle grade science teachers learn project-based instruction. *The Elementary School Journal*, 94(5), 483-497.

Laffey, J., Tupper, T., Musser, D. & Wedman, J. (1998). A Computer-mediated support system for project-based learning. *Educational Technology Research and Development*, 46(1), 73-86.

Lee, M.K. (2001). Profiling students' adaptation styles in web-based learning. *Computers & Education*, 36 (4), 121-132.

Linn, M. C., Kessel, C., Lee, K., Levenson, J., Spitulnik, M., & Slotta, J. D. (2000). *Teaching and learning k-8 mathematics and science through inquiry: Program reviews and recommendations.* Retrieved January 10, 2010, from http://www.metiri.com/Solutions

Liu, Y., Lou, S, Shih, R., Meng, H., & Lee, C. (2010). A case study of online project-based learning: The beer king project. *International Journal of Technology in Teaching and Learning*, 6(1), 43-57.

Mc Neil, N.M. & Jarvin, L. (2007). When theories don't add up: Disentangling the manipulatives debate. *Theory into Practice*, 46(4), 309-316.

Morgil, İ., Seyhan, H.G., Alsan, U. E. & Temel, S. (2008). The Effect of web-based project applications on atudents' attitudes towards chemistry. *Turkish Online Journal of Distance Education*, 9(2).

Moyer, P. S., Bolyard, J. J., & Spikell, M. A. (2002). What are virtual manipulatives? *Teaching Children Mathematics*, 8(6), 372-377.

Muller, E., Buteau, C., Ralph, B. & Mgombelo, J. (2009). Learning mathematics through the design and implementation of exploratory and learning objects. *International Journal for Technology in Mathematics Education*, 16(2), 63-74.

NCTM, (2000). *Principles and standarts for school mathematics*, VA Reston.

Patricia, S. M. (2001). Are we having fun yet? How teachers use manipulatives to teach mathematics. *Educational Studies in Mathematics*, 47, 175-197.

Reimer, K., & Moyer, P. S. (2005). Third graders learn about fractions using virtual manipulatives: A classroom study. *Journal of Computers in Mathematics and Science Teaching*, 24(1), 5-25.

Salajan, F., Perschbacher, S., Cash, M., Talwar, R., El-Badrawy,W. & Mount, G.J. (2009). Learning with web-based interactive objects: An investigation into student perceptions of effectiveness, *Computers & Education*, 53, 632–643.

Şendağ, S., & Odabaşı, H.F. (2009). Effects of an online problem based learning course on content knowledge acquisition and critical thinking skills. *Computers & Education*, 53(1), 132-141.

Steen, K., Brooks, D. & Lyon, T. (2006). The Impact of virtual manipulatives on first grade geometry instruction and learning. *Journal of Computers in Mathematics and Science Teaching*, 25(4), 373-391.

Suh, J. & Heo, H. J. (2005). Examining technology users in the classroom: developing fraction sense using virtual manipulatives concept tutorials. *Journal of Interactive Online Learning*, 3(4), 1–21.

Tekerek, M. Yeniterzi, B & Ercan,O. (2011), Math attitudes of computer education and instructional technology students, *Turkish Online Journal of Educational Technology* (10),3.

Thomas, J. W. (2005). *A review of research on project-based learning*. Retrieved December 15, 2010, from http://www.k12reform.org/

Thompson, P. W. (1992). Notations, conventions and constraints: Contributions to effective uses of concrete materials in elementary mathematics. *Journal for Research in Mathematics Education*, 23(2), 123-147.

Warlick, D. (1999). *Raw materials for the mind.* Raleigh, NC: The Landmark Project.

Zacharia, Z.C. (2007). Comparing and combining real and virtual experimentation: An effort to enhance students' conceptual understanding of electric circuits. *Journal of Computer Assisted Learning*, 23, 120–132.

Zhang, K., Peng, S. W., & Hung, J. L. (2009). Online collaborative learning in a project-based learning environment in Taiwan: a case study on undergraduate students' perspectives. *Educational Media International*, 46(2), 123-135.

Proje Tabanlı Öğrenme Ortamlarının Sanal Manipülatifler ile Zenginleştirilmesi: Karşılaştırmalı bir Çalışma

Atıf:

Çakıroğlu, Ü. (2014). Enriching project-based learning environments with virtual manipulatives: A comparative study. *Eurasian Journal of Educational Research*, 55, 201-222. http://dx.doi.org/ 10.14689/ejer.2014.55.12

Özet

Problem Durumu

Yapılan araştırmalarda öğretmenler ve araştırmacıların projeler üzerinde çalışmanın öğrenciler için öğrenmeyi kolaylaştırıcı ve geliştirici bir potansiyele sahip olduğu yönünde düşünceleri olduğu ortaya koyulmaktadır. Bunun yanında web teknolojilerinin de öğrencilerin üst düzey düşünme yeteneklerini destekleyici araçlar olarak değerlendirildiği bilinmektedir. Bu çerçevede proje tabanlı öğrenme (PTÖ) ve çevrimiçi öğrenmenin potansiyellerini birleştirerek sunmaya çalışan yeni bir yaklaşım olarak, çevrimiçi proje tabanlı öğrenme (ePTÖ) yaklaşımı gelişmeye başlamıştır. ePTÖ ortamlarında akademik başarıyı arttıran önemli faktörlerden birisi öğrenci ile içerik etkileşimi olarak gösterilmektedir. Bu çerçevede etkileşimli öğrenme ortamları tasarımında kullanışlı araçlardan birisi olarak sanal manipulatifler (SM) dikkat çekmektedir. Birçok çalışmada SM tabanlı web araçları, öğrencilerin öğrenmelerini yapılandırmacı yaklaşım çerçevesinde geliştirebileceği yönünde sonuçlar yer almaktadır. Nitekim SM'lerin ve PTÖ'nün olumlu etkilerine yönelik bir uzlaşma söz konusu olsa da her ikisinin de potansiyellerinin kullanıldıkları bağlama göre değişebilir olduğu açıktır. Bütün bunlarla birlikte, SM'lerin ve çevrimiçi PTÖ ortamlarının potansiyellerini tam olarak ortaya koyacak kanıtlara hala ihtiyaç vardır. Bu bağlamda bu çalışmada, SM'lerin çevrimiçi PTÖ ortamlarında kullanılmasının öğrenme üzerindeki etkilerini inceleyerek; SM'lerin ve PTÖ'nün potansiyellerinin buluşmasıyla ortaya çıkan öğrenme ortamının potansiyelini değerlendirmeye çalışılmaktadır. Çalışmada öncelikle SM ve PTÖ'nün potansiyelleri ele alınmış, ardından çevrimiçi ortamda SM'ler PTÖ yaklaşımı çerçevesinde öğrencilere sunularak etkileri araştırılmıştır.

Araştırmanın Amacı

Bu araştırmada web ortamında gerçekleştirilen proje tabanlı öğrenme ile geleneksel proje tabanlı öğrenme ortamının akademik başarılar ve matematik dersine yönelik tutumlar üzerindeki etkisi karşılaştırılmaya çalışılmaktadır. Bu doğrultuda bir grubun SM'ler ile çalışmaları istenirken, geleneksel ortamda öğrencilerin internet, ders kitapları vb. gibi geleneksel araştırma yollarını kullanmaları istenmiştir.

Araştırmanın Yöntemi

Araştırma yarı deneysel olarak yürütülmüştür. Deney grubu; 14 kız, 16 erkek öğrenciden oluşurken, kontrol grubu; 15 kız, 15 erkek öğrenciden oluşmaktadır. Öncelikle 10. sınıf matematik dersi konularından polinomlar ve 2. derece denklemler

konularının kazanımlarına yönelik SM'ler hazırlanarak bir web sitesine aktarılmıştır. İlgili konular, çalışma süresince deney ve kontrol gruplarının her ikisine de geleneksel yollarla aynı öğretmen tarafından anlatılmıştır. Dört hafta sonunda öğrencilere bu iki konu ile ilgili üçer adet proje verilmiş, öğrencilerin deney ve kontrol gruplarında farklı şekilde projeleri aynı sürede yapmaları planlanmıştır. Deney gurubu öğrencileri projeleri yaparken çevrimçi ortamdaki SM'lerden yararlanmaları şeklinde yönlendirilirken; kontrol grubu öğrencilerinin aynı projeleri geleneksel ödevleri yapar gibi, internet, kütüphane, ders kitapları vb. kaynaklardan araştırarak yapmaları istenmiştir. Projelere başlamadan önce deney grubunda öğretmen öğrencilere projeleri yaparken SM'lerden nasıl yararlanacakları yönünde açıklamalar yapmıştır.

Farklı iki PTÖ ortamında akademik başarılardaki değişimdeki etkilerini belirlemek için çalışma başında ilgili konulara yönelik ön testler, çalışma sonunda ise son test uygulanmıştır. Matematik dersine yönelik tutumlardaki değişimleri ortaya koymak amacı çalışma başında ve sonunda Matematiğe Yönelik Tutum Anketi uygulanmıştır. Ayrıca deney grubu öğrencileri arasından seçilen sekiz öğrenci ile mülakat gerçekleştirilerek, SM'leri kullanımları süresince yaşadıkları deneyim ortaya konulmaya çalışmıştır. Bununla birlikte SM'lerin projelerdeki kullanım durumunu belirlemek için web sitesindeki kayıtlardan yararlanılmıştır.

Araştırmanın Bulguları

Her iki grubun ön testlerden aldıkları puanlar bağımsız t-testi ile analiz edildiğinde çalışma başlangıcında gruplar arasında anlamlı bir fark olmadığı görülmüştür ($t_{(58)} = -0.830$; $p= 0.410$). Grupların son test puanları arasında yapılan bağımsız t-testi sonucunda gruplar arasında deney grubu lehine anlamlı farklılık bulunmuştur. Deney Grubu (M= 60.20; SD=13.88) ve Kontrol Grubu (M=50.60; SD= 11.78) , ($t_{(58)}= 2.88$; $p=0.005$). Kontrol grubu öğrencilerinin akademik başarılarına yönelik ön test puanları ile, son test puanları arasında anlamlı farklılık bulunurken ($t_{(29)=} -4.89$; $p= 0.000$), deney grubu öğrencilerinin de ön test ve son test puanları bağımlı t testi ile analiz edildiğinde son testler lehine anlamlı bir farklılık görülmüştür. Çalışma öncesinde iki gruptaki öğrencilerin ilgili konulardaki ön bilgileri arasında anlamlı farklılık yokken, çalışma sonunda akademik başarılar arasında oluşan anlamlı farkın; deney grubuna yapılan müdahaleden kaynaklandığı görülmektedir. Ancak deney grubunda SM'lerin kullanılması matematik dersine yönelik tutumlarda deney ve kontrol grubu arasında anlamlı fark oluşturmamıştır. SM'lerin çevrimiçi PTÖ'de akademik başarı ve tutumlara etkisini derinlemesine ortaya koyabilmek için nicel veriler yanında deney grubundan rastgele seçilen 8 öğrenci ile mülakatlar yapılmıştır. Bu öğrencilerle yapılan mülakatlar analiz edildiğinde öğrenmeyi destekleme, derse yönelik tutum, dersin işlenişi gibi temalar ortaya çıkmış, bu temalarda öğrencilerin genel olarak olumlu düşünceler geliştirdikleri belirlenmiştir.

Araştırmanın Sonuçları ve Önerileri

Bu çalışma ile çevrimiçi PTÖ'nün geleneksel PTÖ'nün temel aldığı yapılandırmacı yaklaşımın farklı bileşenlerini içerdiği görülmektedir. Nitekim araştırma, problem çözme, içerik ile etkileşim, sorumluluk alma, diğer konular ile ilişkilendirme ve

projeyi tamamlama için gayret etme gibi PTÖ bileşenlerinin çevrim içi PTÖ ortamında çalışan öğrenciler tarafından da gerçekleştirildiği görülmüştür. Ayrıca SM'lerin web ortamında yapılacak PTÖ uygulamaları için önemli araçlar olabileceği belirlenmiştir. Öğrenciler bu tür ortamlardan geleneksel PTÖ ortamları kadar faydalanabilmişlerdir. SM'ler ile desteklenen web ortamının potansiyelinin oluşan yeni öğrenme ortamını geliştirmek için ayrı bir katalizör görevi gördüğü söylenebilir. Bu ile öğrencilere yapılan test ile akademik başarıları belirlenmiştir. Gelecek çalışmalarda SM'lerin kavramsal anlamalar üzerindeki etkilerini belirlemek amacıyla açık uçlu sorular içeren testler ve klinik mülakatlar gerçekleştirilebilir.

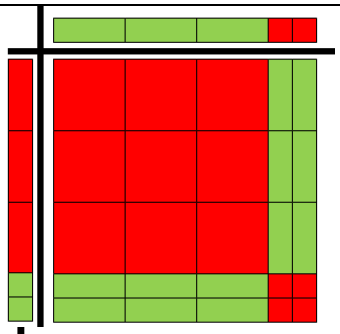
Anahtar Sözcükler: Sanal manipülatifler, proje tabanlı öğrenme, web tabanlı öğrenme, matematik öğretimi

Appendix 1. Selected problems from projects

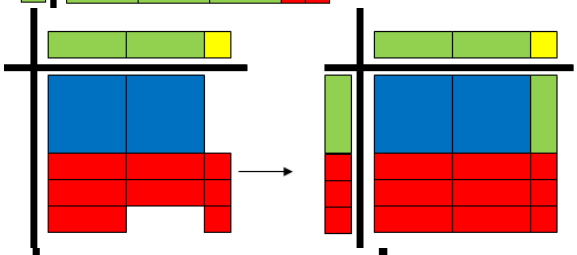
Projects Domain	Problems
Polynomials	*1. Show the problems with algebra tiles and simplify the result polynomial.*
Project 1.1.	a) (3x+2).(3x-2) =? b) $(2x^2-5x-3)/(2x+1)$=? c) $(6x^2+x-1)/(2x+1)$=? …
Project 1.2.	The difference of volumes of rectangular prism and a cube of are requested. A length of the one dimension of the cube (X) is 1 unit smaller than the smallest dimension of rectangular prism and the other dimension is 1 unit greater than the smallest dimension. The third dimension is … Develop a polynomial to find differences between rectangular prism and a cube Find the value of X (X<5) which makes this difference minimum?
Project 1.3.	Develop 2 polynomials having 3 terms in which the degree of P(x)*Q(x) is 14 and the degree of P(x)/Q(x). Find the sum of P(x) and Q(x) polynomials (b<a) for x=1 value.
Project 2.1.	A football stadium director knows that if he charges 10TL per accommodation, the team could count with 5000 visitors. He also knows that if he makes 1TL of discount he would have 200 visitors more. Make a model for the money earned from the visitors.
Project 3.1.	The roots for the x2-4x+3 equations is x1, x2. Develop a quadratic equation which has the roots having values two more.

Some Selected Answers from Projects

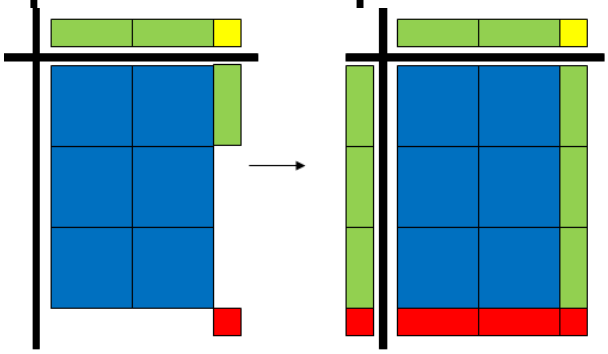
1.1.a. $(3x+2).(3x-2) = 9x^2-4$



1.1.b. $(2x^2-5x-3)/(2x+1)= x-3$



1.1.c. $(6x^2+x-1)/(2x+1) =3x-1$



1.2. Rectangular prism: VR=(x+1)*(x+2)*2*(x+2)-3

Cube: VC=x*x*x

VR-VC= x3+7x2+7x+2 (has minimum value for 1)

1.3. a+b=13, a-b=5, a=9, b=4,

P(x)=4x9-2x2+5, Q(x)=3x4+3x2-6 P(x)+Q(x)= 4x9+3x4 + x2-1, P(1)+Q(1)=7

2.1. Price=10-x (where x are the amount of money reduced from the original price)
Visitors=5000+200x(first 5000 and then a hundred for each dollar of reduction)
Money earned = price * visitors
M(x)=(10-x)(5000+200x)= -200 x2 + 50000-5000x

3.1. x1=3, x2=1 (x-5)(x-3)= x2-8x+15

Eurasian Journal of Educational Research, Issue 55, 2014, 223-242

Effects of a Leadership Development Program on Gifted and Non-Gifted Students' Leadership Skills*

Üzeyir OGURLU**

Serap EMİR***

Suggested Citation:

Ogurlu Ü., & Emir S. (2014). Effects of a leadership development program on gifted and non-gifted students' leadership skills. *Eurasian Journal of Educational Research*, 55, 223-242. http://dx.doi.org/ 10.14689/ejer.2014.55.13

Abstract

Problem Statement: The presence of leaders who will lead societies to success is an important gain for a society. In the present time, leadership development has become a strategic requirement. Although there is a common agreement on the need for leadership education, there are few studies on the education process of leadership and the efficacy of leadership programs in schools. Moreover, leadership and giftedness have been regarded as related, but leadership training is neglected in gifted education. The efficiency of current leadership development programs should be examined, and new effective programs should be developed for young and skillful leaders. This study reports preparation, implementation, and testing effectiveness of a leadership development program that aims to develop the leadership skills of non-gifted students and gifted students who are more likely to become leaders in the future.

Purpose of Study: This study aimed to investigate the effects of a leadership skills development program on development of students' leadership skills as applied to gifted and non-gifted students in the second level of primary education on development of students' leadership skills.

Methods: Pre-test/post-test control group experimental design was used. There were 21 students (7 gifted) in the experimental group and 20 students (6 gifted) in the control group. In this study, a leadership skills development program with 15 sessions was developed. The leadership program was applied to the experimental group, and then comparisons were made between the gifted and non-gifted students' leadership skills

* This research is a part of first author's Doctoral Thesis.

** Corresponding author :Dr. Kocaeli University, Kocaeli, Turkey. Email: uzeyirgourlu@gmail.com

*** Dr, İstanbul University, İstanbul,Turkey. Email: emirserap@gmail.com

based on scale results obtained from post-test scores and pre-test scores of experimental groups and control groups.
Findings and Results: The findings of the study revealed that the program designed to improve leadership skills had positive effects on the leadership skills of both gifted and non-gifted students in the experimental group.
Conclusions and Recommendations: Leadership development programs may be useful for both gifted and non-gifted students. Therefore, more leadership training programs should be developed and implemented at all educational levels.
Keywords: Gifted students, leadership, leadership development program, leadership skills scale

Introduction

Leadership is of vital importance for the development of humanity. The presence of leaders who will lead societies to success is an important gain for a society. Therefore, people regard the subjects of leadership and of being a leader as attractive and interesting. The idea that the development of leaders is not a luxury has become more accepted. Recently, leadership development has become a strategic requirement (Fulmer & Goldsmith, 2000). According to Smith, Smith, and Barnette (1991), many researchers (Porter, 1981; Foster, 1981; Emmerich, 1983; Hensel & Franklin, 1983; Maher, 1985-86; Feldhusen & Kennedy, 1988; Lee, 1989; Evans, 1982; Washburn, 1982; Stiles, 1986; Leatt, 1987; Gray & Pfeiffer, 1987; Karnes, 1989, among others) have supported the idea that leadership consisting of skills can be taught, and it can be improved with some programs beginning in puberty.

Leadership in gifted students has been an area of interest for many researchers in this field (Davis & Rimm, 1994). According to Chauvin and Karnes (1983), there is parallelism between the features of a qualified leader and a gifted person. Qualified leaders and gifted people have good verbal skills and imagination; are socially sensitive; can solve problems; can think critically; and they are creative, enterprising, responsible, and flexible. Above average intelligence is a prerequisite for leadership, because leaders need to be more intelligent than those in the group they lead (Edmunds & Yewchuk, 1996). In their study examining the relationship between leadership and intelligence, Judge, Colbert, and Ilies (2004) conducted meta-analysis of 151 independent studies from 96 sources. Their study demonstrated that there is a positive relationship between leadership and intelligence. Marland Report (1974), which has proposed the first formal definition of giftedness, describes "leadership" as one of six areas of giftedness. In gifted education, although leadership has been included in the formal definition for more than 30 years, many researchers agree that leadership is the area that is neglected most and developed least (Chan, 2000; Karnes & Bean, 1996; Hays, 1993; Smith et al., 1991). Milligan (2004) states that, assuming there is a positive correlation between giftedness and leadership to some degree, many researchers in gifted education think that leadership training is an important component of gifted programs (Davis & Rimm, 1994; Karnes & Chauvin, 1986; Renzulli & Reis, 1985; Roach, Wyman, Brookes, & Chavez, 1999; Sisk & Roselli, 1987).

Education of intelligent leaders has the utmost importance for national and international development. Therefore, teaching leadership skills has become a necessary task for schools, especially for the teachers of gifted students (Parker & Begnaud, 2004). Researchers have conducted many studies about the potential content of leadership training programs.

According to MacGregor (2005), leadership development programs for 6th graders should focus on identity development, values, self-esteem, communication with others, boundaries and rules, team-building, value of education, social issues, becoming a leader, refusal skills, supporting ideas, and diversity. Plowman (1981) states that leadership training programs should cover the following elements: Cognitive skills, which include organizational skills, problem-solving skills, inductive reasoning, research techniques, time management, motivation techniques, and studying for the future; and emotional skills, which include defining values, empathizing, communication skills, group dynamics, and effective listening skills. According to Meyer (1996), leadership training should include topics such as the nature and principles of leadership, problem and conflict solving, planning, decision making, determining values, group motivation, communication and coordination, management of emotions, and creative leadership.

Karnes and Bean (2001) state that leadership training needs to be an integrated part of gifted education. Leshnower (2008) presents some ideas and activities for gifted students in small groups, such as creating vision for leadership, communication, leadership and pursuance, creative thinking, confidence, and cooperation. Leadership curricula for gifted students should include skills of high-level thinking, approaches to creative problem solving, logic, and decision making models, especially ones that require students to make decisions with limited information (Feldhusen, 1994). Roets (1986) developed a leadership training program for gifted students between 8 and 18 years old based on four themes: People of achievement, language of leadership, project planning, and discussing. Parker and Begnaud (2004) suggest four important components to develop an effective leadership curriculum, claiming that leadership skills of gifted and non-gifted students can be developed. Those four components are: Cognition, problem solving, interpersonal communication, and decision making.

According to Karnes and Bean (1996), the studies have shown that even short programs—for example, those of 1 or 2 weeks—can develop leadership skills. Schack (1988) organized a leadership program for students who were between the ages of 11 and 16, which included a 3-week summer camp. A total of 55 students participated in the program. At the end of the program, there were significant differences in students' problem-solving skills. Petty and Hanson (1989) organized a one-week summer camp for 8th-grade class. The program was designed according to five basic elements: Determination, self-control, team work, enthusiasm, and conscience. Students who participated in the summer leadership camp showed better leadership, team work, motivation, and time-management skills. Similarly, researchers observed that students who participated in leadership development program developed a sense of belongingness to the school, took more responsibilities both inside and outside school, and their will to serve the community increased (Furtwengler, 1991).

In a study by Lin (2003), students stated that positive student leadership helped them have good relations between school and society.

Gonsalves, Grimm and Welsh (1981) organized a week-long summer camp for 100 gifted students (7th-8th grades). The program was evaluated according to students' and parents' evaluations of 18 leadership features before and after the program. Although there was no significant difference between the scores from before and after the program, the program was regarded as successful based upon the positive feedback from students and parents. Smith et. al. (1991) studied leadership training effects on 32 gifted adolescent students. The results showed that there was a difference in students' willingness to reply to group members, skills in persuading others, verbal skills, deciding skills, self-confidence, and other group dynamics.

According to Kim, Cho, and Jin (2005), as gifted students grow up and as their education levels increase, their problem-solving skills improve while leadership skills do not. This means that leadership does not improve automatically age increases. In order to improve leadership skills of students, the ones with leadership potential should be identified (Hensel, 1991). Gifted students' leadership potential cannot be recognized or they can be misguided if they are not supplied with proper leadership training (Karnes & Riley, 1996). Lindsay (1988) states that though leadership is a hot topic in gifted education, it is highly neglected.

Although there is a common agreement on the need for leadership education, there are few studies about the education process of leadership and the efficacy of leadership programs (Cooley, Keiser, Ruhl-Smith, & Shen, 1999; Parker & Begnaud, 2004). Bisland (2004) states that leadership has become an abstract term and has been ignored in school curricula, that many schools could not integrate leadership education into traditional curricula, and that teachers generally do not receive any training about leadership development. Foster and Silverman (1988) state that schools should go beyond traditional curricula and place leadership development programs into their own curriculum. For Fertman and Long (1990), it is possible to teach leadership skills and to apply them in a school curriculum. Adolescents need opportunities to take leadership roles and responsibilities. Leadership training should be for all students in the school, which is the most accessible place (Karnes & Stephens, 2000).

There are few studies about leadership and giftedness, and the number of leadership development programs for students is inadequate. Leadership training in schools is a new concept in Turkey. The efficacy of current leadership development programs should be examined, and new, independent, and effective programs should be developed for young and skillful leaders. Because there are very few studies in our country about leadership development programs, there is a need for an experimental study that aims to develop the leadership skills of gifted and non-gifted students in primary education and subsequently examines the effects of the leadership development program. In this study, a leadership skills development program was designed for gifted and non-gifted students, who will be the leaders in the future. This study was conducted to investigate the effect of the leadership skills development program on the development of students' leadership skills as applied

to gifted and non-gifted students in the second level of primary education (6th, 7th, and 8th graders). In order to reach this general goal, the hypotheses below were tested.

1. The total score of gifted students in experimental and control groups on the leadership skills scale is statistically different from the scores of non-gifted students.
2. There is a statistically significant difference between the pre-test and post-test scores of gifted students in the experimental group
3. There is a statistically significant difference between the post-test scores of gifted students in the experimental group and the post-test scores of gifted students in the control group.
4. There is a statistically significant difference between the pre-test and post-test scores of non-gifted students in the experimental group
5. There is a statistically significant difference between the post-test scores of non-gifted students in the experimental group and the post-test scores of non-gifted students in the control group.

Method

Research Design

In this research, a pre-test/post-test control group experimental design was used to determine the effectiveness of a leadership skills development program prepared to improve the leadership skills of students in the second level of primary education. The independent variable of the study is the leadership skills development program, and the dependent variable is the scores of students on the leadership skills scale.

Participants

Because of the experimental design, random sampling procedure was not performed in the study. The study group consisted of students in 6th grade from Beyazıt Primary School in Fatih/Istanbul, where gifted students took a differentiated program. The school was chosen due to the gifted education project and presence of some gifted students. For entrance to this school, students were identified as gifted or not by university staff. Mixed system was applied for gifted education in the school. It means that some of students in a class were gifted, but some of them were not gifted. Because of the high school entrance exam in Turkey, sixth grade students were chosen for the study in the school. In this study, 6/A section was chosen as the control group, and 6/B section was chosen as the experimental group. There were 21 students (7 gifted) in the experimental group and 20 students (6 gifted) in the control group. The scores of experimental and control groups on the leadership skills scale were compared, and the difference between scores was found not to be statistically important ($U=192{,}000$; $z=0.47$; $p>.05$) (Table 1). Therefore, control and experimental groups were regarded as equal in terms of leadership skills before the treatment.

Table 1

Mann-U Whitney Results Related to Pre-test of Leadership Skills Scale Scores of Experimental and Control Groups

Groups	*N*	*M*	*SD*	*M.R.*	*S.R.*	*U*	*Z*	*p*
Experimental	21	144,3	14,76	21,86	459,00			
Control	20	142,7	11,48	20,10	402,00	192,000	-,470	0,638
Total	41							

Research Instruments

Leadership skills scale (LSS). The LSS is a printed test developed by the researchers to measure the leadership skills of 6th, 7th, and 8th graders. It consists of 41 items based on self-evaluation. Testing of 517 students has determined the validity and reliability of the test. Through explanatory factor analysis for the construct validity of the LSS, it was observed that 41 items gather under 10 factors. These factors were: "problem solving," "group dynamics," "timidity," "goal setting," "empathy," "leading," "anger management," "perseverance," "creativity," and "speech communication." For convergent validity, the Roets Rating Scale for Leadership is used. The results demonstrated that there was positive and high correlation between the two scales ($r= 0.687$, $p <0.01$). The model fit of the scale was examined with confirmatory factor analysis. The fit indices were found as follows: $\chi 2=1393,16$ (sd=734, p.=.0000), $\chi 2/sd=1,89$, RMSEA=0.047, RMR=0.061; SRMR=0.046, GFI=0.90, AGFI=0.89, CFI=0.97, NFI=0.94, NNFI=0.96. The fit indices were within the range of acceptable values. The leadership skills scale's Cronbach's Alpha reliability coefficient was .89, split half coefficient was .81, and test retest reliability coefficient was .92. In addition, the difference between the lower and upper scores obtained from the items was statistically significant for all items. The LSS was a five-point Likert-type scale. Items were graded from 5 to 1, such as, "Always appropriate for me," "Usually appropriate for me," "Sometimes appropriate for me," "Barely appropriate for me," "Never appropriate for me." When the students get high scores from the scale, they are supposed to have high leadership skills.

The development of the leadership skills development program and its implementation. The goal of leadership skills development program was to help gifted and non-gifted students improve their leadership skills. Articles and publications about leadership training were reviewed to develop a program to use in the study. However, because the leadership skills programs were generally for adults, this issue was challenging.

In the first step of program development process, the theoretical basics of leadership, factors effecting leadership, and leadership development programs were examined. The programs and activities suggested by the researchers (McGregor, 2005; Plowman, 1981; House, 1980; Rickets & Rudd, 2002; Sisk, 2000; Silverman, 1993; Roets, 1986; Parker & Begnaud, 2004; Richardan & Feldhusen, 1987; Karnes, & Chauvin, 1985; Karnes & Bean, 2010; etc.) were reviewed. An eclectic frame of the

program was formed, taking sub-dimensions of the scale into consideration. Secondly, the competencies and skills that could be effective in the development of leadership were determined, and the theoretical base of the relationship between these skills and leadership was examined. Then, goals of competencies were specified. In the fourth step, the activities that were in line with the goals were selected to form the content of the program. Finally, durations of sessions and their frequencies were determined considering activities' durations.

The pilot program was implemented with two 6th graders in Beyazıt Primary School in 2010-2011. In this pre-application, program activities that were appropriate in terms of goals, duration, and content were specified; other activities were taken out or modified. After the pilot application, a 15-week leadership skills development program was established. The topics of the leadership skills development program were as follows:

- Basic leadership knowledge
- Problem solving
- Decision making
- Creativity
- Team building
- Communication and interaction
- Goals determination
- Motivation
- Self-confidence
- Developing good character
- Finding support
- Staying calm
- Timidity

The program was applied to the experimental group 1 hour per week for 15 weeks in Beyazıt Ford Otosan Primary School, where a project for gifted students was in progress. The program was implemented by the researchers. Therefore, there was no need to provide outside professional support for the personnel who would give the program.

Procedure

Sessions of the leadership skills development program were applied to experimental groups one hour in a week. It lasted 15 weeks throughout the 2011-2012 semesters. In order to test the efficiency of the program in the research, the leadership skills scale—whose reliability and validity were determined by the researchers—was given to the students as both a pre-test and post-test. Both the control and experimental groups took the pre-test and post-test at the same time. In this way, data was collected simultaneously.

Data Analysis

Because the number of participants in the control (n=20) and the experimental (n=21) groups was not adequate for parametrical analysis, a non-parametrical test was used in statistical analyses. In order to test whether the difference between pre-

test and post-test leadership skills scale scores of students in the experimental and control groups was significant or not, a non-parametrical Mann Whitney-U test and a Wilcoxon signed-rank test were used. The significance level was taken as 0.5.

Results

Prior to the data analysis, it was assumed that there would be a positive relationship between giftedness and leadership based on the previous literature on this topic. To test this hypothesis, leadership skills of gifted and non-gifted students in two groups were compared by a Mann Whitney-U test. The results are given in Table 2.

Table 2

Mann Whitney-U Test of Gifted and Non-Gifted Students' Leadership Skills Scale Scores

Students	***N***	***M***	***SD***	***M.R.***	***S.R.***	***U***	***Z***	***p***
Gifted	13	147,3	11,32	24,69	321,00			
Non-gifted	28	141,7	13,72	19,29	127,00	134,000	-1,346	0,178
Total	41							

As can be seen in Table 3, though the average score of gifted students (147,31) is higher than those of non-gifted students (=141,79), this difference is not statistically significant (U=134,000; z=-1,346; p>.05). In order to test whether the difference between gifted students' pre-test and post-test scores in the experimental group was statistically significant or not, a non-parametrical Wilcoxon signed-rank test was performed, and the results are given in Table 3.

Table 3

Gifted Students' Wilcoxon Signed-Rank Test Results Related to Their Leadership Skills Scale Posttest and Pretest Scores in Experimental Group

Scores	*Ranks*	*N*	*M.R.*	*S.R.*	*Z*	*p*
Total Score Posttest-Pretest	Negative	0	,00	,00	-2,366	0,018
	Positive	7	4,00	20,00		
	Ties	0				
	Total	7				
Problem Solving Posttest-Pretest	Negative	2	4,00	8,00	-1,023	0,306
	Positive	5	4,00	20,00		
	Ties	0				
	Total	7				
Group Dynamics Posttest-Pretest	Negative	2	3,50	7,00	-1,265	0,206
	Positive	5	4,20	21,00		
	Ties	0				
	Total	7				
Timidity Posttest-Pretest	Negative	4	2,88	11,50	-,424	0,671
	Positive	3	5,50	16,50		
	Ties	0				
	Total	7				
Goal setting Posttest-Pretest	Negative	3	2,67	8,00	-,135	0,892
	Positive	2	3,50	7,00		
	Ties	2				
	Total	7				
Empathy Posttest-Pretest	Negative	1	1,50	1,50	-1,633	0,102
	Positive	4	3,38	13,50		
	Ties	2				
	Total	7				
Leading Posttest-Pretest	Negative	1	2,00	2,00	-2,050	0,04
	Positive	6	4,33	26,00		
	Ties	0				
	Total	7				
Anger Man. Posttest-Pretest	Negative	0	,00	,00	-2,371	0,018
	Positive	7	4,00	28,00		
	Ties	0				
	Total	7				
Perseverance Posttest-Pretest	Negative	4	2,63	10,50	-,597	0,551
	Positive	3	5,83	17,50		
	Ties	0				
	Total	7				
Speech Com. Posttest-Pretest	Negative	2	3,00	6,00	-,378	0,705
	Positive	2	2,00	4,00		
	Ties	3				
	Total	7				
Creativity Posttest-Pretest	Negative	0	,00	,00	-1,342	0,18
	Positive	2	1,50	3,00		
	Ties	5				
	Total	7				

According to these results, the difference between gifted students' mean ranking was statistically significant for total score, and sub-dimensions of anger management and leading were in favor of post-tests ($p<.05$). Total scores of gifted students in the experimental group increased in statistically significant levels after the program. After this analysis, a Mann Whitney-U test was performed on gifted students' post-test scores on the leadership skills scale in order to test the difference between gifted students' post-test scores in the experimental group and gifted students' post-test scores in the control group. The results are given in Table 4.

Table 4

Gifted Students' Mann Whitney-U Test Results Related to Their Leadership Skills Scale Post-Test Scores in the Experimental and Control Groups

LSS	*Group*	*N*	*M.R.*	*S.R.*	*U*	*Z*	*p*
Total Score Posttest	Control	6	3,50	21,00	,000	-3,004	,003
	Experiment	7	10,00	70,00			
	Total	13					
Problem Solving Posttest	Control	6	6,00	36,00	15,000	-,864	,387
	Experiment	7	7,86	55,00			
	Total	13					
Group Dynamics Posttest	Control	6	5,67	34,00	13,000	-1,156	,248
	Experiment	7	8,14	57,00			
	Total	13					
Timidity Posttest	Control	6	4,17	25,00	4,000	-2,473	,013
	Experiment	7	9,43	66,00			
	Total	13					
Goal Set. Posttest	Control	6	5,25	31,50	10,500	-1,517	,129
	Experiment	7	8,50	59,50			
	Total	13					
Empathy Posttest	Control	6	4,00	24,00	3,000	-2,657	,008
	Experiment	7	9,57	67,00			
	Total	13					
Leading Posttest	Control	6	3,58	21,50	,500	-2,974	,003
	Experiment	7	9,93	69,50			
	Total	13					
Anger Man. Posttest	Control	6	5,08	30,50	9,500	-1,661	,097
	Experiment	7	8,64	60,50			
	Total	13					
Perseverance Posttest	Control	6	4,33	26,00	5,000	-2,305	,021
	Experiment	7	9,29	65,00			
	Total	13					
Speech Com. Posttest	Control	6	6,42	38,50	17,500	-,535	,593
	Experiment	7	7,50	52,50			
	Total	13					
Creativity Posttest	Control	6	5,92	6	14,500	-,972	,331
	Experiment	7	7,93	7			
	Total	13		13			

According to the results of the analysis that was performed to determine whether the difference between gifted students' post-test scores in the experimental and control groups was statistically significant or not, the researchers found that there was a statistically significant difference in total score and in sub-dimensions of empathy and leading at the level of 0.01; and in the sub-dimensions of timidity and perseverance at the level of 0.05 in favor of the experimental group. For other sub-dimensions, though the post-test scores of the experimental group were higher, there was no statistically significant difference. Researchers observed that the program designed to develop leadership skills was effective to increase gifted participants' total scores and sub-dimension scores on the scale. After the gifted students in the experimental group, non-gifted students were also examined in terms of leadership skills. A non-parametrical Wilcoxon signed-rank test was performed to test the difference between pre-test and post-test scores of non-gifted students in the experimental group on the leadership skills scale and the results are given in Table 5.

Table 5

Non-Gifted Students' Wilcoxon Signed-Rank Test Results Related to Their Leadership Skills Scale Posttest and Pretest Scores in the Experimental Group

Scores	Ranks	N	M.R.	S.R.	z	p
Total Score Posttest-Pretest	Negative	1	2,00	2,00	-3,171	,002
	Positive	13	7,92	103,00		
	Ties	0				
	Total	14				
Problem Solving Posttest-Pretest	Negative	2	6,00	12,00	-2,135	,033
	Positive	10	6,60	66,00		
	Ties	2				
	Total	14				
Group Dyn. Posttest-Pretest	Negative	2	3,50	7,00	-2,694	,007
	Positive	11	7,64	84,00		
	Ties	1				
	Total	14				

Table 5 Continue

Scores	Ranks	N	M.R.	S.R.	z	p
Timidity Posttest-Pretest	Negative	3	3,00	9,00	-2,365	,018
	Positive	9	7,67	69,00		
	Ties	2				
	Total	14				
Goal Set. Posttest-Pretest	Negative	5	5,20	26,00	-1,668	,095
	Positive	9	8,78	79,00		
	Ties	0				
	Total	14				
Empathy Posttest-Pretest	Negative	2	1,50	3,00	-2,835	,005
	Positive	10	7,50	75,00		
	Ties	2				
	Total	14				
Leading Posttest-Pretest	Negative	0	,00	,00	-3,068	,002
	Positive	12	6,50	78,00		
	Ties	2				
	Total	14				
Anger Man. Posttest-Pretest	Negative	4	5,25	21,00	-1,725	,085
	Positive	9	7,78	70,00		
	Ties	1				
	Total	14				
Perseverance Posttest-Pretest	Negative	5	8,30	41,50	-,696	,486
	Positive	9	7,06	63,50		
	Ties	0				
	Total	14				
Speech Com. Posttest-Pretest	Negative	2	6,50	13,00	-1,796	,072
	Positive	9	5,89	53,00		
	Ties	3				
	Total	14				
Creativity Posttest-Pretest	Negative	1	10,00	10,00	-1,854	,064
	Positive	8	5,00	45,00		
	Ties	5				
	Total	14				

When looking at the non-gifted students' pre-test and post-test results, the difference between post-test and pre-test scores was found to be significant at the level of 0.01 for the total score and the sub-dimensions of group dynamics, empathy, and leading; and at the level of 0.05 for the sub-dimensions of problem solving and

timidity. This difference was in favor of post-test scores. It was observed that the total leadership score of non-gifted students in the experimental group significantly increased. After the examination of post-test and pre-test scores of non-gifted students in the experimental group, to scrutinize post-test scores of non-gifted students in the experimental group and in the control group, a Mann Whitney-U test was calculated (Table 6).

Table 6

Non-Gifted Students' Mann Whitney-U Test Results Related to Their Leadership Skills Scale Post-Test Scores in the Experimental and Control Groups

LSS	Group	N	M.R.	S.R.	U	Z	P
Total Score Posttest	Control	14	9,11	127,50	22,5	-3,48	0,001
	Experiment	14	19,89	278,50			
	Total	28					
Problem Solving Posttest	Control	14	12,64	177,00	72	-1,199	0,231
	Experiment	14	16,36	229,00			
	Total	28					
Group Dynamics Posttest	Control	14	9,61	134,50	29,5	-3,244	0,001
	Experiment	14	19,39	271,50			
	Total	28					
Timidity Posttest	Control	14	10,43	146,00	41	-2,633	0,008
	Experiment	14	18,57	260,00			
	Total	28					
Goal Set. Posttest	Control	14	11,43	160,00	55	-1,994	0,046
	Experiment	14	17,57	246,00			
	Total	28					
Empathy Posttest	Control	14	11,79	165,00	60	-1,779	0,075
	Experiment	14	17,21	241,00			
	Total	28					
Leading Posttest	Control	14	9,21	129,00	24	-3,46	0,001
	Experiment	14	19,79	277,00			
	Total	28					
Anger Man. Posttest	Control	14	12,32	172,50	67,5	-1,412	0,158
	Experiment	14	16,68	233,50			
	Total	28					
Perseverance Posttest	Control	14	12,75	178,50	73,5	-1,134	0,257
	Experiment	14	16,25	227,50			
	Total	28					
Speech Com. Posttest	Control	14	11,86	166,00	61	-1,799	0,072
	Experiment	14	17,14	240,00			
	Total	28					
Creativity Posttest	Control	14	12,04	168,50	63,5	-1,664	0,096
	Experiment	14	16,96	237,50			
	Total	28					

As can be seen in Table 6, non-gifted students in the experimental group had statistically higher post-test scores in the total score and in the sub-dimensions of group dynamics, timidity, leading ($p<.01$), and goal setting ($p<.05$) than non-gifted students in the control group. However, although the average post-test scores in the sub-dimensions of problem solving, empathy, anger management, perseverance, speech communication, and creativity were higher, there was no statistically significant difference for them. Based on these results, it can be concluded that the program has positive effects on non-gifted students' leadership skills.

Discussion and Conclusion

The main aim of this study was to design and test the efficiency of an educational program to develop gifted and non-gifted students' leadership skills. The results of the study demonstrated that the scores of both gifted and non-gifted students to whom the program was applied increased compared with their scores in the beginning and with the scores of gifted and non-gifted students who did not participate in the program. This improvement in the scores of gifted and non-gifted students' post-test scores on the leadership skills scale in the experimental group revealed that the leadership skills of students who participated in the program improved, and the program was effective in this improvement.

In the literature, a specific parallelism between giftedness and leadership is usually acknowledged (Milligan, 2004). However, our study did not provide evidence to this relationship; although the group leadership skills average score for gifted students in the study was higher than non-gifted students' scores, this difference was not significant. This case may be due to the school's special situation, because in this school—differently from other schools—courses such as social skills, thinking skills, and creativity, are given to both gifted and non-gifted students in the same way. A mixed system was applied in the school. Both gifted and non-gifted students are in the same class in this system. Other studies show that the education given in Beyazıt Ford Otosan Primary School contributes to development of students in some aspects, especially for non-gifted students, and the difference between gifted students and non-gifted students may be decreased in this way (Leana, 2005). A differentiated program may have diminished the difference between gifted and non-gifted students in terms of their leadership skills. Besides, considering the fact that the students were in puberty, the students may have affected each other.

In the experimental group, the difference between non-gifted students' pre-test and post-test scores on the leadership scale was found to be significant in favor of post-test scores for the total score and for the sub-dimensions of group dynamics, empathy, leading, problem solving, and timidity. Besides, average post-test scores of total and all sub-tests were higher than pre-test averages. When post-test scores of non-gifted students in the control and experimental groups were compared, the experimental group had higher scores in the total score and in the sub-dimensions of group dynamic, timidity, leading, and goal-setting. According to these results, researchers observed a development in non-gifted students' leadership skills, owing to the program. Previous literature supports the idea that leadership can be

developed with some programs starting in puberty (Porter, 1981; Foster, 1981; Emmerich, 1983; Hensel & Franklin, 1983; Maher, 1985-86; Feldhusen ve Kennedy, 1988; Lee, 1989; Evans, 1982; Washburn, 1982; Stiles, 1986; Leatt, 1987; Gray & Pfeiffer, 1987; Karnes, 1989 as cited in Smith, et al.,1991). In a study by Carter and Spotanski (1989), in 9 leadership scales out of 10, which were applied to 3,437 students who took leadership training, students who took leadership training got higher scores than the ones who did not participate in leadership training.

In the experimental group, when researchers examined the gifted students' pre-test and post-test scores, a statistically significant development was observed in post-test scores for the total score and for the sub-dimensions of anger management and leading. Besides, all post-test scores of sub-tests were higher than pre-test scores, except goal-setting and speech communication. The difference between post-test scores of gifted students in the control group and experimental group was also found to be significant in favor of the experimental group for the total score and for the sub-dimensions of empathy, leading, timidity, and perseverance. The leadership skills development program was seen to be effective in improving gifted students' total scores on the leadership scale. The short duration of the program and a differentiated educational program in the school may have affected the change in some sub-dimensions. This result of the study supports the previous work on this topic. According to Karnes and Bean (1996), many previous studies had revealed that even short programs for 1 or 2 weeks could develop gifted students' leadership skills (Follis & Feldhusen, 1983; Karnes, Meriweather & D'llio, 1987; Myers, Slavin & Southern, 1990; Sisk, 1988; Smith, Smith & Barnette, 1991). Training programs may help gifted adolescents think independently, develop deciding skills, know different leadership styles, and discover their own leadership potentials; and gifted adolescents are aware of these contributions (Carpenter, 1996). Gifted students have the skills of understanding and comprehending teaching experiences. They are responsive to gaining their own and others' leadership skills and roles (Magoon, 1980). Therefore, leadership training in the study may have contributed to their leadership skills. According to research results, it can be concluded that leadership development programs can be useful in developing both gifted and non-gifted students' leadership skills.

When we look at the limitation of the study, the leadership skills development program that was developed could not be integrated into the other educational curricula in the school. Studies related to this issue may be useful to improve effectiveness of the program. With another study, developments in the leadership skills of gifted and non-gifted students from different social-economical backgrounds in schools giving standard education can be investigated, and comparisons can be made. In order to create a framework for the leaders of the future, leadership programs should be developed at the level of preschool education, primary education, and high school; and their validities should be studied.

References

Bisland, A. (2004). Developing leadership skills in young gifted students. *Gifted Child Today,* (27), 24-27.

Carpenter, B.O. (1996). *A study of leadership characteristics and skills of gifted and talented secondary students*. Unpublished doctoral dissertation University of Texas, Austin

Carter, R. I. & Spotanski, D.R. (1989). Perceptions of leadership and personal development of selected high school students in Iowa. *Journal of Agricultural Education*, 30(4), 30-34.

Chan, D. (2000). Assessing leadership among Chinese secondary students in Hong Kong: The use of the Roets Rating Scale for leadership. *Gifted Child Quarterly*. 44, 115–122

Chauvin, J. C., & Karnes, F. A. (1983). A leadership profile of secondary gifted students. *Psychological Reports*, 53, 1259-1262.

Cooley, V., Keiser, N., Ruhl-Smith, C. & Shen, J. (1999). Quality and impact of educational leadership programs: A national study. *The Journal of Leadership Studies*, 6-1/2: 3-16.

Davis, G. A. & Rimm, S. B. (1994). *Education of the gifted and talented* (3rd Ed.), Needham Heights, MA: Allyn and Bacon

Edmunds, A. L. & Yewchuk, C. R. (1996). Indicators of leadership in gifted grade twelve students. *Journal of Secondary Gifted Education, 7*, 345–355.

Feldhusen, J. F. (1994). Leadership curriculum. In J. VanTassel-Baska (Eds), *Comprehensive curriculum for gifted learners* (pp. 347-365). Boston: Allyn and Bacon.

Fertman, C. I. & Long, J. A. (1990). All students are leaders. *School Counselor*, 37 (5), 391-396.

Foster, W. H., & Silverman, L. (1988). Leadership curriculum for the gifted. In J. VanTassel-Baska, J. Feldhusen, K. Seeley, G. Wheatley, L. Silverman, & W. Foster (Eds.), *Comprehensive curriculum for gifted learners* (pp. 356-360). Boston: Allyn & Bacon.

Fulmar, R. & Goldsmith, M. (2000). *The leadership investment: How the world's best organizations gain strategic advantage through leadership development*. Amacon: New York

Furtwengler W.J. (1991). *Reducing student behaviour through student involvement in school restructuring processes.* Paper presented at the Annual Meeting of the American Educational Research Association, Chicago, April 3–7.

Gonsalves, W. C., Grimm, J. & Welsh, J. M. (1981). Leadership training: A lesson in living. *Roeper Review, 3*(3), 16–19.

Hays, T. (1993). An historical content analysis of publications in gifted education journals. *Roeper Review*, 16 (1), 41-43

Hensel, N. H. (1991). Social leadership skills in young children. *Roeper Review*, 14, 4-19

House, C. (1980). *The leadership series*. Coeur d'Alene, ID: Listos.

Karnes, F. A. & Bean, S. M. (1996). Leadership and the gifted. *Focus on Exceptional Children, 29*(1), 1–12.

Karnes, F. A. & Bean, S. M. (2001). *Methods and materials for teaching the gifted*. Waco, TX: Prufrock Press.

Karnes, F. A. & Chauvin, J. C. (1985). *Leadership skills inventory activities manual*. East Aurora, NY: D.O.K.

Karnes, F. A. & Riley, T. (1996). Perceptions of great leaders held by gifted youth. *Gifted Child Today*, 19, 14-15.

Karnes, F. A. & S. Bean, (2010). *Leadership for students: a guide for young leaders* (2nd Ed.). Waco, TX: Prufrock Press

Karnes, F. A. & Stephens, K. R. (2000). *The ultimate guide to student product-development and evaluation***.** Waco, TX: Prufrock Press.

Kim, M., & Cho, S. & Jin, S. (2005). Grade and gender differences in creativity and leadership and the relationship of the two abilities. *The Korean Journal of Educational Psychology,* 19, 799-820.

Leana, M. Z., (2005). *Üstün zekâlı ve normal çocuklarda yönetsel fonksiyonlar: Londra kulesi testi.* [Executive functions of gifted and normal children: tower of london test] Yayınlanmamıs yüksek lisans tezi. İstanbul Üniversitesi, İstanbul

Leshnower, S. (2008). Teaching leadership. *Gifted Child Today*, 31, 29-35.

Lin, G. J. (2003). *Leadership development of college students in Taiwan*. Unpublished doctoral dissertation. Indiana University, Educational Leadership and Policy, Indiana

Lindsay, B. (1988). A lamp for diogenes: Leadership giftedness and moral education. *Roeper Review*, 1(1), 8-11.

MacGregor, M.G. (2005). *Designing student leadership programs: Transforming the leadership potential of youth.* (3rd Ed.) Morrison, CO.

Magoon R. A., (1980). Developing leadership skills in the gifted, creative and talented. *Gifted Child Today*, 12. 40-43

Marland, S. P.(1972). *Education of the gifted and talented.* Report to the Congress of the United States by the U.S. Commission of Education. Washington DC: U.S. Government Printing Office,

Meyer, E. D. (1996). *Leadership academy: effectiveness of leadership skills development in eight grade students.* Unpublished doctoral dissertation. Drake University, Iowa

Milligan, J. (2004). Leadership skills of gifted students in a rural setting: Promising programs for leadership development. *Rural Special Education Quarterly.* 23(1),16-22.

Parker, J. P. & Begnaud, L.G. (2004). *Developing creative leadership*. Portsmouth, NH: Teacher Ideas Press.

Petty, G.C. & Hanson, B. (1989). Two year study of youth leadership development for technology education, *ERIC*. ED. 324488.

Plowman, P. D. (1981). Training extraordinary leaders. *Roeper Review*, 3, 13-16

Richardson, W. B., & Feldhusen, J. F. (1987). *Leadership education: Developing skills for youth*. New York: Trillium.

Ricketts, J.C. & Rudd, R.D. (2002). A comprehensive leadership education model to train, teaches, and develops leadership in youth. *Journal of Career and Technical Education*, 19(1).7-17.

Roets, L. S. (1986). *Leadership: a skills training program.* New Sharon, IA: Leadership Publications.

Schack, G. D. (1988). An activities approach to leadership training. *Gifted Child Today* 11, 20-22.

Silverman, L. K. (1993). *Counseling the gifted and talented.* Denver: Love Publishing

Sisk, D. (2000). Understanding and encouraging leadership giftedness. *Tempo*, 20(1), 19-23.

Smith, D. L., Smith, L., & Barnette, J. (1991). Exploring the development of leadership giftedness. *Roeper Review,* 14(1), 7-12.

Liderlik Geliştirme Programının Üstün Zekâlı Olan ve Olmayan Öğrencilerin Liderlik Becerilerine Etkisi

Atıf:

Ogurlu Ü., & Emir S. (2014). Effects of a leadership development program on gifted and non-gifted students' leadership skills. *Eurasian Journal of Educational Research*, 55, 223-242. http://dx.doi.org/ 10.14689/ejer.2014.55.13

Özet

Problem Durumu: İnsanoğlunun başarısı ve ilerlemesi adına etkin liderlik büyük önem taşımaktadır. Liderlik geliştirme stratejik bir gereklilik halini almaktadır. Birçok araştırmacı liderliğin öğretilebilir kavram ve beceriler olduğu ve ergenlikle birlikte programlar yardımıyla geliştirilebileceği düşüncesini desteklemektedir. Etkili bir lideri tanımlayan özellikler ile üstün zekâlı ve yetenekli birisini tanımlayan özellikler arasında birçok paralellik bulunmaktadır. Üstün zekâlılık ve liderliğin belli bir seviyede paralel olduğu varsayımına dayanarak üstün zekâlılar eğitimindeki birçok araştırmacı liderlik eğitiminin üstün zekâlı ve yeteneklilere yönelik

programların önemli bir bileşeni olduğunu düşünmektedirler. Liderlik eğitiminin ihtiyaç olduğu konusunda genel bir uzlaşı olmasına rağmen liderlik öğretim süreci ve liderlik programlarının etkililiği konusunda çok az araştırma yapılmıştır. Araştırmalar, liderliğin soyut bir kavram olarak kaldığını ve okul müfredatında göz ardı edildiğini, birçok okulun geleneksel akademik eğitimle liderlik eğitimini denkleştiremediğini ayrıca öğretmenlerin genellikle liderlik becerilerini geliştirme eğitimi almadıklarını ortaya koymuştur. Liderlik becerisinin fark edilip geliştirilmesi ve liderlik alanında üstün zekâlı ve yeteneklilerin eğitilmesi konusunda müfredata bağlı ve müfredat dışı etkinliklere ihtiyaç vardır. Liderlik becerilerinin öğretilmesi ve standart okul müfredatında uygulanması mümkündür. Gençler, liderlik rollerini ve sorumluluklarını alabileceği fırsatlara ihtiyaç duymaktadır. Liderlik eğitimi en ulaşılabilir mekân olan okulda tüm öğrenciler için olmalıdır. Araştırmalara bakıldığında liderlik ve üstün yeteneklilik hakkında çok az araştırma bulunmakta ve okullarda güçlü liderlik potansiyeline sahip öğrenciler için liderlik eğitim programlarının yetersiz olduğu görülmektedir. Ülkemizde liderlik becerilerini geliştirme eğitimi ile ilgi yok denilecek kadar az araştırma olmasından dolayı ilköğretimin ilköğretim ikinci kademesine devam eden üstün zekâlı ve yetenekli olan ve olmayan öğrencilerin liderlik becerilerini geliştirmeyi amaçlayan liderlik becerileri geliştirme programının etkisinin araştırıldığı deneysel bir çalışmaya ihtiyaç duyulmuştur.

Araştırmanın Amacı: Bu araştırma, ilköğretim ikinci kademesine devam eden (6-7-8. sınıf) üstün zekâlı ve yetenekli olan ve olmayan öğrencilere uygulanan liderlik becerileri geliştirme programı, öğrencilerin liderlik beceri düzeylerini geliştirmede etkisini araştırmak amacıyla yapılmıştır. Bu kapsamda geleceğin dünyasında liderlik yapacak üstün zekâlı ve yetenekli olan ve olmayan öğrencilerine yönelik liderlik becerileri geliştirme programı hazırlanmıştır.

Araştırmanın Yöntemi: Araştırmada ilköğretimin ikinci kademesine devam eden öğrencilerin liderlik becerilerini geliştirmeye yönelik hazırlanan liderlik becerilerini geliştirme programının etkililiğini ortaya koymak amacıyla deneysel yöntemin ön test-son test kontrol grup deseni kullanılmıştır. Çalışma İstanbul İli Fatih ilçesinde bulunan üstün zekâlı ve yetenekli öğrencilere yönelik farklılaştırılmış eğitim uygulayan Beyazıt İlköğretim Okulu'nun 6. sınıfına devam eden öğrencilerden oluşturulmuştur. 21 (7 üstün zekâlı ve yetenekli) öğrenci deney grubunda; 20 (6 üstün zekalı ve yetenekli) öğrenci kontrol grubunda olmak üzere çalışma grubu oluşturulmuştur. Toplam 15 oturumda uygulanan programın etkililiğini sınamak amacıyla ön test ve son test olarak araştırmacılar tarafından geçerlik ve güvenirlik çalışmaları yapılmış olan liderlik becerileri ölçeği uygulanmıştır.

Araştırmanın Bulguları: Araştırma bulgularına göre çalışma grubundaki üstün zekâlı ve yetenekli öğrencilerin liderlik becerileri puan ortalaması, üstün zekâlı ve yetenekli olmayan öğrencilerin ortalamasından yüksek olmasına rağmen bu farklılık anlamlı çıkmamıştır. Bu durum çalışmanın yapıldığı okulun özel durumundan kaynaklanmış olabilir. Deney grubundaki üstün zekâlı ve yetenekli olmayan öğrencilerin liderlik ölçeğinden aldıkları ön test ve son test puanları arasındaki fark istatistiksel olarak toplam puan ile grup dinamiği, empati, önderlik, sorun çözme ve çekingenlik alt

boyutlarında son test lehine anlamlı bulunmuştur. Bununla birlikte toplam puanları ve tüm alt test puanlarının son test ortalamaları ön test ortalamalarından yüksektir. Ayrıca deney ve kontrol grubunda yer alan üstün zekâlı ve yetenekli olmayan öğrencilerin liderlik becerileri ölçeğinin son test uygulamasından almış oldukları puanlarının karşılaştırılmasında toplam puan ve grup dinamiği, çekingenlik, önderlik, hedef belirleme alt boyutlarında deney grubu lehine anlamlı bir fark bulunmuştur.

Deney grubunu oluşturan üstün zekâlı ve yetenekli öğrencilerin liderlik ölçeğinden aldıkları ön test ve son test puanları karşılaştırıldığında toplam puan ile öfke kontrolü ve önderlik alt boyutlarında son test puanlarının anlamlı şekilde arttığı görülmüştür. Bununla birlikte hedef belirleme ve hitabet alt testleri hariç diğer tüm alt test puanlarının son test ortalamaları ön test ortalamalarından yüksektir. Ayrıca deney grubundaki üstün zekâlı ve yetenekli öğrenciler ile kontrol grubunda yer alan üstün zekâlı ve yetenekli öğrencilerin liderlik becerileri ölçeğinin son test puanları değerlendirildiğinde, gruplar arasında toplam puan ve empati, önderlik, çekingenlik ve azim alt boyutlarında ise deney grubu lehine anlamlı fark bulunmuştur.

Araştırmanın Sonuçları ve Önerileri: Bu araştırmada, üstün zekâlı ve yetenekli olan ve olmayan öğrencilerin liderlik becerilerini geliştirmek amacıyla bir eğitim programı hazırlamak ve bu programın etkililiğini sınamak hedeflenmiştir. Araştırma sonucunda ön test ve son test ölçümlerinde programa katılan hem üstün zekâlı ve yetenekli olan hem de üstün zekâlı ve yetenekli olmayan öğrencilerin puanlarının başlangıçtaki puanlarına ve bu programa katılmayan öğrencilerin puanlarına göre yükseldiği görülmüştür. Deney grubundaki üstün zekâlı ve yetenekli olan ve olmayan öğrencilerin liderlik becerileri ölçeğinde son test puanlarında görülen bu yükselme, programa katılan öğrencilerin liderlik becerilerinin geliştiğini ve eğitim programının bu yönde etkili olduğunu göstermektedir. Geleceğin liderlerine bir çerçeve oluşturma için liderlik programlarının okulöncesi, ilköğretim ve ortaöğretim seviyesinde geliştirilip geçerliliğinin sağlanması gerekir. Ayrıca üstün zekâlı ve yetenekli çocuklardaki liderlik potansiyelini göz önünde bulundurularak üstün yeteneklilerle ilgili yapılacak eğitimlere de liderlik eğitim programı yerleştirilmelidir.

Anahtar Sözcükler: üstün zekâlı ve yetenekli öğrenciler, liderlik, liderlik geliştirme programı, liderlik becerileri ölçeği

Eurasian Journal of Educational Research, Issue 55, 2014, 243-262

Learned Resourcefulness and Coping with Stress in Mothers of Children with Disabilities

Yüksel EROĞLU*

Sırrı AKBABA**

Orhan ADIGÜZEL***

Adem PEKER****

Suggested Citation:

Eroğlu, Y., Akbaba, S., Adıgüzel, O., & Peker, A. (2014). Learned resourcefulness and coping with stress in mothers of children with disabilities. *Eurasian Journal of Educational Research, 55,* 243-262. http://dx.doi.org/10.14689/ejer.2014.55.14

Abstract

Problem Statement: Research has indicated that some mothers can cope with stressful life conditions and continue their lives normally, whereas others are unable to overcome such challenging conditions. Recent research has shown that mothers of children with disabilities are likely to know more about why some mothers have relatively well-adjusted lives despite stressful conditions, as well as why they cope better with these conditions than others. However, to date, studies in Turkey have only concentrated on the degree to which mothers of children with disabilities feel stress and which coping ways they use to curb the negative effects of stress.

Purpose of the Study: This study aimed to examine the relationships between learned resourcefulness and ways of coping with stress.

Methods: The study sample consisted of 222 mothers of children attending special education institutions during the 2011–2012 academic year in Sakarya, Turkey. The Self-Control Schedule and Ways of Coping Inventory were used to assess learned resourcefulness and coping strategies, the relationships among which investigated using Pearson

*Corresponding author: M.A., Research Assistant, Department of Educational Sciences, Faculty of Education, Uludağ University, e-mail: yeroglu45@gmail.com

** Prof.Dr., Department of Educational Sciences, Faculty of Education, Uludağ University, e-mail: sakbaba@uludag.edu.tr

***Associate Professor, Department of Health Management, Faculty of Economics and Administative Sciences, Süleyman Demirel University, orhanadiguzel@sdu.edu.tr

****Assistant Professor, Department of Educational Sciences, Faculty of Education, Atatürk University, adem.peker@hotmail.com

correlations. The conceptual model was tested using structural equation modeling, and data were analyzed with LISREL 8.54 and SPSS version 13.0.

Findings and Results: Results showed that while three ways of coping—self-confidence, optimism, and support-seeking—correlated positively with learned resourcefulness, the other two—helplessness and submissiveness—were negatively associated with learned resourcefulness. The goodness-of-fit index values of the model (χ^2/df = 2.10, RMSEA = .072, GFI = .97, CFI = .97, NFI = .95, and SRMR = .053) indicate that the model was of an acceptable fit. According to path analysis, learned resourcefulness positively predicted self-confidence, optimism, and support-seeking and negatively predicted helplessness and submissiveness. Learned resourcefulness accounted for 36% of the variance for self-confidence, 33% for optimism, 7% for support-seeking, 5% for helplessness, and 8% for submissiveness.

Conclusions and Recommendations: This study demonstrated that learned resourcefulness positively predicted three ways of coping—optimism, self-confidence, and support-seeking— and negatively predicted helplessness and submissiveness. These results suggest that highly resourceful mothers of children with disabilities are more likely to use self-confidence, optimism, and support-seeking and less likely to use helplessness and submissiveness when coping with stress.

Keywords: Learned resourcefulness, coping ways of stress, structural equation modeling, path analysis, mothers of children with disabilities

Coping has been defined as constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands appraised as taxing or exceeding a person's resources (Lazarus & Folkman, 1984). By extension, coping strategies have classified as focusing on appraisals (adaptive cognitive), problems (adaptive behavioral), or emotions (Weiten & Lloyd, 2008). Appraisal-focused strategies involve a person's modifying the way he or she thinks, such as by denying or distancing him or herself from the problem. Problem-focused strategies involve negotiating the cause of the problem and include defining the problem, generating alternative solutions, weighing alternatives by their costs and benefits, choosing among alternatives, and acting. In this sense, problem-focused strategies are directed at changing or eliminating the source of stress. Lastly, emotion-focused strategies involve disclaiming emotions, bottling up emotions, distracting one, and relaxing by consuming alcohol and/or chemicals. Emotion-focused coping is oriented toward managing emotions that accompany perceived stress (Brannon & Feist, 2009).

Strategies for coping with stress are also referred to as either adaptive or maladaptive (Folkman & Lazarus, 1988). Adaptive coping refers to coping skills that serve to minimize stress for the short and long term, whereas maladaptive coping refers to those which, despite resulting in a short-term reduction of stress, ultimately

result in a return of stress at similar or greater levels in the long term. Examples of maladaptive behavior strategies include dissociation, sensitization, safety behaviors, anxiety avoidance, substance use, and indulgence in drugs or alcohol (Folkman & Moskowitz, 2000).

Lazarus (1999) proposed that three personality repertoires affect a person's coping style and emphasized their central role in predicting coping strategies; they are sense of coherence (Antonovsky & Sourani, 1988), hardiness (Kobasa, 1979), and learned resourcefulness (Rosenbaum, 1980). *Sense of coherence* is defined as a global orientation that expresses the extent to which one has a pervasive, enduring, yet dynamic feeling of confidence. According to Antonovsky (1996), a sense of coherence with a sense of comprehensibility, manageability, and meaningfulness seems to be crucial for maintaining health by successfully coping with stressful events. *Hardiness* is defined as a constellation of personality characteristics that function as a resource for resisting encounters with stressful events (Kobasa, 1979). Hardiness has also been shown to predict effective coping styles, apparently because individuals with a great deal of hardiness have a sense of commitment to their lives, a belief that they can control events, and a view that change is a positive challenge (Peterson & Seligman, 2004).

Meanwhile, *learned resourcefulness* was coined by Meichenbaum (1977) as a concept in conjunction with his stress inoculation program. Meichenbaum (1977) postulated that learned resourcefulness involves certain attitudes that help an individual to effectively cope with external stressors, as well as to achieve control over problematic and stressful life events. In stress inoculation programs, individuals are trained to use cognitive and behavioral skills that enable them to cope effectively with stressful events. The major components of Meichenbaum's program are a) self-monitoring maladaptive thoughts, images, feelings, and behaviors, b) problem-solving skills, and c) emotion regulation and self-control skills. Meichenbaum (1985) determined that people who have acquired these skills had also developed a sense of learned resourcefulness, or the belief that they could effectively negotiate manageable levels of stress.

By some contrast, Rosenbaum (1983) defined *learned resourcefulness* as a behavioral repertoire comprised of (mostly cognitive) skill set with which an individual self-regulates internal events (e.g., emotions, cognitions, physiological responses, and pain) that interfere with the smooth execution of a desired behavior. According to Rosenbaum (1983), learned resourcefulness includes four components: (a) the use of self-statements to control emotional responses, (b) the application of problem-solving strategies, (c) the ability to delay immediate gratification, and (d) perceived self-efficacy, which is a general belief in one's ability to self-regulate internal events. Studies consistently report that people with significant resourcefulness are skillful in dealing with stressful events more constructively and effectively than less resourceful people. For instance, people who are more resourceful show a greater ability to tolerate pain (Rosenbaum, 1980), as well as cope more effectively with epileptic seizures (Rosenbaum & Palmon, 1984), hemodialysis (Baydoğan & Dağ, 2008), weight loss (Kennett & Ackerman, 1995), drinking (Carey,

Carey, Carnrike, & Meisler, 1990), substance use (Panitrat, 2000), and diabetes mellitus type II (Huang, Perng, Chen, & Lai, 2008), seasickness (Rosenbaum & Rolnick, 1983), depression and perinatal depression (Ngai & Chan, 2012; Siva, 1991), and academic stress (Goff, 2011).

Mothers of children with disabilities are generally more vulnerable to stress, as well as at a higher risk of depression, social isolation, marital discord, deep sadness, self-blame, helplessness, feelings of inadequacy, anger, shock, and fatigue (Gupta & Singhal, 2005). However, at least one study in Turkey (Akkök, Aşkar, & Karancı, 1992) have concentrated only on the degree to which mothers of children with disabilities feel stress and which coping strategies they employ to reduce the negative effects of stress. Other evidence suggests that some mothers with disabled children cope relatively well and can continue their lives normally, whereas others never fully adjust to this stressful event (Koller, Richardson, & Katz, 1992). Based on research that investigates relationships between learned resourcefulness and coping with stressful events, including epileptic seizures (Rosenbaum & Palmon, 1984), depression (Siva, 1991), hemodialysis (Baydoğan & Dağ, 2008), and diabetes mellitus type II (Huang et al., 2008), learned resourcefulness may play a crucial role in adjusting to having and raising children with physical and intellectual disabilities.

This study thus seeks to investigate the relationships between learned resourcefulness and coping strategies of mothers of children with disabilities. Considering relationships among coping strategies and learned resourcefulness, the following hypotheses are suggested. On the one hand, learned resourcefulness is positively correlated with coping styles of self-confidence, optimism, and support-seeking (i.e., problem-focused coping styles). On the other hand, learned resourcefulness is negatively correlated with the coping styles of submissiveness and helplessness (i.e., emotion-focused coping styles). Figure 1 presents a schematic model of these hypotheses.

Method

Research Design

A correlational design was used in this study. Correlational design aims to determine whether two or more variables change together and the streght of that relationship (Karasar, 2006). Correlational design was utilized to study the relationships between the learned resourcefulness and coping ways of stress in mothers of children with disabilities.

Study Sample

The selection of participants used convenience sampling, a non-probability sampling technique in which participants are selected due to their accessibility and proximity to the researcher (Bayram, 2009). The participant sample consisted of 222 mothers whose children were attending private special education and rehabilitation centers that offer special individual and/or group education during the 2011–2012

academic year in Sakarya, Turkey. Their ages ranged from 22 to 57 years old (M = 33.2, SD = 1.2). Table 1 summarizes participant demographics.

Research Instruments and Procedure

Self-Control Schedule. Learned resourcefulness was measured using the Turkish version of the Self-Control Schedule (SCS) (Rosenbaum, 1980) that was adapted by Dağ (1991). This 36-item scale measures an individual's general repertoire of learned resourcefulness-related skills based on how they identify with positive self-statements that reflect their control of emotional and physiological responses (e.g., "When I am feeling depressed, I think about pleasant events"), problem-solving strategies (e.g., "When I am faced with a difficult problem, I approach it in a systematic way"), and delay of gratification (e.g., "I finish a job that I have to do before I start doing things I really like"). On the scale, each item is ranked on a five-point Likert-type scale from 1 (Uncharacteristic) to 5 (Very characteristic). As such, possible scores range from 36 to 180 in which a higher score signifies a greater repertoire of skills related to learned resourcefulness. Dağ (1991) found the internal consistency coefficient of the scale to be .78 and the item-total correlations to range from .11 to .51. Furthermore, a study on the criterion-related validity of the scale found a significant correlation between the scale and Rotter's internal and external locus of control scale (Dağ, 1991; Rosenbaum, 1980).

Ways of Coping Inventory. The Ways of Coping Inventory (WCI) developed by Folkman and Lazarus (1980) was adapted to Turkish by Şahin and Durak (1995). Though the original WCI consists of 66 items, Şahin and Durak's (1995) version for a study conducted upon university students reduced the number of items to 30. Exploratory factor analysis revealed five ways of coping with stress: optimism, self-confidence, submissiveness, helplessness, and support-seeking. Each way of coping has its own subscale with a different set of items: seven for self-confidence, five for optimism, eight for helplessness, six for submissiveness, and four for support-seeking. Each subscale's internal consistency revealed a different Cronbach's alpha value: .68 for optimism, .80 for self-confidence, .70 for submissiveness, .73 for helplessness and .47 for support-seeking. Stress symptom scale correlations ranged from r = -.13 (optimism) to r = .53 (helplessness). The Turkish WCI is a 30-item measure containing two negatively worded items for support-seeking. Responding requires participants to rate the extent to which they agree with each item on a four-point Likert-type scale ranging from 1 (Not appropriate) to 4 (Very appropriate).

Table 1
Sociodemographic Characteristics of Participants

Education level	***N***	***%***
Illiterate	94	42
Literate without school education	60	27
Elementary school	35	16
High school	20	9
University	13	6
Perceived socioeconomic status		
Low	52	23
Middle	151	68
High	19	9
Type of family		
Nuclear	148	66
Joint	52	23
Single parent	32	14
Child's type of disability		
Down syndrome	50	23
Mental disability	73	33
Autism spectrum disorder	19	9
Other disabilities (e.g., epilepsy and cerebral palsy)	38	17

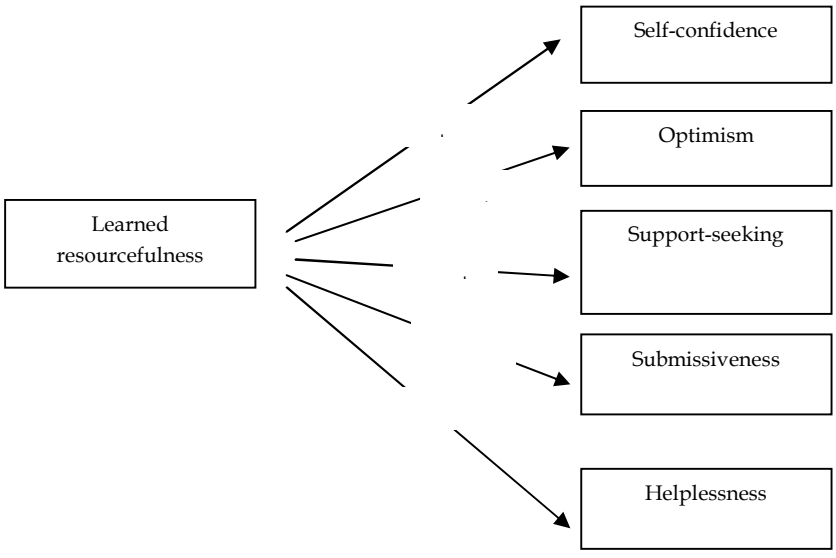


Figure 1. Conceptual model of correlations between learned resourcefulness and ways of coping with stress

The average scores are raw scores divided by the number of items in each subscale. Though a total score of WCI cannot be computed, higher scores for optimism, self-confidence, and support-seeking indicate effective coping, whereas higher scores for submissiveness and helplessness indicate ineffective coping. These factors also can be divided into two broad categories; problem-focused coping strategies include optimism, self-confidence, and support-seeking, while emotion-focused coping strategies include submissiveness and helplessness.

Data were collected from 222 mothers whose children were attending different private education and rehabilitation centers that offer individual and/or group special education during the 2011–2012 academic year in Sakarya, Turkey. After obtaining required written consent from the administration of the private special education and rehabilitation center where the study was to be carried out, the mothers of the children receiving either individual or group education received information about the study. Mothers who volunteered to participate in the study were taken into a classroom, where they were informed about the aim and importance of the study and where they were invited to provide their informed consent to participate to ensure that their personal information would be kept confidential and that the results of the study would not be publicized. Informed consent was offered verbally by illiterate mothers and literate mothers without school education; all other mothers signed a written consent form. While the questionnaires were administered, the items included in the questionnaires were read individually by researchers for the benefit of illiterate participants and those who reported being literate school without education. When necessary, unclear points were explained to these participants, and their responses marked on the scales by the researchers.

Data Analysis

The Pearson product-moment correlation coefficient was applied to assess whether relationships between learned resourcefulness and ways of coping with stress were significant. To test the hypotheses, structural equation modeling (SEM) was used. SEM can account for measurement error by including measurement error variables that correspond to the measurement error rate of observed variables. Therefore, conclusions about relationships between constructs are not biased by measurement error, yet are equivalent to relationships between variables of perfect reliability. SEM also allows users to model and test complex relationship patterns, including multiple hypotheses together at once (Kline, 2005). Lastly, analyses were performed using SPSS version (Chicago, IL, USA) 13.0 and LISREL 8.54 (Jöreskog & Sorbom, 1996).

Results

Descriptive Data and Inter-Correlations

Table 2 shows the means, standard deviations, and intercorrelations of the variables. As shown there, learned resourcefulness positively correlated with the

ways of coping of self-confidence (r = .58, p < .01), optimism (r = .26, p <.01), and support-seeking (r = .26, p < .01). By contrast, learned resourcefulness was negatively correlated to submissiveness (r = - .29, p < .01) and helplessness (r = -.23, p < .01).

Table 2

Descriptive Statistics and Intercorrelations of Variables

Variables	***1***	***2***	***3***	***4***	***5***	***6***
1. Learned resourcefulness						
2. Self-confidence	.60**					
3. Optimism	.58**	.71**				
4. Support-seeking	.26**	.14*	.08			
5. Submissiveness	-.29**	-.15*	-.10	-.30**		
6. Helplessness	-.23**	-.18**	-.15*	-.01	.20**	
M	1.20	22.84	15.60	11.51	13.37	19.84
SD	17.30	3.67	2.71	2.13	3.12	4.22

*p < .05, **p < .01

Structural Equation Modeling (SEM)

Before applying SEM, the assumptions of SEM were investigated. Multivariate normality tests that check a given dataset of similarity to the multivariate normal distribution were conducted with LISREL. The results of these tests indicated evidence sufficient to show that data were normally distributed. Multivariate outliers were investigated using the Mahalanobis distance, after which 15 cases were identified as outliers with p < .001 and thus deleted, given their potential to bias the model and affect major assumptions (Tabachnick & Fidell, 2000). Box's M test for the equality of variance–covariance matrices resulted in statistically insignificant results, indicating that the assumption of homoscedasticity had been met. Pearson correlation tests revealed no multicollinearity problem between the subscales of the way of coping with stress and learned resourcefulness. Using SEM, all parameters of the model were tested simultaneously, the results of which appear in Figure 2. Results obtained from structural equation modeling demonstrated that the model was well fit. Table 3 shows this and other goodness-of-fit indices. For the ways of coping with stress, learned resourcefulness accounted for 36% of variance for self-confidence, 33% for optimism, 7% for support-seeking, 5% for helplessness, and 8% for submissiveness. The standardized coefficients in Figure 2 clearly show that learned resourcefulness positively predicted self-confidence (β =.60), optimism (β = .58), and support-seeking (β = .26), yet negatively predicted helplessness (β = -.23) and submissiveness (β = -.29).

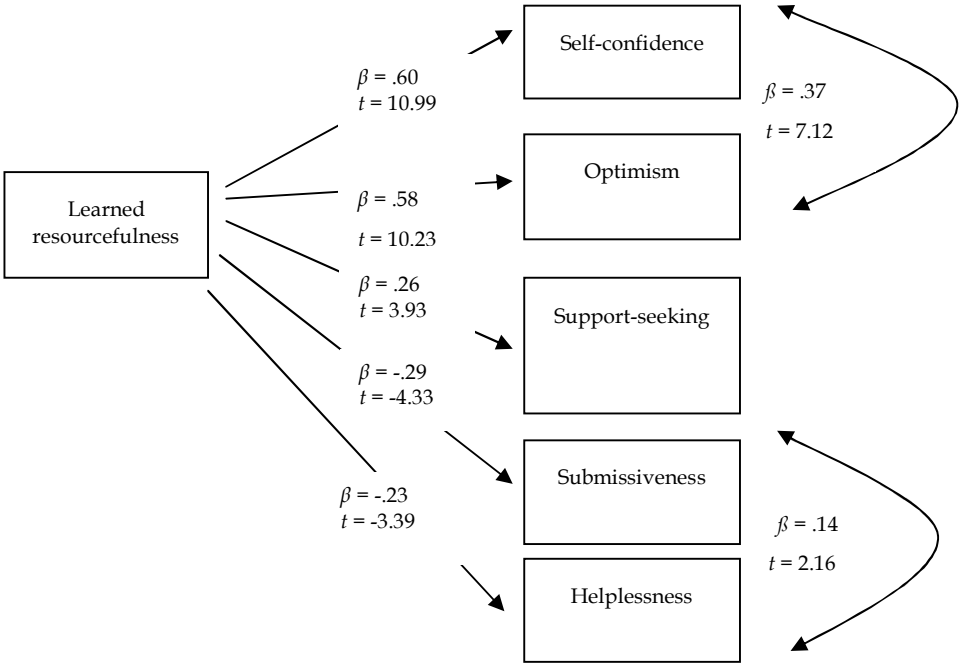


Figure 2. Path analysis between learned resourcefulness and ways of coping with stress.

Table 3

Goodness-of-fit indices of the model

Goodness-of-fit indices	***Calculated fit indices***	***Levels of acceptable fit***	***Levels of perfect fit***
χ^2	16.82		
df	8		
χ^2/df	2.10	$\chi^2/df \leq 5$	$\chi^2/df \leq 2$
GFI	.97	.90 ≤ GFI < .95	.95 ≤ GFI ≤ 1.00
NFI	.95	.90 ≤ NFI < .95	.95 ≤ NFI ≤ 1.00
CFI	.97	.90 ≤ CFI < .95	.95 ≤ CFI ≤ 1.00
RMSEA	.072	.05 < RMSEA ≤ .08	0 ≤ RMSEA ≤ .05
SRMR	.053	.05 ≤ SRMR ≤ .08	0 ≤ SRMR ≤ .05

Note: This table was constructed using criteria suggested by Hu and Bentler (1999).

Discussion and Conclusion

This study aimed to investigate the relationships among learned resourcefulness and the five ways of coping with stress in mothers of children with disabilities. Findings demonstrated significant relationships between learned resourcefulness and the dimensions of each way of coping with stress. Furthermore, goodness-of-fit indices of the path model indicate the model's acceptability (Hu & Bentler, 1999).

As expected, the model first showed that learned resourcefulness positively predicted the ways of coping of self-confidence, optimism, and support-seeking. These findings are consistent with previous studies (Rosenbaum & Ben–Ari, 1985; Rosenbaum & Jaffe, 1983; Rosenbaum & Palmon, 1984), which have suggested that learned resourcefulness relates to coping effectively with various stressful and challenging situations. Mothers of children with disabilities in Turkey deal with general adaptive problems—preserving a satisfactory self-image, keeping the family together, educating the child through necessary lenses, and preparing for an uncertain future—as well as disability-related problems, including struggling with symptoms of disabilities, developmental delays, treatment-related stressors, and establishing functional relationships with caregivers (Yıldırım & Conk, 2005). In coping, mothers of children with disabilities try to manage upsetting feelings aroused by having children with disabilities and to preserve reasonable emotional balance (Karadağ, 2009). These mothers' psychological adjustments depend on their ability to maintain a balance between the demands of stressful situations and the availability of personal capacities (e.g., optimism) and social resources (e.g., social support from extended family and friends) (King, King, Rosenbaum, & Goffin, 1999). On this point, Kaner (2004) found that the life satisfaction levels of mothers of children with disabilities changed according to the levels of social support they received.

According to the findings of the present study, learned resourcefulness is of central importance to understanding the psychological adjustments by which mothers estimate whether their personal capacities and resources of social support meet the demands of stressful situations. Since no study has yet investigated the role of these mothers' level of learned resourcefulness, such findings are remarkable. Mothers with significant learned resourcefulness are purported to be better at managing stressful events by using personal capacities and social sources. They attempt to change situations to benefit them, for they believe in their competence to do so. As such, they tend to use self-confidence when confronting stressful events. In a similar vein, Yıldız (1997) found that individuals with significant resourcefulness more often attribute success to their own efforts and abilities, while less resourceful individuals more often attribute success to external changes. Highly resourceful individuals also often appeal to optimism as a way of coping with stress. The fact that highly resourceful people possess a self-help skill set, including self-control, problem-solving, and a belief in their ability to cope effectively with adversity (Rosenbaum, 1990) suggests that they are likely to use optimism, based on their assumption that they can do something to change situations for the better (Hellriegel & Slocum, 2007). Yet, highly resourceful mothers were found to ask for social support while experiencing stressful events more often than less resourceful mothers.

In this sense, social resources are determined by the extent to which mothers have access to emotional and instrumental support from their relationships with others—for example, from marital support, family support, informal support from extended family and friends, and formal support from professional caregivers (Vermaes, Janssens, Bosman, & Gerris, 2005). Likewise, studies concerning learned resourcefulness reported remarkably positive relationships between support-seeking and learned resourcefulness (Dirksen, 2000). Considering that highly resourceful people are better equipped to decrease the negative effects of stress on their adaptive functioning, it is unsurprising to find that learned resourcefulness is closely related to support-seeking and making contact with others to partly reduce feelings of distress (Mortenson, 2009).

Secondly, and also as anticipated, learned resourcefulness was negatively related to the coping methods of helplessness and submissiveness, also known as emotion-focused coping strategies. A key feature of learned resourcefulness is that individuals cope effectively with difficult life events, believe in their capacity to deal with problems, and avoid negative thinking about a situation beyond their control. In addition to its direct prevention of depression (Huang, Sousa, Tu, & Hwang, 2005), learned resourcefulness inhibits feelings of helplessness, which reflects a negative view of the self and the belief that one has little control over his or her life (Sacco & Beck, 1995). By extension, mothers of children with disabilities with greater resourcefulness are less likely to feel helpless, particularly in the act of being resourceful. Since people with higher levels of learned resourcefulness believe that they have control over their lives and that such can help them to feel better, develop greater self-confidence, and implement problem-solving skills (Baydoğan & Dağ, 2008), they therefore control, cut back, and/or stop helpless thoughts at will. To support these findings, other studies (Rosenbaum & Ben-Ari, 1985; Rosenbaum & Jaffe, 1983; Rosenbaum & Palmon, 1984) have suggested that learned resourcefulness is an important factor for coping with learned helplessness. Learned resourcefulness helps mothers of children with disabilities avoid the way of coping of not only helplessness but also submissiveness. Considering that people with greater resourcefulness perceive themselves to be autonomous (Zauszniewski & Martin, 1999) and, for mothers, competent in their maternal roles (Ngai & Chan, 2012), such a relationship is reasonable. As a result, mothers of children with disabilities who feel competent tend to be effectual under stressful circumstances, while less resourceful people tend to behave submissively.

Regarding future research, this study poses several implications. First, further studies that investigate the relationships among learned resourcefulness, ways of coping with stress, and other psychological constructs are necessary to enhance the understanding some of this study's findings. Additionally, future studies can investigate the relationships suggested by this study's results by using SEM and establishing a mediating variable. At the same time, this study has also several implications for prevention programs that target mothers of children with disabilities. Since these mothers suffer from depression, guilt, anxiety about the future, family discord, less social support, life restrictions, and hopelessness, it is important for mental health professionals to develop prevention strategies tailored to

treat them (Küçüker, 2001; Küçüker, 2006; Yıldırım & Conk, 2005). Moreover, because how children's self-perceptions and behavioral emotional strengths are affected most by mothers' learned resourcefulness has been taken into consideration (Argun, 2007), related intervention programs prepared for these mothers should develop children's independent living skills as well. It is thus necessary to examine both protective and risk factors for resilience to encourage mothers to develop such preventative strategies.

Based on this study's findings, preventive strategies targeting mothers of children with disabilities require learned resourcefulness. Furthermore, these mothers in Turkey tend to use optimism while confronting stressful conditions due to fatalist thoughts (Gülşen & Özer, 2009). However, adopting a coping style of fatalism to negotiate stress cannot aid their struggles with stress-related problems derived from their having disabled children. Therefore, the efficacy of any coping-based prevention program will likely to be strengthened if the interventions prioritize resourcefulness and are tailored to respond to mothers' sociocultural contexts. For this, factors include self-acceptance, optimism, autonomy, commitment to a purpose in life, and a belief that is possible to learn and grow from negative events—all of which can promote the well-being and adaptability of mothers of children with disabilities. It is likely that these factors also reflect generally positive core beliefs about the self, the world, and the future, and as such, coping prevention programs should address these strengths and assets (Akbaba & Gözüm, 1998).

Though the results of this study pose implications for interventions that strengthen people's ability to use effective coping strategies by increasing learned resourcefulness, a number of limitations of this study should be made clear. First, the data reported here for ways of coping with stress and learned resourcefulness are limited to self-reported data. Second, correlational statistics only permit observations regarding whether factors change alongside others; as such, causality cannot be inferred. Thirdly, the participants for this study were selected by using convenient sampling, which may therefore limit the generalizability of its findings to the general population. Fourthly, the inclusion of illiterate participants and the literate participants without school education may pose another limitation. The items included in the questionnaires were read one by one by the researchers administering the study to the participants who reported being illiterate or literate without school education; furthermore, unclear points were explained and the participants' answers recorded by the researchers. However, other than this verbal reading method (Boratav, 2003), different methods are also available to help illiterate individuals and literate individuals without school education to understand and rate items on scales; such methods include administering the scales to the same individuals with different researchers and calculating the relationship between two administrations by using statistical analysis (e.g., kappa analysis) to gauge reliability. Finally, the lack of data regarding the ages of disabled children is another important limitation in this study. On this point, future studies should examine whether the relationship between mothers' ways of coping with stress and their levels of learned resourcefulness change according to the ages of their children via testing for factorial invariance.

References

Akbaba, S., & Gözüm, S. (1998). Bireyin kendisiyle olumlu diyalog kurma öğretiminin stresle başa çıkma üzerine etkisi [The effect on coping with stress making positive dialogue teaching with the individual himself/herself]. *Journal of Anatolia Nursing and Health Sciences, 1(1),* 55-64.

Akkök, F., Aşkar, P., & Karancı, A.N. (1992). Özürlü bir çocuğa sahip anne-babalardaki stresin yordanması [Prediction stress in mothers and fathers of children with disabilities]. *Ankara University Faculty of Educational Sciences Journal of Special Education, 1(2),* 8-12.

Antonovsky, A. (1996). The Salutogenic Model as a theory to guide health promotion. *Health Promotion International, 11* (1), 11-18.

Antonovsky, A., & Sourani, T. (1988). Family sense of coherence and family adaptation. *Journal of Marriage and the Family, 50,* 79-92.

Argun, Y. (2007). The investigation of the relationship between the learned resourcefulness of the parents and the teachers and the behavioral and emotional strenght and the self perception of the preschool children. *Eurasian Journal of Educational Research, 26,* 39-50.

Baydoğan, M., & Dağ, İ. (2008). Prediction of depressiveness by locus of control, learned resourcefulness and sociotropy-autonomy in hemodialysis patients. *Turkish Journal of Psychiatry, 19* (1), 1-9.

Bayram, N. (2009). *Sosyal bilimlerde SPSS ile veri analizi* [Data analysis with SPSS in social sciences]. Bursa: Ezgi Kitabevi.

Boratav, C. (2003). Boratav Depresyon Tarama Ölçeği (Bordepta): Epidemiyolojik çalışmalar ve birinci basamak sağlık hizmetinde depresyonu tanımaya dayalı bir ölçek [The Boratav Depression Screening Scale (Bordepta): A sensitive scale for recognizing depression in epidemiologic studies and primary health care]. *Turkish Journal of Psychiatry, 14(3),* 172-183.

Carey, M. P., Carey, K. B., Carnrike, C. L. M., & Meisler, A. W. (1990). Learned resourcefulness, drinking, and smoking in your adults. *Journal of Psychology, 124,* 391-395.

Dağ, İ. (1991). Rosenbaum'un Öğrenilmiş Güçlülük Ölçeği'nin üniversite öğrencileri için güvenirliği ve geçerliği [Reliability and validity of Rosenbaum's Self-Control Schedule for university students]. *Türk Psikiyatri Dergisi, 2* (4), 269-274.

Dirksen, S. R. (2000). Predicting well-being among breast cancer survivors. *Journal of Advanced Nursing, 32* (4), 937-943.

Folkman, S., & Lazarus, R. S. (1980). An analysis of coping in a middle-aged community sample. *Journal of Health and Social Behavior, 21* (3), 219-239.

Folkman, S., & Lazarus, R. S. (1988). *Manual fort he Ways of Coping Questionnaire.* Palo Alto, CA: Consulting Psychologists Press.

Folkman, S., & Moskowitz, J. T. (2000). Positive affect and the other side of coping. *American Psychologist, 55* (6), 647-654.

Goff, A. M. (2011). *Stressors, academic performance, and learned resourcefulness in baccalaureate nursing students*. Unpublished doctoral dissertation, The University of North Carolina, Greensboro , Faculty of the Graduate School.

Gupta, A., & Singal, N. (2004). Positive perceptions in parents of children with disabilities. *Asia Pacific Disability Rehabilitation Journal, 15* (1), 22-35.

Gülşen, B., & Özer, F.G. (2009). Families' status of coping with stress who have a handicapped child. *TAF Preventive Medicine Bulletin, 8* (5), 413-420.

Hellriegel, D., & Slocum, J. (2007). *Organizational behavior*. USA: Thomson Corporation.

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structural analysis: Conventional criteria versus new alternatives. *Structural Equation Modelling, 6* (1), 1-55.

Huang C. Y., Perng, S. J., Chen, H .F., & Lai, C. Y. (2008). The impact of learned resourcefulness on quality of life in type II diabetic patients: A cross-sectional correlational study. *Journal of Nursing Research, 16* (4), 264-274.

Huang, C., Sousa, V. D., Tu, S., & Hwang, M. (2005). Depressive symptoms and learned resourcefulness among Taiwanese female adolescents. *Archieves of Psychiatric Nursing, 19* (3), 133-140.

Jöreskog, K. G., & Sorbom, D.(1996). *LISREL 8 reference guide*. Lincolnwood, IL: Scientific Software International.

Kaner, S. (2004). Engelli çocukları olan anababaların algıladıkları stres, sosyal destek ve yaşam doyumlarının incelenmesi [Perceived stress, social support and life satisfaction in parents with disabled children]. Final Report of Scientific Research Project, Ankara: Ankara University.

Karadağ, G. (2009). Hardships undergone by mothers with handicapped children, hopelessness and social support from family. *TAF Preventive Medicine Bulletin, 8* (4), 315-322.

Kennett, D. J., & Ackerman, M. (1995). Importance of learned resourcefulness to weight loss and early success during maintenance: Preliminary evidence. *Patient Education and Counseling, 25* (2), 197-203.

King, G., King, S., Rosenbaum, P., & Goffin, R. (1999). Family-centered caregiving and well-being of parents of children with disabilities: Linking process with outcome. *Journal of Pediatric Psychology, 24,* 41-53.

Kline, R. B. (2005). *Principles and practice of structural equation modelling* (2nd ed.). New York: Guilford Press.

Kobasa, S. C. (1979). Stressful life events, personality, and health: An inquiry into hardiness. *Journal of Personality and Social Psychology, 37* (1), 1-11.

Koller, H., Richardson, S. A., & Katz, M. (1992). Families of children with mental retardation: Comprehensive view from an epidemiologic perspective. *American Journal on Mental Retardation, 97 (3),* 315-322.

Küçüker, S. (2006). The family-focused early intervention programme: evaluation of parental stres and depression. *Early Child Development and Care, 176,* 3-4, 329-341.

Küçüker, S. (2001). Erken eğitimin gelişimsel geriliği olan çocukların anne-babalarının stres ve depresyon düzeyleri üzerindeki etkisinin incelenmesi [An investigation of the effect of early intervention program on stress and depression in mothers and fathers of children with disabilities]. *Ankara University Faculty of Educational Sciences Journal of Special Education, 3(1),* 1-11.

Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal and coping*. New York: Springer Publishing Company.

Lazarus, R. S. (1999). *Stress and emotion*. New York: Springer Publishing Company.

Linda, B., & Jess, F. (2009). *Health psychology* (7th Ed.). Wardsworth: Cengage Learning.

Meichenbaum, D. (1977). *Cognitive-behavior modification*. New York: Plenum.

Meichenbaum, D. (1985). *Stress inoculation training.* New York: Pergamon Press.

Mortenson, S. (2009). Interpersonal trust and social skill in seeking social support among Chinese and Americans. *Communication Research, 36,* 32-54.

Ngai, F. W., & Chan, S. W. (2012). Learned resourcefulness, social support, and perinatal depression in Chinese mothers. *Nursing Research, 61* (2), 78-85.

Panitrat, R. (2000). *The relationships among dysfunctional attidutes, learned resourcefulness, and amphetamine use in Thai adolescents*. Ohio: Frances Payne Bolton School of Nursing, Care Western Reserve University.

Peterson, C., & Seligman, M.E.P. (2004). *Character strengths and virtues: A handbook of classification.* Oxford: Oxford University Press.

Rosenbaum, M. (1990). The role of learned resourcefulness in self-control of health behavior. In M. Rosenbaum (Ed.), *Learned resourcefulness: On coping skills, self-control, and adaptive behavior* (pp. 3-30). New York: Springer.

Rosenbaum, M. (1980). A schedule for assessing self-control behaviors: Preliminary findings. *Behavior Therapy, 11* (1), 109-121.

Rosenbaum, M. (1983). Learned resourcefulness as a behavioral repertoire for the self-regulation of internal events: Issues and speculations. In M. Rosenbaum, C. M. Franks, & Y. Jaffe (Eds.), *Perspectives on behavior therapy in the eighties* (pp. 54-73). New York: Springer Publishing Company.

Rosenbaum, M., & Ben-Ari, K. (1985). Learned helplessness and learned resourcefullness: Effects of noncontingent success and failure on individuals differing in self-control skills. *Journal of Personality and Social Psychology, 48* (1), 198-215.

Rosenbaum, M., & Jaffe, Y. (1983). Learned helplessness: The role of individual differences in learned resourcefulness. *British Journal of Social Psychology, 22* (3), 215-225.

Rosenbaum, M., & Palmon, N. (1984). Helplessness and resourcefulness in coping with epilepsy. *Journal of Consulting and Clinical Psychology, 52* (2), 244-253.

Rosenbaum, M., & Rolnick, A. (1983). Self-control behavior and coping with seasickness. *Cognitive Therapy and Research, 7,* 93-98.

Sacco, W. P., & Beck, A. T. (1995). Cognitive theory and therapy. In E. E. Beckham & W. R. Leber (Eds.) *Handbook of depression* (pp. 329-351). New York: Guilford.

Siva, A. N. (1991). *Infertilitede stresle başetme, öğrenilmiş güçlülük ve depresyonun incelenmesi* [The examination of coping with stress, learned resourcefulness, and depression in infertility]. Unpublished doctoral dissertation, Hacettepe University, Ankara, Institute of Neurological Sciences and Psychiatry.

Şahin, N. H., & Durak, A. (1995). Stresle Başa Çıkma Tarzları Ölçeği: Üniversite öğrencileri için uygulanması [Ways of Coping Questionnaire: Application for university students]. *Türk Psikoloji Dergisi*, *10* (34), 56-73.

Tabachnick, B. G., & Fidel, L. S. (2001). *Using multivariate statistics* (4th Ed.). Boston: Allyn and Bacon.

Vermaes, I. P. R., Janssens, J., Bosman, A. M. T., & Gerris, J. R. M. (2005). Parents' psychological adjustment in families of children with Sipina Bifida: A meta-analysis. *BMC Pediatrics, 5* (32), 1-13.

Weiten, W., & Lloyd, M. A. (2008). *Psychology applied to modern life: Adjustment in the 21st Century* (9th Ed.). Wadsworth: Cengage Learning.

Yıldırım, F., & Conk, Z. (2005). Zihinsel yetersizliği olan çocuğa sahip anne/babaların stresle başa çıkma tarzlarına ve depresyon düzeylerine planlı eğitimin etkisi [Effects of planned education on coping ways of stress mothers/fathers' who have mentally retarded child]. *Cumhuriyet Üniversitesi Hemşirelik Yüksekokulu Dergisi*, *9* (2), 1-10.

Yıldız, Ç. (1997). *Yüksek ve düşük öğrenilmiş güçlülük düzeyine sahip bireylerin başarı ya da başarısızlık durumlarına ilişkin nedensel yüklemeler* [The causal attributions of individuals with high and low resourcefulness in terms of their success or failure situation]. Unpublished master's dissertation, Hacettepe University, Ankara, Institute of Social Sciences.

Zauszniewski, J. A., & Martin, M. H. (1999). Developmental task achievement and learned resourcefulness in healthy older adults. *Archives of Psychiatric Nursing, 13* (1), 41-47.

Engelli Çocuğa Sahip Annelerde Öğrenilmiş Güçlülüğün Stresle Başa Çıkma Tarzlarına Etkisinin İncelenmesi

Atıf:

Eroğlu, Y., Akbaba, S., Adıgüzel, O., & Peker, A. (2014). Learned resourcefulness and coping with stress in mothers of children with disabilities. *Eurasian Journal of Educational Research, 55,* 243-262. http://dx.doi.org/10.14689/ejer.2014.55.14

Özet

Problem Durumu: Başa çıkma, bireyin kendisi için sıkıntı oluşturan içsel ve dışsal durumları değiştirmek için bilişsel ve davranışsal olarak çabalaması olarak tanımlanmaktadır. Başa çıkma stratejileri; bilişsel değerlendirme, problem odaklı ve duygu odaklı olmak üzere üçe ayrılmaktadır. Bilisşel değerlendirmeler, bireylerin düşünme biçimlerini düzenlemesini içermektedir. Bu başa çıkma stratejisine örnek olarak problemi yadsıma ve problemden kaçma verilebilir. Problem odaklı başa çıkma stratejileri, problemin tanımlanmasını, alternatif çözüm yolları üretilmesini, bu çözüm yollarının olası yararlarının ve zararlarının değerlendirilmesini ve bunların arasından birinin seçilerek uygulanmasını içermektedir. Duygu odaklı başa çıkma stratejileri ise reddetmeyi, yaklaşma-kaçınmayı, suçlamayı, sorun hakkında düşünmekten kaçınmayı, duygularını bastırmayı, dikkatini başa yöne çevirmeyi veya alkol ve ilaç kullanarak rahatlamayı içermektedir.

Lazarus kişilerin stresle başa çıkmasında üç önemli etmenin rol oynadığını ifade etmiştir: uyum duygusu, dayanıklılık ve öğrenilmiş güçlülük. Uyum duygusu, durumu doğru tanıyıp anlamayı, karar ve eylemleri ayarlamayı ve içinde bulunulan durumdan anlam çıkarmayı içermektedir. Dayanıklılık, stres verici durumla karşılaşıldığında kişiye mücadele gücü sağlamaktadır. Dayanıklılık duygusu yüksek insanlar, yaşamlarına sıkı şekilde bağlanmakta, olayları kontrol edebileceğine dair güçlü bir inanç taşımakta ve değişimi mücadele edilecek olumlu bir durum olarak görmektedir.

Öğrenilmiş güçlülük kavramı Mecihenbaum tarafından ortaya atılmıştır. Meichenbaum öğrenilmiş güçlülüğün stres yaratan durumları kontrol etmek kadar dışsal stres kaynaklarıyla etkin şekilde mücadele etmeyi de içerdiğini ifade etmiştir. Daha sonra Rosenbaum, öğrenilmiş güçlülük kavramını geliştirerek kişilerin stres verici bir durumla karşılaştıklarında bilişsel başa çıkma stratejilerini kullanma ve kendilerini denetleme düzeyleri şeklinde tanımlamıştır. Rosenbaum'a göre öğrenilmiş güçlülük; duygusal tepkilerin kontrol edilmesini, problem çözme stratejilerinin kullanılmasını, zevk verici dürtülerin ertelenebilmesini, bireylerin içsel tepkilerini kontrol edebileceklerine ilişkin algılanan öz-yeterliği içermektedir. Araştırmalar öğrenilmiş güçlülüğü yüksek bireylerin stres yaratıcı durumlarla yapıcı şekilde başa çıkabildiklerini göstermektedir.

Engelli çocuğa sahip annelerin yoğun stres yaşadıkları ve yoğun stresin depresyon, sosyal yalıtım, evlilik çatışması, öz-suçlama, çaresizlik, yetersizlik duygusu, öfke, şok ve yorgunluğa yol açtığı ifade edilmektedir. Türkiye'deki araştırmalar yalnızca engelli çocuğa sahip annelerin ne düzeyde stres yaşadığına ve stresin olumsuz etkilerini azaltmak için kullandıkları baş etme stratejilerine odaklanmaktadır. Engelli çocuğa sahip annelerin bir kısmının engelli çocuğa sahip olmanın yarattığı stresle etkin şekilde başa çıktığı ve yaşamlarını olağan şekilde sürdürdüğü, buna karşın bir kısmının bu duruma hiçbir zaman uyum sağlayamadığı ifade edilmektedir. Öğrenilmiş güçlülük ile epilepsi nöbetleri, depresyon, hemodiyaliz ve diabetus mellitus tip II gibi stres verici durumlarla başa çıkma arasındaki ilişkiyi inceleyen araştırmalara dayanarak, öğrenilmiş güçlülüğün engelli bir çocuğa sahip olma durumuna uyum sağlamada kritik bir rol oynadığı ileri sürülebilir. Bundan dolayı bu araştırmada engelli çocuğa sahip annelerde öğrenilmiş güçlülük ile stresle başa çıkma tutumları arasındaki ilişkilerin incelenmesi amaçlanmıştır.

Araştırmanın Amacı: Bu araştırmanın amacı öğrenilmiş güçlülüğün stresle başa çıkma tutumları üzerindeki yordayıcı etkisini incelemektir.

Araştırmanın Yöntemi: Araştırmanın örneklemini uygun örneklem yöntemiyle seçilen çocukları Sakarya'daki çeşitli özel eğitim kurumlarına devam eden 222 anne oluşturmaktadır. Araştırmada ölçme aracı olarak Öğrenilmiş Güçlülük Ölçeği ve Stresle Başa Çıkma Tarzları Ölçeği kullanılmıştır. Öğrenilmiş Güçlülük Ölçeği 36 maddeden oluşmaktadır. Bu ölçek bireylerin öğrenilmiş güçlülüklerini; duygusal ve fizyolojik tepkileri kontrol etmeye (12 madde), problem çözme stratejilerine (11 madde), zevk verici dürtüleri engellemeye (4 madde) ve içsel olayları düzenlemeye (9 madde) yönelik sorular yardımıyla ölçmektedir. Katlımcılar her bir soruya ilişkin düşüncelerini; "Hiç tanımlamıyor (1)"dan "Çok iyi tanımlıyor (5)"a kadar uzanan 5'li likert bir ölçek yardımıyla cevaplamaktadır. Ölçekten en düşük 36, en yüksek 180 puan alınabilmektedir. 11 madde ters puanlanmaktadır. Ölçekteki yüksek puanlar öğrenilmiş güçlülük düzeyinin yüksekliğine işaret etmektedir. Dağ tarafından Türkçeye uyarlanan ölçeğin iç tutarlığı .78 olarak bulunmuştur. Ölçüt-bağıntılı geçerlik için yapılan çalışmada ise Rotter'in İç ve Dış Kontrol Odağı Ölçeği ile anlamlı ilişkiler gösterdiği bulunmuştur. Stresle Başa Çıkma Tarzları Ölçeği Şahin ve Durak tarafından Türkçeye uyarlanarak özgün formu 66 maddeden oluşan ölçek 30 maddeye indirilmiştir. Açımlayıcı faktör analizi sonucunda ölçeğin kendine güvenli, iyimser, boyun eğici, çaresiz ve sosyal destek arama alt boyutlarından oluştuğu bulunmuştur. Ölçekte sosyal destek arama boyutundaki iki madde tersten puanlanmaktadır. Katılımcılar maddelerin kendilerine uygunluklarını "Hiç Uygun Değil (1)"den "Tamamen uygun (4)"a kadar uzanan dörtlü likert tipi bir ölçek yardımıyla belirtmektedir. Her bir alt ölçeğe ilişkin ortalama puanlar; o alt ölçekten alınan puanın madde sayısına bölünmesiyle elde edilmektedir. Kendine güvenli, sosyal destek arama ve iyimser alt ölçeklerinden alınan puanların yükselmesi etkili; boyun eğici ve çaresiz alt ölçeklerinden alınan puanların yükselmesi ise etkisiz başa çıkma stratejilerinin kullanıldığını göstermektedir. Bu alt boyutlar ayrıca problem odaklı (kendine güvenli, iyimser ve sosyal destek arama) ve duygu odaklı (çaresiz ve boyun eğici) başa çıkma stratejileri olarak da isimlendirilmektedir. Öğrenilmiş güçlülük ile stresle başa çıkma tarzları arasındaki ilişkiler korelasyon ve yapısal

eşitlik modellemesi aracılığıyla incelenmiştir. Elde edilen veriler SPSS 13.0 ve LISREL 8.54 programları yardımıyla incelenmiştir.

Araştırmanın Bulguları: Pearson korelasyon analizi sonuçları; öğrenilmiş güçlülüğün kendine güvenli (r=.58, p<.01), iyimser (r=.26, p<.01) ve sosyal destek arama (r=.26, p<.01) ile pozitif, çaresiz (r=-.23, p<.01) ve boyun eğici (r=-.29, p<.01) başa çıkma stratejileriyle negatif ilişkili olduğunu göstermiştir. Öğrenilmiş güçlülüğün stresle başa çıkma tarzlarını yordayıcılığını incelemek amacıyla kurulan yapısal eşitlik modelinden elde edilen bulgular ki-kare değerinin (χ^2=16.82, p=0.03) anlamlı olduğunu göstermiştir. Ayrıca uyum iyiliği indeksleri (RMSEA=0.072, GFI=0.97, CFI=0.97, AGFI=0.93, NFI=0.95, SRMR=.053) modelin kabul edilebilir düzeyde uyum verdiğini göstermiştir. Öğrenilmiş güçlülük başa çıkma stratejilerinden kendine güvenli, iyimser ve sosyal destek aramayı pozitif, çaresiz ve boyun eğici yaklaşımlarını negatif olarak yordamaktadır. Açıklanan varyans oranlarına bakıldığında kendine güvenlideki varyansın %36'sını, iyimser başa çıkma stratejisindeki varyansın %33'ünü, sosyal destek aramadaki varyansın %7'sini, çaresiz yaklaşımdaki varyansın %5'ini ve boyun eğici yaklaşımdaki varyansın %8'ini açıklamaktadır.

Araştırmanın Sonuçları ve Önerileri: Araştırma bulguları incelendiğinde öğrenilmiş güçlülüğün kendine güvenli, iyimser ve sosyal destek arama yaklaşımlarını kullanarak stresle başa çıkmayı arttırdığı; çaresiz ve boyun eğici yaklaşımları kullanarak stresle başa çıkma durumunu ise azalttığı söylenebilir. Araştırma sonucunda ilk olarak öğrenilmiş güçlülük ile stresle başa çıkma tarzları arasındaki ilişkinin aracı değişkenler kullanılarak incelenmesi önerilebilir. Ayrıca engelli çocuğa sahip annelerin stresle başa çıkma düzeylerini arttırmak için hazırlanan programların öğrenilmiş güçlülüğü arttırmayı amaçlamasının yararlı olacağı ifade edilebilir.

Bu çalışmanın bazı sınırlılıkları bulunmaktadır. İlk olarak bu araştırmada öz-bildirime dayalı ölçme araçları kullanılmıştır. İkinci olarak korelasyonel verilerin kullanılması neden-sonuç ilişkisine yönelik çıkarımların yapılmasına izin vermemektedir. Son olarak uygun örnekleme yönteminin kullanılması bulgular genellenirken dikkatli olunmasını gerektirmektedir.

Anahtar Sözcükler: Öğrenilmiş güçlülük, stresle başa çıkma tutumları, yapısal eşitlik modellemesi, yol analizi, engelli çocuk anneleri

Eurasian Journal of Educational Research, Issue 55, 2014, 263-282

A Comparative Study of Selection, Training and Advisory Practices for Doctoral Education

Yılmaz TONBUL*

Suggested Citation:

Tonbul, Y. (2014). A comparative study of selection, training and advisory practices for doctoral education. *Eurasian Journal of Educational Research*, 55, 263-282. http://dx.doi.org/ 10.14689/ejer.2014.55.15

Abstract

Problem Statement: The "right selection" of doctoral candidates is of great importance for the effectiveness of doctoral programs. There are programs in which one can directly begin with the dissertation, as well as programs that require the completion of credits through mandatory and elective courses. It is widely accepted that academic thesis supervisors play an important role at every stage in PhD programs.

Purpose of Study: The purpose of this study is to compare the selection and training of PhD students of the education faculties of the University of Bremen and Ege University, as well as the role of the supervisor by investigating the views of PhD students, graduates and thesis supervisors.

Methods: In this study, integrated multi-case design was used. The study group was determined with a criterion sampling method. The data was collected by interviews and analyzed by a content analysis technique.

Findings and Results: The competencies required of doctoral candidates vary under themes such as "awareness of the process", "academic qualifications and personal characteristics", "professional experience", and "the originality of the doctoral dissertation". In Germany, there is failure to make PhD programs sufficiently attractive to attract students, while in Turkey, the selection of students through central exams that do not measure suitability for doctoral qualifications are criticized. It was deemed more appropriate to train PhD candidates by practicing in colloquiums and academic environments addressing networks and needs rather than by programs in which candidates begin their dissertation after completing a certain number of credits. Being "directive, preparative and motivational" stood out as the preferred roles of an academic thesis supervisor.

* Dr. Ege University, Izmir, Turkey, yilmaztonbul@gmail.com

Conclusions and Recommendations: Systems that can attract "suitable" individuals who complete their studies successfully, can develop creative ideas, and are interdisciplinary in nature may be developed. Institutions may manage activities like informing and preparing students for PhD programs beginning from the undergraduate stage and continuing through the doctoral dissertation stage.

Keywords: PhD selection criteria, learning experiences, role of the supervisor

It is generally accepted that universities have an important role in social development and the production of knowledge (Sutz, 2005; Zovko, 2013). Different disciplines such as psychology, sociology, and biology contribute to this recognition, as does the discipline of educational science, which benefits from the findings of these disciplines and produces knowledge for the solution of educational problems. A qualified work force that will produce knowledge through scientific research is mainly developed through PhD programs in universities. Another program, the Doctorate of Education (Ed.D.), is a more practice-oriented doctorate degree and is out of the scope of this research.

The "right selection of candidates" is crucial for the effectiveness of PhD programs. Studies have recommended that candidates selected for PhD programs should be chosen from people who are successful and creative and have higher academic goals, competency in literature and willingness to deal with challenges (Wissenschaftrad, 2002; Denicolo, 2004). More than one approach is employed in student selection for PhD programs in different countries, even within the same country. Regional and central exams or exams that are made by the unit of a related program are required, as are undergraduate academic success, letters of recommendation, or the dissertation topics. Research results have revealed that central exams such as ALES* that measure general skills are not a meaningful precursor of future student success in postgraduate education (Baysal, Ada & Şahin, 2005). In Germany, application procedures partially differ from state to state, but generally, they follow the approach used in the University of Bremen: the candidate presents a dissertation proposal to a professor, and the thesis committee accepts the proposal, which is also approved by the professor (Hochschulkonferenz, 2013; Voraussetzung für die Zulassung zu promotion, 2013). As for Ege University, the candidates apply to the university with their central exam scores and are accepted after a competency-based interview.

However, in terms of completing the PhD stage with the necessary competencies, development practices and the nature of training programs are also important. Development- and maturation-oriented programs at the PhD stage are expected to provide students with the opportunities of discovery, interpretation and implementation. These programs are of great importance since they provide students with multi-dimensional learning environments and professional socialization by academic relations. Malfroy (2005) emphasized that the new agenda, generations and

* Academic Postgradutae Exam in Turkey

opportunities to reach information do not allow postgraduate education to continue traditionally. Particularly, developments in information technologies, interdisciplinary studies, and accordingly, teamwork are becoming prominent. The international mobility of students and academics and the intention of creating a common European education area (EHEA, 2014) are among the main reasons of this change. Anon (2002) stated that governments, supporting institutions and institutions of higher education have started to question PhD programs more, while Sadlak (2004) and Kupfer & Moes (2003) revealed that the European continent fell behind the Anglo-American tradition in terms of raising qualified postdoctoral researchers. These circumstances require rethinking of the quality of the PhD programs in Europe.

In terms of the efficiency and effectiveness of a PhD program, a student should have enough background to handle all factors that affect the program. From examination of the literature (Bentley, 2013) along with reports on the regulations of European higher education (EHEA, 2014; HEC, 2011) and the web pages of universities (PhD Qualifying Examination and Admission to Candidacy, 2013; Universitaet Bremen, Junge Talente, 2013), it can be understood that doctoral graduates should be provided with qualifications and competencies such as depth of knowledge of interdisciplinary literature and a particular area, the ability to effectively use research techniques and critical thinking skills, as well as to resolve problems that arise in the area, develop solution proposals, and create new models, approaches and theories in the educational area.

Studies show that applying to a PhD program with central exam results and directly through a supervisor both have their problems. Berning and Falk (2004) emphasized that with the increasing specialization as a result of separation of branches of science, the training curriculum for new researchers should be restructured. Wissenschaftrad's report (2002) states the importance of equipping researchers with information and skills required in their field and making them interact with other disciplines. Sezgin, Kavgacı & Kılınç (2012) indicate a lack of diversity in graduate education electives and that the program cannot be diversified through lessons from different departments and disciplines. According to Demirbolat (2005), there is a weak relationship between theory and practice in PhD courses. At the University of Bremen, they prioritize PhDs not given programs with standard courses. According their needs, PhD students can take part in colloquiums and take courses (statistic programs, reporting techniques, literature reviews, science philosophy), which are periodically conducted at the institute (Wissenschaftsrad, 2002). At Ege University, the program consists of mandatory and elective courses. All courses have to be approved by the Higher Education Council. The courses differ from department to department. The common courses are research oriented and include scientific methods and techniques, statistics, computer applied statistics, and qualitative research. As the program output, research skill, the ability to develop original solutions to educational problems, knowledge of the discipline, and interdisciplinary thinking skills stand out (Doctoral programs, 2014). Some courses in some departments are obligatory, while in other departments, they are elective.

There is a lack of courses like time management, literature review, or courses on interdisciplinary areas.

Given the difficulties encountered in the PhD process (Katz, 1997), candidates should also be provided with knowledge and skills such as time, stress and communication management in order for them to complete this process more efficiently. Studies show that supervisors should contribute to the process by providing opportunities and redirections (for students lectures, seminars, colloquiums, symposia, congress, short-term studies, etc.) (Katz, 1997; Lee, 2008). Research results reveal that besides sharing information or developing skills and attitudes, supervisors should also prepare candidates for the future or support them with career planning (Vilkinas, 2005). They also show that the power of the supervisor's expertise plays a key role in lifting the thesis student's study skills and attitudes to acceptable standards (Li and Seale, 2007). The students, who have an intimate relationship with their supervisors, emphasize positive contributions of the supervisors (Çelik, 2014).

Research on PhD training has focused on the quality of the relationship between thesis supervisors and candidates (Çelik, 2013; Denicolo, 2004), and has mainly been aimed at describing factors that are effective in completing the dissertation (Katz, 1997; Sinclair, 2005). However, criteria for developing scientists through PhD programs cannot be explained by local standards, and taking this into consideration, the creation of compromise in the international arena may contribute to the creation of a common higher education area. It is therefore expected that a comparative study that deals with the selection and development of PhD students and the role of the supervisor according the views of PhD candidates and supervisors will contribute to the literature.

Problem Statement

What are the views of supervisors and doctoral students on criteria to be considered for applying to doctoral programs, the effectiveness of the training process, and the role of the supervisor in this process?

Sub Problems

1. What qualifications should PhD applicants carry, and are current selection practices in selecting individuals with these qualifications effective?
2. What are the views on the suitability of learning experiences during the doctorate process?
3. What is the role of supervisors during the doctorate process, and what qualifications should they carry?

Method

Research Design

Integrated multi-case design was used in this study. In this design, there are multiple cases that could be perceived as integrated on their own: 2 different institutions: University of Bremen and Ege University; diversity of participants:

thesis supervisors and doctoral students; departments: departments of education faculties (Yin, 1994).

Study Group

The study group was determined by criterion sampling (Cresswell, 2007), which is aimed at increasing the reliability of the findings by selecting samples suitable for some pre-determined criteria (for supervisors: having directed a PhD dissertation before, being from different departments; for PhD students: being at the verge of graduation, being from a different department). The study group consisted of 32 participants (16 supervisors and 16 PhD students). All academic thesis supervisors were working in the related faculties. 9 PhD students were employed according to different regulations. All supervisors from the University of Bremen were professors. The study group from Ege University consisted of 5 professors, 2 associates and 1 assistant. The study group was limited to branches of education faculties with doctoral programs. Seven of the supervisors and 11 of the PhD students were females, while nine supervisors and 5 PhD students were males.

Research Instrument and Procedure

A semi-structured interview form was used in data collection. In the process of creating interview form questions, the results and reports of scientific studies that examined doctoral programs were examined (Bell-Ellison and Dedrick, 2008; Gatfield, 2005; Kritsonis, 2008), and students of post-graduate education and academic thesis supervisors in the social sciences were interviewed. At the end of the literature review and preliminary discussions, interview questions and probes suitable for the purpose of the study were determined. Questions were submitted to expert opinion in terms of content validity and clarity. Taking the recommendations into account, two different interview forms for thesis supervisors and doctorates were prepared and applied to participants with face-to-face interviews.

The internal *validity* of the study (credibility) was increased by sharing the results with the participants in informational meetings and obtaining their confirmations about the findings. For descriptive validity, the study group and process were reported in detail. In order to increase external validity, raw data was stored in case it is demanded or intended to be used in future studies. The diversification of the study group was provided in a way that allows transferability by selecting doctoral candidates who are at the stage of completing different programs in education faculties and their thesis supervisors. Responses to interview questions were categorized and themes were created. For re-encoding, these themes were given to two academicians with experiences with qualitative research. The intercoder reliability is .88. According to Miles and Huberman (1994), an inter-rater reliability of .70 and above is considered to be adequate for internal reliability. Participants' views were supported by direct quotations so as to find out the source of the responses. Data was collected from multiple resources (academic supervisors and PhD students) and multiple study groups (University of Bremen and Ege University). It is emphasized in the literature that the validity and reliability of research can be increased by taking expert opinions, giving direct quotations, making diversifications, sharing results with participants, and confirming the coding with the help of expert researchers in their field (Shenton, 2004).

For the confidentiality of participants in the study, abbreviations for supervisors were made, such as "Sup.Brm.1" and "Sup.Ege.3". For PhD students, examples of abbreviations are "Dr. Brm.4" and "Dr.Ege.6".

Data analysis

Interviews were transcribed from a voice recorder and subjected to content analysis. The data was analyzed with NVIVO 8, a qualitative data analysis program. At this stage, the significant segments of data were named after single words (e.g. "awareness", "competence") or sentences (e.g. "different factors other than academic criteria do not interfere with selection"), thus completing the coding. At this stage, the aim is to conceptualize significant segments of data with an inductive analysis: competencies in research (e.g. academic literacy, the ability to use analysis programs); effective raising practices (e.g. colloquium, participation in academic environments) or effective counseling (e.g. orientation, modeling, facilitation). Concepts reached by taking into consideration their relationship with each other were limited under a certain category, and themes were created. The findings were described and presented in detail and interpreted by the researcher, and some deductions were made. It is accepted that content analysis consists of stages of coding, conceptualization and creating categories (Krippendorf, 2004).

Results

Criteria for PhD candidate selection and the problems

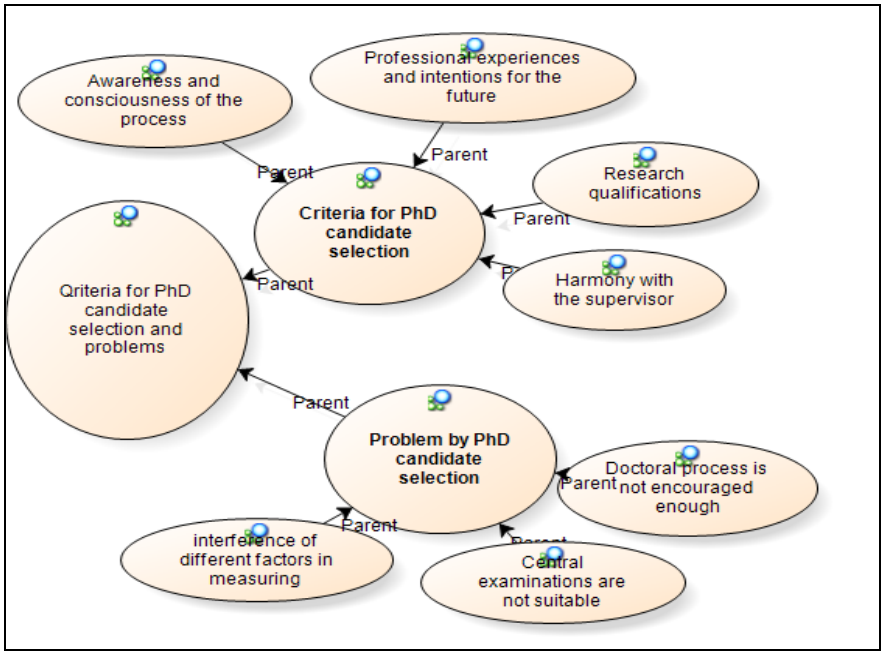


Figure 1 *Criteria for PhD candidate selection and the problems*

In Figure 1 and Table 1, the thematic criteria for PhD candidate selection and problems are gathered under four categories. Supervisors stated under the theme of "awareness and consciousness about the process" that factors such as the purpose of the student in undertaking a PhD, the candidate's knowledge about the department chosen, and the conditions of the candidate to continue the PhD program all affect the decision-making about the candidate. The candidates' pre-doctoral academic work and the topics that they want to study were also expressed by the participants of both universities.

Table 1

Criteria for PhD Candidate Selection and the Problems

Categories and subcategories **Criteria for PhD candidate selection**	**Exemplary quote**
• Awareness and consciousness of the process Knowledge of the main concepts and the literature about the discipline The conditions of the candidate to continue the program Awareness of the difficulties and requirements	*Sup.Ege3*-"The student has to concretely state why he wants to commence and convince the commission, in scientific aspects first. So, the main criterion is: "Why does he want to do it? Also, did he or she grasp the main concepts of this discipline?' *Sup.Brm4*-"Is there awareness about what a PhD means? It is just not enough to explain verbally. Did he make arrangements and take precautions about the money and time it takes? The candidate has to explain this question in a clear way. *'Dr.Brm.3*- '…. Some of these skills may be gained during the process, but what matters is being aware of the fact that being able to cope with these problems is as important as owning methods and theoretical knowledge. Have I the required competence to cope with stress or care? Am I a disciplined person? To participate in a colloquium or in a project is a good way to have an idea about these questions. "
• Professional experiences and intentions for the future Pre-doctoral academic work and topics Visions for the future	*Sup.Ege3*-"Of course, factors like the expectancies of candidates from a master's degree or PhD, the topic they want to study, or the performances they showed until this stage (projects, publications, participation in academicals–educational or institutional aspects), are key indicators in my decision-making." *Dr.Brm.8*-"His work or projects in the field can be considered. Activities in business, productions, original ideas and designs, and also all kinds of academic, artistic and intellectual activities may also be taken into consideration." *Dr.Ege4*-"Things like the former studies and experiences of a candidate, his visions for the future and ability to explain them are more important than his answering of knowledge-based questions. The candidate should reveal what kind of a career plan she has."

Table 1 Continue

Categories and subcategories	Exemplary quote
Criteria for PhD candidate selection	
• Research qualifications	
Knowing how to conduct a research	*Dr.Brm.3*-"He has to be able to ground his own facts, create an open, clear pattern of research and apply critical strainers on all information reached."
Knowledge of survey techniques diversity	Sup.Brm1-"… Will he be able to conduct this study from beginning to the end? That is my point. Then this is the first stage of a dissertation, and then all the following processes are built on this stage. A candidate should know qualitative and quantitative research techniques. To use both perfectly in a design is mostly intended "
Ability to review literature	Dr.Ege6-"…to read and analyze the literature, and also to know how to use an academic database are pre-conditions to drawing up a dissertation and to write an extensive discussion.
• Harmony with the supervisor	
Knowledge and interest about the topic and method of the dissertation	*Sup.Brm2*-"Closeness to my study fields and also compliance with methods I am competent on are quite important. I know from my experience that the advisory function does not work effectively if you are incompetent, especially in methodical aspects"
The Problems of PhD candidate selection process	
• Central examinations, are not suitable	*Dr.Ege5*-"Central exams that are prepared by considering areas of expertise should replace ALES. All candidates are responsible to choose the same questions. This examination is a broad competence test and it does not check the competence of the special discipline.
Not considering areas of expertise	*Dr.Ege3*-"I believe that curiosity, willingness, excitement, educational infrastructure, patience, readiness for the postgraduate education and giving enough time for observation of all these are important. People with motivation and awareness must be selected."
Not emphasizing the tendencies and interests in learning and to become a scientist	
• Doctoral process is not encouraged enough	
Possibility of fellowship	*Sup.Brm6*-"How this process is going to be financed is also of importance. It is more important for those applying from outside. If I do not have the quota to employ, I will encourage him to find a scholarship. But I would ask him to solve this problem first."
Prestige of scientist	*Dr.Brm.2*-"The system is not sufficient to choose the best. Working conditions, payments, form of contracts are not attractive. An important problem is the prestige of social science in society."
• Interference of different factors in measuring	
Prejudices against programs; attitudes or communication style.	*Dr.Ege3*-"The jury should be free of prejudices against the candidates or the universities and graduate-postgraduate programs they finished. Particularly candidates that come from different backgrounds do not have much chance"
Application style, duration of interviews and formation of commission	*Sup.Ege8*-"… sometimes interviews become controversial due to reasons like the application form of interviews, time allocated, and unconformity of committee members."

Participants agreed on the need to be in "harmony" with the supervisor about the topic and method of the study for an efficient process of dissertation. Participants from the University of Bremen, where the candidates apply directly with their dissertation proposals, stated under the theme of "research qualifications" that a certain readiness about knowing how to conduct research is needed. Participants from Ege University made more negative comments under the category of "Suitability of existing applications for selecting 'best fit' candidates". They stated that "an assessment that emphasizes the tendencies and interests in learning" should replace central exams. In the University of Bremen, the theme "Doctoral process is not encouraged enough" was emphasized. A PhD student expressed the view that although there are different options that the system offers and scholarship systems exist, due to low "economic charm" of being a researcher in the field of education, it is not a commonly preferred area. Supervisors in the University of Bremen were of the view that the application of candidates through different channels does not pose a problem. On the contrary, it was emphasized that this has positive aspects for detecting, selecting and testing more effectively. What is remarkable here is that the supervisor is free in his/her choices.

Suitability of learning experiences during PhD process

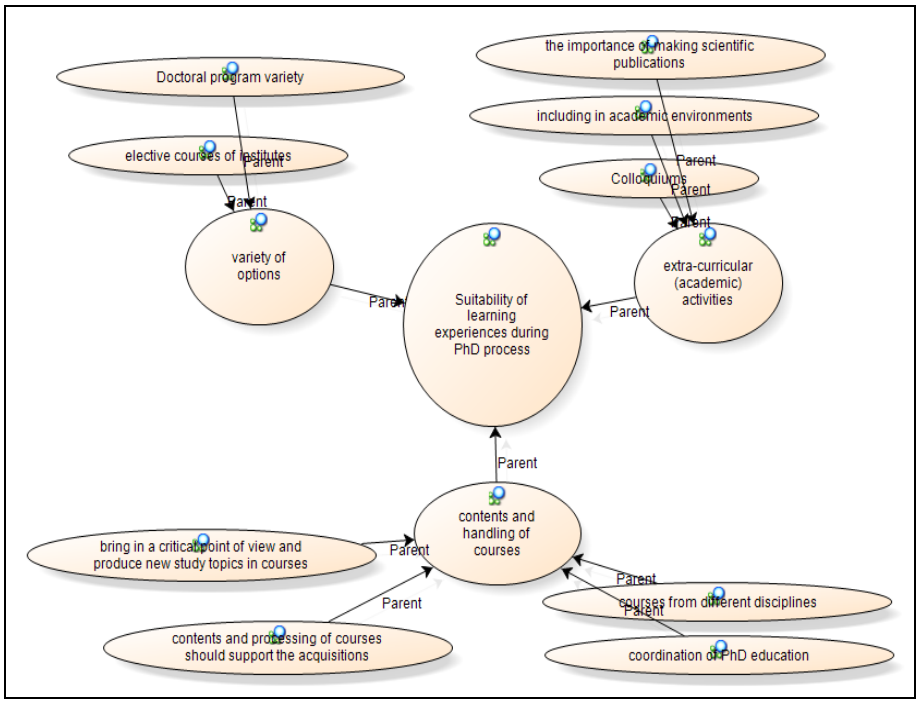


Figure 1 *Suitability of learning experiences*

In Figure 2 and Table 2, the themes "variety of options, contents and handling of courses and extra-curricular (academic) activities" were determined under this category. A supervisor from the University of Bremen stated that different programs

exist, and while there are ones that register for a program with compulsory courses, others can start writing their dissertation directly. PhD Students reach a consensus on the idea that elective courses should replace compulsory courses. It was emphasized that there should be courses from different disciplines that "can be continued". A PhD student noted that if there will be a course, it should be done in a sense that "aims to bring in a critical point of view and produce new research topics." Under the theme "Extracurricular academic activities", the importance of making scientific publications and including them effectively in academic relationship was emphasized. Participants from the University of Bremen especially stated the benefits of colloquiums.

Table 2

Suitability of learning experiences during PhD process

Categories and subcategories	
Suitability of learning experiences during PhD process	**Exemplary quote**
• Variety of options	
Doctoral program variety Elective courses of institutes Coordination of PhD education	*Sup.Brm8*-"Different PhD opportunities are possible. Those who wish may apply for credited programs. But we support the application of supervisory individuals in the field of social sciences. There are many programs of institutes ranging from preparing dissertation proposals to providing career management service." *Dr.Ege6*-"For one thing, the number of elective courses is highly limited. There are a very small number of elective courses from outside except instructors of related sciences. I am not sure if the compulsory courses are necessary. Perhaps there can be a preparatory course for those coming from outside." *Sup.Ege5*- "The way of every doctorate in the field of education must in a way fall into disciplines like sociology, philosophy, communication, psychology, history, literature, and economics. We cannot even bring together departments that are close to each other, let alone such coordination between faculties,."
• Extra-curricular (academic) activities Including in academic environments and making scientific publications Colloquiums	*Sup.Ege 4*-"In preparation for dissertation, interactions such as attending to congresses with students, introducing them to academics and writing essays together are all of great importance. I learned how to do research with the study we conducted with my supervisor when I was a PhD student rather than the related course." *Dr.Brm.* 5-"Colloquiums are effective rather than sessions of faculty members. Those who study similar areas come together in environments with supervisors and they discuss. Not every professor has a colloquium, but they should have one. The only subject that all supervisors here agree upon is the contribution colloquiums have to the dissertation process."
• Contents and handling of courses Bringing in a critical point of view and producing new study topics in courses Contents and processing of courses should support the acquisitions	*Dr.Ege7*-"The PhD should also be perceived as a process of creating awareness about the discipline. And this requires doing a lot of reading, discussions and evaluations in different disciplines. The course intent and discussion activities should lead to new and original research suggestions." *Dr.Ege2*-"I suggest that lecturers conducting the program come together, revise the contents of lessons and share experiences about in-class practices. What could be the logic of putting the phrase "advanced" in front of the name of a graduate course and repeating the same content?"

Roles and competencies of supervisors

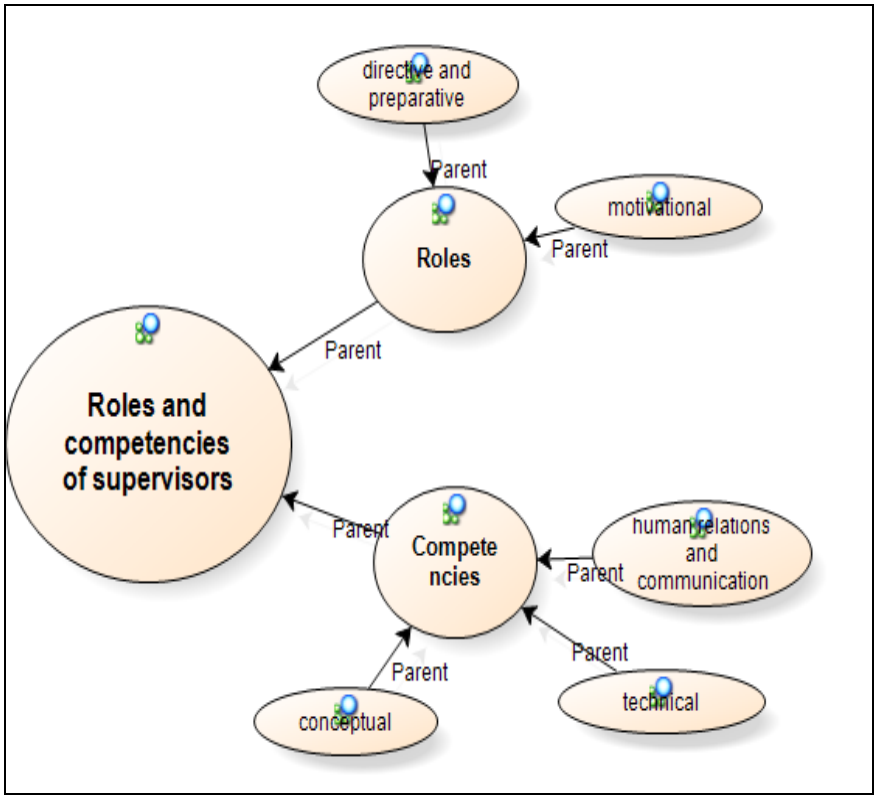


Figure 3 *Roles and competencies of supervisors*

According Figure 3, being "directive, preparative and motivational" stood out as the roles of a supervisor. In the same way, the themes of "conceptual technical and human relations and communication" stood out as their competencies. The participants mentioned that being directive and preparative for the process is the main role of the supervisors. One of the supervisors stated that rather than directing continuously, interference should be made only when necessary. He described the supervisor as "one who makes dose-adjusted interferences". Under the theme "conceptual competencies", expectations of doctorates from supervisors to be knowledgeable of different disciplines and intellectual individuals as well as knowledgeable of the dissertation topic stood out.

Table 3

Roles and competencies of supervisors

Categories and subcategories	Exemplary quote
***Roles* of supervisors**	
Directive and preparative	
Prevent deviation and confine the study	*Dr.Ege2*-"The students observed tendencies and areas of interest that he realized at the stage of courses. Sometimes you realize such technical mistakes in thesis juries that the whole thesis needs to be re-written. Does not the supervisor have any responsibility?"
	Sup.Ege7-"Counting on his previous experiences, the supervisor should explain potential handicaps and needed precautions and should direct the process when he realizes wandering off the goal."
Offer options	*Dr.Brm.2*-"The supervisor should be open to study new, interesting, extraordinary topics. He should provide options rather than dictating. A supervisor has different roles from
Guide to academic relation	the acceptance of the dissertation to post-graduation stages. In this process, he should tell all the options and requirements. '
Academic career	*Dr.Brm. 8*-"… so a supervisor should be able to get out of his room, develop respectful
Motivational	relationships with academic networks and contacts, and share these with his students.
Confidence, Encouragement, Endorsement	One day is the PhD stage over and what then? I think it is the responsibility of your doctor father to give impulse for thinking about the academic career. "
	Sup.Brm7- You are a person, who gives trust, who says 'I'm here for you'
	Dr.Ege 1- There are moments you need a hand on your shoulder that says 'you can do it,' so you need in all stages the recognition and endorsement of your doctor mother.
***Competencies* of supervisors**	
Conceptual	*Dr.Brm.5*-"He should surely have a background of working abroad in the field of
Knowledgeable of different disciplines	application. He should be able to synthesize theory and practice rather than being a parrot of books."
Knowledgeable of the dissertation topic	*Sup.Brm4*-"The supervisor should study on the topic at least as much as his student. It would be useful if you at least review the literature and read studies that handle the topic in different ways."
Technical	
Scientific research techniques	*Dr.Ege.4*-"Consultants should be qualified in quantitative and qualitative research
Statistical software knowledge	methods. But also about the rules of writing a scientific report. My supervisors' being of different fields helped me a lot. Then, this work cannot be done without knowledge of methodology."
	Sup.Brm8-"Supervisors should be better equipped with research knowledge to
Human relation	understand whether all these stages are in accordance with scientific principles and rules.
Being sensitive, respectful and communicative	Also, they should be able to use the new statistical programs. An advisor has to keep abreast of current programs "
	Dr. Ege 5-"He should listen to the student first and respect his decisions at stages like determining the thesis topic or changes in the process. A supervisor should arouse confidence, be understanding and sympathetic. It is important that he is close, sincere, open and accessible. With such a supervisor, other problems are handled easily."
	Sup.Brm 2-"Guidance services at different stages of the thesis will vary according to the needs and learning style of the student. You have to be communicative. I participated in training programs on the areas of social pedagogy, consulting, and drama, and I found them quite useful. "

Participants seemed to care about the expertise of the supervisor in "scientific research techniques". A participant noted that both a supervisor and a student who are not competent in research techniques may experience a hard time in their thesis defense.

Discussion and Conclusion

When the variety of expectations from PhD students are taken into consideration, the "right" selection of candidates is quite important in the training of an education scientist. While the process of acceptance to doctoral programs in Turkey is conducted in a way that is highly central and out of the control of the supervisor, the role of the supervisor in selecting a candidate for the program and in the whole process after seems to be more effective in Germany. Studies (Denicolon, 2004) and reports (Wissenschaftrad, 2002) also show that successful students should be encouraged to pursue PhDs, and individuals with creative ideas and projects should be attracted to these programs.

In Turkey, there is an inability to attract and select "the best" of doctoral candidates due to reasons like centralized, bureaucratic structure and the problems that interview practices hold in them (Kilmen, 2007), along with public institutions' not giving enough support for doing a PhD (Çelik, Katılmış & Kop, 2013). Participants from both universities agree upon the importance of "the level of awareness and consciousness" of candidates in the selection process. This can be explained by stating that the PhD is a long and rough process that requires intensive labor.

The quality of learning experiences is quite important for the effectiveness of the PhD process. Study findings (Denicolo, 2004; Katz, 1997; Sezgin, Kavgacı & Kılınç, 2012) show that postgraduate programs are useful only when they provide students with a richer point of view and the skills of exploring and interpretation. The attendance of PhD students to seminars, meetings, colloquiums, and more elective courses or activities according to their needs in the dissertation process would be more useful. This was expressed mainly by supervisors of the University of Bremen and all the PhD students. The interdisciplinary and inter-institutional nature of PhD programs in education faculties show that activities organized in this context cannot be limited with meetings within the department or faculty. This was stated by the academics of both universities. PhD students from Ege University find the course stage unproductive. Demirbolat's (2005) findings show that postgraduate students have expectations such as the increasing of the number of elective courses or the structuring of programs to be more about practice. These results may be interpreted that the learning experiences during a PhD should not be restricted to the existing programs or meetings with the supervisor.

It is thought that the participants saw the basic role of a supervisor as being directive, preparatory and motivational, because obtaining a PhD is a long-term process that holds different difficulties at every stage. The findings of Katz (1997) also show that postgraduate students see their supervisors as role models and support systems. In fulfilling these roles, the supervisors are expected to be competent in research skills and communication as well as knowledge of the field. They are also expected to be sophisticated individuals within widespread networks of academic relationships, and to encourage the students to join those environments; as well as to foresee possible problems, be role models with their attitudes, serve as

career and life coaches; and have advanced motivating and communication skills and research skills. Lee (2008) emphasizes that effective supervisors fulfill roles like educator, coach, guide, model and director by not only helping in preparing the dissertation, but also affecting the student's career both inside and outside the faculty. Vilkinas (2005), remarks that good supervisors have managerial and interpersonal skills besides their information and skills on research. A directly effective supervising style was reported at Ege University, and that of the University of Bremen was reported to be indirect passive. It is thought that in addition to the system to determine a supervisor (selection, appointment) and training applications, cultural factors (collective-individualistic lifestyle) and also the meaning attached to the PhD process (controlled, detection-oriented, tradition of preparing structured dissertations or expectations of an autonomous, creative and exploratory research process) had an effect on these results. From the discourses of participants from both universities, it is assumed that supervisors should adopt an approach with limited but appropriate interventions. According to Gurr (2010), the supervisor should adopt either a directly or indirectly effective supervising approach or a passive supervising approach.

The results can be summarized as follows: a high level of awareness, consciousness and creativeness of candidates in the selection of the PhD process are thought to be important. The PhD program should be carried out with more variety of options and academic activities rather than standard programs. The supervisor's role is accepted as directive, preparative and motivational; their competencies are classified under technical, conceptual and human relationship categories.

Suggestions

In Turkey, there could be tests that measure competencies of scientific research and knowledge about the field rather than central general aptitude tests. A system of PhD selection that rates conducted scientific publications, professional activities and authentic research proposals can be created. Different doctoral programs (Ph.D. and Ed.D.) can be opened, and they can be provided with different application procedures (directly with a dissertation proposal, joining scientific preparation programs, and programs that consist of credited compulsory and elective courses).

Institutions can organize activities with the aim of providing information (the variety of doctoral programs, qualifications and competencies required, the content of programs and the process, introduction of academic personnel and thesis proposals to be referenced) and awareness (introductory sessions, orientation meetings) about the PhD process. As for the PhD stage, they can carry out procedures like preparing a dissertation proposal, literature review and report, presenting scientific research techniques and statistical analysis software, giving the research techniques (i.e. "phenomenological method", which is a qualitative research design); a structural equation model for quantitative research; and in a more specific and applicable way, giving seminars on time, stress, and communication management; as well as providing career planning guidance. These activities may be

done several times in a year in the form of periodic seminars. Supervisors may be encouraged to specialize on specific subjects and supervise dissertations on these, receive feedback from PhD students, participate in the academic environments commonly, create their own colloquiums and join other ones. A budget that PhD students coming from outside the university can make use of can be set, and a scholarship system can be developed. The number of elective courses, especially those from different disciplines (sociology, psychology, history, economics, etc.) can be increased instead. The contents (theoretical grounding, establishing practical relationships) and processing (critical approach, gains suitable for synthesis, etc.) of these courses can be structured according to the nature of the PhD process. The structures, authorities, facilities and cadres of institutes should be arranged in a way that enables these operations.

References

Anon(2002). *Profiting from postgraduate talent*. Report of a conference held on 11 June 2002, in London. Cambridge: CRAC.

Baysal, N.,Z., Ada, S.& Şahin, S.(2005) Lisansüstü programlara başvuran adayların problem çözme becerilerinin incelenmesi [An investigation of the problem solving skills of the postgraduate candidates]. II. *Lisansüstü Eğitim Sempozyumu (26-28 Eylül 2005) Bildiri Kitabı*, 245-255. Marmara Üniversitesi, Eğitim Bilimleri Enstitüsü, İstanbul.

Bell-Ellison, B.,A.&Dedrick, R.,F. (2008) What do doctoral students value in their ideal mentor? *Resource High Education* 49,555–567.

Bentley, K.,J.(2013) Toward an Evaluation Framework for Doctoral Education in Social Work:A 10-Year Retrospective of One PhD Program's Assessment Experiences *Journal of Social Work Education* 49(1),30-47.

Berning,E.,Falk,S.(2004) Das Promotionswesen im Umbruch. *Beiträge zur Hochschulforschung,* Heft 1,27. Jahrgang,2005.

Çelik,H. Katılmış, A.&Kop ,Y.(2013) The problems of and the suggested solutions for the Master's degree education in Turkey: the case of social sciences education. *Journal of Social Sciences* 12(1):108-122.

Çelik, K. (2013) The Contribution of supervisors to doctoral students in doctoral education: A qualitative study. *Creative Education,* 4(1), 9-17.

Creswell,J.,W(2007*) Qualitative inquiry & research design*. Sage Publication.

Demirbolat,A.,O.(2005) Yüksek lisans öğrencilerinin programdan ve öğretim elemanlarından beklentileri. [The expectations of the post graduate students about the program and the academic staff]. *Türk Eğitim Bilimleri Dergisi* 1(3),47-64.

Denicolo,P. (2004) Doctoral supervision of f the vebeer of satisfaction and competence. *Studies in Higher Education*, 29(6),693-707.

Doctoral programs (2014) Doctora programs of department for educational administration retrieved April 20 http://egitim.ege.edu.tr/subpage.php?id=602&sub=2

EHEA (2014) *Qualifications frameworks play a key role in developing the European Higher Education Area.* Retrieved March 12 2014 from http://www.ond.vlaanderen.be/hogeronderwijs/bologna/qf/qf.asp.

Gatfield,T (2005). An investigation into PhD supervisory management styles: Development of a dynamic conceptual model and its managerial implications. *Journal of Higher Education Policy and Management*, 27(3),311–325.

Gurr (2010) Negotiating the "Rackety Bridge" — a dynamic model for aligning supervisory style with research student development. *Higher Education Research&Development* 202(1),81-92.

HEC (2011) National Qualifications Framework for Turkish Higher Education (NQF-THE). Retrieved June 6 2012 from http://tyyc.yok.gov.tr/?pid=11.

Hochschulkonferenz (2013) *Promovieren in Deutschland* Retrieved March 28.2013 from http://www.hochschulkompass.de/promotion.html.

Katz, E. L. (1997) Key players in the dissertation process. *New Directions for Higher Education* 99, 5-16.

Kilmen,S. (2007). Lisansüstü eğitimi giriş sınavının ve lisans diploma notunun yüksek lisans başarısını yordama gücü [The investigation of the predictive validity of graduate education entrance ecxamination and undergraduate grade point average]. *Abant İzzet Baysal Üniversitesi Eğitim Fakültesi Dergisi, 7* (2),176–189.

Krippendorf,K.(2004*) Content analysis an introduction to its methodology.* Sage Publications.

Kritsonis,W.,A. (2008) Functions of the doctoral dissertation advisor. *Focus On Colleges, Universities and Schools* 2(1),1-5.

Kupfer, A.&Moes, J. (2003) Promovieren in Europa. Ein internationaler Vergleich von

Promotionsbedingungen (Getting a doctoral degree in Europe. An international comparison of conditions). GEW and Hans Böckler Foundation, Frankfurt.

Lee,A. (2008). How are doctoral students supervised? Concepts of doctoral research supervison. *Studies in Higher Education* 33(3):267-281.

Li, S.&Seale,C. (2007). Managing criticism in PhD supervision: A qualitative case study. *Studies in Higher Education*, 32(4),511–526.

Malfroy,J.(2005) Doctoral supervision, workplace research and changing pedagogic practices. *Higher Education Research & Development. 24(2),165–178.*

Miles, M. B. & Huberman, A. M. (1994). *Qualitative data analysis* (2nd ed.). Thousand Oaks, CA: Sage.

PhD Qualifying Examination and Admission to Candidacy (2013) retrieved at April 4.2013 from http://www.bme.ufl.edu/academics/graduate/qualexam.

Sadlak,J. (2004): Doctoral Studies and Qualifications in Europe and the United States: Status and Prospects. Bucarest (UNESCO-CEPES Studies on Higher Education).

Sezgin,F., Kavgacı,H.& Kılınç,A.,Ç. (2012). Yüksek lisans öğrencilerinin iyi bir tez danışmanından beklentilerine ilişkin nitel bir çalışma [A qualitative study on graduate students' expectations from an effective thesis advisor] *Uşak Üniversitesi Sosyal Bilimler Dergisi*, 5(3),129-148.

Shenton,A. (2004). Strategies for ensuring trustworthiness in qualitative research projects. *Education for Information*,22, 63-75.

Sinclair,M (2005) *The pedagogy of 'good' PhD supervision: a national cross-disciplinary investigation of PhD supervision*. Retrieved June 12 2012 from http://www.tempus.ge/files/PhD/phd_supervision.pdf.

Sutz,J.(2005) The role of universities in knowledge production. *Himalayan Journal of Sciences* 3(5) 2005 p.53-56.

Universitaet Bremen, junge Talente (2013) Retrieved June 12 2012 from http://www.uni-bremen.de/forschung/junge-talente.html.

Vilkinas,T. (2005). The supervisor's role as manager of the PhD journey. In P. Green (Ed.),*Supervising postgraduate research: Contexts and processes, theories and practices* (pp. 162–173).Melbourne: RMIT University Press.

Voraussetzung für die Zulassung zu promotion(2013) Retrieved April 2.2013 from http://www.uni-bremen.de/en/research/doctoral-students-post-docs/graduate-center-university-of-bremen-proub.html.

Wissenschaftrad (2002) Empfehlungen zur Doktorandenausbildung Retrieved May 10 2012 from www.wissenschaftsrat.de/download/archiv/5459-02.pdf.

Yin,R(1994).*Case study research: Design and methods*(2nd ed.). Thousand Oaks, CA: Sage Publishing.

Zovko,V (2013) Exploration of the future-a key to sustainable development. *Interdisciplinary Description of Complex Systems* 11(1),98-107,2013.

Doktora programlarında seçim, yetiştirme ve danışmanlık uygulamalarına ilişkin karşılaştırmalı bir araştırma

Atıf:

Tonbul, Y. (2014). A comparative study of selection, training and advisory practices for doctoral education. *Eurasian Journal of Educational Research*, 55, 263-282. http://dx.doi.org/ 10.14689/ejer.2014.55.15

Özet

Problem Durumu:

Doktora programlarının etkililiğinde doktora adaylarının 'doğru seçimi' önem taşımaktadır. Doktora programları incelendiğinde, farklı ülkelerde, hatta aynı ülkede dahi doktora programlarına öğrenci kabulünde birden fazla yaklaşımın uygulandığı görülmektedir. Ulusal, bölgesel ve merkezi sınavlar ya da ilgili programın olduğu birim tarafından yapılan sınavlar, lisans akademik başarısı, tavsiye mektupları ya da doğrudan çalışmak istediği tez konusu ile doktora programlarına başvurular olabilmektedir. Öte yandan nitelikli tezlerin ortaya çıkmasında ve geleceğin bilim insanlarının yetiştirilmesi açısından doktora sürecindeki öğrenme yaşantılarının,bu amacı destekleyecek biçimde yapılandırılması gerekmektedir. Türkiye'de belirli sayıda krediden oluşan zorunlu ve seçmeli dersleri tamamlayarak tez aşamasına geçilen programların yanı sıra, Almanya'da olduğu gibi doğrudan tez çalışmasına da başlanabilmektedir. Enstitülerin sunduğu oturumlar, seminerler, dersler veya doğrudan akademik tez danışmanlarının oluşturduğu kolokyumlara ve akademik ortamlara katılarak, tez konusunun belirlenmesi, olgunlaşması ve yazımı için gerekli bilgi ve becerilerin kazanıldığı bir çok uygulamaya rastlanmaktadır. Doktora adaylarının belirlenmesinde, etkili öğrenme yaşantılarının ve verimli bir tez sürecinin geçirilmesinin yanı sıra doktoranları yönlendirmede danışmanın etkin bir role sahip olduğu genel olarak kabul görmektedir.

Araştırmanın amacı

Bu çalışmanın amacı Almanya ve Türkiye yükseköğretim sisteminde eğitim fakültelerindeki doktora öğrencilerini seçme ve yetiştirme uygulamalarıyla akademik tez danışmanının rolüne ilişkin görüşleri karşılaştırmalı biçimde ortaya koymaktır.

Araştırmanın Yöntemi

Çalışmada bütüncül çoklu durum deseni kullanılmıştır. Araştırmanın çalışma grubu, amaçlı örnekleme yöntemlerinden ölçüte dayalı örnekleme tekniği ile belirlenmiştir. Araştırmanın çalışma grubunu Bremen Üniversitesi Eğitim Fakültelerinden sekizer akademik tez danışmanı ve 2011-2012 yılları arasında mezun olmuş veya mezun olma aşamasına gelmiş sekizer doktoralı katılımcı (32 kişi) oluşturmaktadır. Veriler görüşme tekniği kullanılarak yarı yapılandırılmış görüşme formu aracılığı ile toplanmış ve NVIVO 8 programı kullanılarak, içerik çözümleme tekniğiyle analiz edilmiştir.

Araştırmanın Bulguları

Türkiye'de doktora programlarına kabul süreci oldukça merkezi ve çoğunlukla akademik danışmanın dışında yürürken, Almanya'da danışmanın doktora adayını programa kabul etmede ve sonrasındaki tüm süreçte daha etkili olduğu görülmektedir. Doktora adaylarının sahip olması gereken yeterlikler 'sürece ilişkin farkındalık' 'akademik yeterlikler ve kişisel özellikler', 'mesleki deneyimler', 'doktora tez konusunun özgünlüğü' gibi temalar altında oldukça çeşitlilik göstermektedir. Almanya'da, daha çok doktora yapmanın yeterince çekici hale getirilmemesi; Türkiye'de ise doktora yapmaya uygun yeterlikleri ölçmeyen merkezi sınavlarla öğrenci alınması eleştirilmektedir. Belirli sayıda krediyi tamamlayarak teze başlanılan programların yerine, kolokyumlara, akademik ortamlara-ağlara ve gereksinimlere bağlı olarak alınacak eğitimler aracığıyla doktora adaylarınınım yetiştirilmesi daha uygun bulunmuştur. Akademik danışmanlık rolleri olarak 'yönlendiricilik, hazırlayıcılık ve güdüleyicilik' sahip olması gereken yeterlikler olarak ise 'kavramsal, teknik ile insan ilişkileri' temaları öne çıkmıştır. Danışmanların, yaygın bir akademik ilişki ağının içerisinde olmaları ve öğrencileri bu ortamlara katılmaya teşvik etmeleri;olası sorunları öngörebilmeleri; tutumlarıyla rol modeli olmaları, kariyer ve yaşam koçluğu yapmaları; güdüleyici ve iletişim becerileri gelişmiş, araştırma becerilerine sahip, çok yönlü bireyler olmaları beklenmektedir.

Araştırmanın Önerileri:

Merkezi genel yetenek sınavları yerine bilimsel araştırma yapma yeterliklerini ve alana yönelik bilgi birikimini ölçen sınavlar yapılabilir. Gerçekleştirilmiş bilimsel yayınların, düzenlenen mesleki etkinliklerin ve özgün araştırma önerilerinin puanlandığı bir sistem oluşturulabilir. Farklı doktora programları . (Ph.D ve Ed.D-) açılabilir, bu programlara farklı başvuru olanakları (doğrudan tez önerisi ile, bilimsel hazırlık programlarına katılma, kredilendirilmiş paket programlar) sağlanabilir. Doktora programlarına, kurumlarında başarılı çalışmaları olan, yaratıcı fikirler geliştirebilen, disiplinler arası bilgi birikimine sahip 'uygun' bireyleri çekecek sistemler geliştirilebilir. Enstitüler, lisans aşamasından itibaren öğrencileri doktora programlarına yönelik bilgilendirme ve hazırlama; doktora aşamasında tez önerisi hazırlayabilme, kaynak tarama ve raporlaştırma, bilimsel araştırma tekniklerini ve istatistik çözümleme yazılımlarını sunma ve bunları etkin biçimde kullanabilme, zaman-stres ve iletişim yönetimi alanlarında seminerler verme; kariyer planlaması hizmeti sunma gibi işlemleri yerine getirebilirler. Bu etkinlikler, süreli seminerler biçiminde, yıl içerisinde birkaç kez yapılabilir. Akademik tez danışmanlığı eğitimleri düzenlenebilir. Tez danışmanlarının yaygın biçimde akademik ağların içerisinde yer almaları, kendi kolokyumlarını oluşturmaları ve kendilerinin de farklı kolokyumlarda yer almaları özendirilebilir.

Zorunlu ders uygulaması, yüksek lisansını farklı bir anabilim dalında tamamlamış olanların ve bütünleşik doktora yapanların haricinde kaldırılabilir. Bunun yerine seçmeli derslerin, özellikle de farklı disiplinlerden (sosyoloji, psikoloji, tarih, ekonomi vb.) alınacak derslerin sayısı artırılabilir. Bu derslerin içerikleri (kuramsal

temellendirme, uygulama ilişkisi kurma) ve işlenişleri (eleştirel yaklaşım, sentez basamağına uygun kazanımlar vb.), doktora sürecinin doğasına uygun olarak yapılandırılabilir.

Enstitülerin yapılanmaları, yetkileri, olanakları ve kadroları bu işlemleri gerçekleştirecek biçimde düzenlenmelidir.

Anahtar sözcükler: Doktoraya seçme ölçütleri, öğrenme yaşantıları, danışmanın rolü

Submission Checklist
Makale Sunumu Kontrol Çizelgesi

Indicate that this submission is ready to be considered by this journal by checking off the following.
Aday makalenin değerlendirilmeye hazır olduğunu aşağıdakilerin her biri ile karşılaştırarak kontrol ediniz.

Manuscript Agreement:
I / We hereby accept that, the article after being accepted for publication in the Eurasian Journal of Educational Research (EJER), the author (s) as, all rights related to the article has been transferred to the ANI PUBLISHING under the laws of the , "copyright transfer".

Makale Eurasian Journal of Educational Research (EJER) dergisinde basıma kabul edildikten sonra, yazar(lar) olarak; makale ile ilgili tüm hakları, "Telif Hakkı Devir" yasaları uyarınca, ANI YAYINCILIĞA devrettiğimizi kabul ediyoruz.

Manuscript Submission:
I have prepared my manuscript based on the criteria listed below and I accept all submission conditions.
Makalemi aşağıda belirtilen kriterlere göre hazırladım ve makale gönderme koşullarının tamamını kabul ediyorum.

Indicate that this submission is ready to be considered by this journal by checking off the following.
Aday makalenin değerlendirilmeye hazır olduğunu aşağıdakilerin her biri ile karşılaştırarak kontrol ediniz.

1	☒	*The manuscript is a report of original educational research or a discussion article on research topics in education.* Aday makale, eğitim alanıyla doğrudan ilgili bir araştırma ya da tartışma yazısıdır.
2	☒	*The submission has not been previously published, nor sent to another journal for consideration.* Sunulan çalışma daha önce herhangi bir yerde yayınlanmamıştır, başka bir derginin incelemesinde değildir.
3	☒	*Within a year, I have not submitted a manuscript to EJER as an author or co-author for review other than this manuscript.* Son bir yıl içerisinde, yazarı olduğum ya da yazarları arasında bulunduğum başka bir çalışma değerlendirilmek üzere EJER'e sunulmamıştır.
4	☒	*All authors of this manuscript are subscribers of the EJER and accept to pay **300 EURO** for the cost of proofreading and 10 loose copies of their articles if the manuscript is accepted.* Bu aday makalenin tüm yazarları EJER'e abonedirler ve aday makalenin kabul edilip basılması halinde makalelerinin İngilizce son okuma (proofreading) ve 10 serbest kopya gönderimi nedeniyle oluşan **675 TL** maliyeti Anı Yayıncılık'a ödemeyi kabul ederler.
5	☒	*The entire manuscript is written in English.* Aday makalenin bütününün yazım dili İngilizce'dir.
6	☒	*The original manuscript is typed on A4 paper. The margins are 2.5 cm.* Aday makale kenar boşlukları 2.5 cm olan A4 kağıda yazılmıştır.
7	☒	*Each paragraph is longer than two sentences.* Her bir paragraf en az üç cümle içermektedir.
8	☒	*The entire manuscript - including quotations, references, author note, content footnotes, figure captions, and all parts of tables – is double-spaced.* Aday makalenin tamamı, alıntılar, kaynakça, şekil ve tablo başlıkları da dahil olmak üzere çift aralıklı yazılmıştır.
9	☒	*The submission file is in Microsoft Word document file format. 12-point Times New Roman font is used in entire manuscript.* Aday makale, tamamında 12 punto Times New Roman yazı tipi kullanılarak hazırlanmış bir Microsoft Word dokümanıdır.

10	☒	*The text has had the authors' names removed. If an author is cited, "Author" and year are used in the bibliography and footnotes, instead of author's name, paper title, etc. The author's name has also been removed from the attached document.* Aday makale, yazar adları çıkarılarak sunulmuştur. Eğer yazar kendisine atıfta bulunduysa yazarın adına ve çalışma başlığına yer verilmeyecek, sadece "Author" yazılarak çalışmanın yılı belirtilecektir. Eklenen dosyada yazar adı belirtilmeyecektir.
11	☒	*The title is 10 to 12 words.* Aday makalenin başlığı 10-12 sözcük uzunluğundadır.
12	☒	*The maximum length of the manuscript-including structured abstract in English, tables, and references is 6000 words. This limitation does not include Turkish extended abstract (750-1000 words)which is placed after the references section.* Aday makale, İngilizce abstract, tablolar ve kaynakça vb. tüm ögeler dahil olmak üzere en fazla 6000 sözcüktür. Kaynakça'nın ardından yer verilen uzun Türkçe özet (750-1000 sözcük) bu sayıya dahil değildir.
13	☒	*The article is preceded by English Structured Abstract of not more than 400 words and not less than 300 using five required headings: Problem Statement, Purpose of Study, Methods, Findings and Results, and Conclusions and Recommendations.* (These headings may need some adaptation in the case of discussion papers: *Background, Purpose of Study, Sources of Evidence, Main Argument, and Conclusions).* More information available from (http://www.tandf.co.uk/journals/authors/rereabstracts.asp) Yapılandırılmış İngilizce öz 300-400 sözcük uzunluğunda olup, aday makalenin başında yer almakta ve *Problem Durumu, Araştırmanın Amacı, Araştırmanın Yöntemi, Araştırmanın Bulguları, Araştırmanın Sonuçları ve Önerileri* başlıklarını içermektedir. Bu başlıklar tartışma yazıları için: *Çalışmanın Temeli, Çalışmanın Amacı, Kanıt Kaynakları, Ana Tartışma ve Sonuçlar* şeklinde olabilir. Daha fazla bilgi için http://www.tandf.co.uk/journals/authors/rereabstracts.asp adresine başvurunuz.
14	☒	*Following the structured abstract in English four to six keywords are included.* Yapılandırılmış İngilizce özden sonra 4-6 anahtar sözcüğe yer verilmiştir.
15	☒	*An extended (750-1000 words) Turkish structured abstract is placed following the "References" section using five required headings: Problem Statement, Purpose of* *Study, Methods, Findings and Results, and Conclusions and Recommendations.* (These headings may need some adaptation in the case of discussion papers: *Background, Purpose of Study, Sources of Evidence, Main Argument, and Conclusions)*. More information available from http://www.tandf.co.uk/journals/authors/rereabstracts.asp Kaynakça'dan sonra 750-1000 sözcükten oluşan Türkçe yapılandırılmış öze yer verilmiştir. Türkçe yapılandırılmış öz *Problem Durumu, Araştırmanın Amacı, Araştırmanın Yöntemi, Araştırmanın Bulguları, Araştırmanın Sonuçları ve Önerileri* başlıklarını içermektedir. Bu başlıklar tartışma yazıları için: *Çalışmanın Temeli, Çalışmanın Amacı, Kanıt Kaynakları, Ana Tartışma ve Sonuçlar* şeklinde olabilir. Daha fazla bilgi için; http://www.tandf.co.uk/journals/authors/rereabstracts.asp
16	☒	*Following the Turkish structured abstract, four to six keywords are included.* Uzun Türkçe özetten sonra 4-6 anahtar sözcüğe yer verilmelidir.
17	☒	*References are not cited in the structured abstracts in English and in Turkish.* İngilizce abstract ve Türkçe öz içerisinde atıfta bulunulmamıştır.
18	☒	*The format of headings, tables, figures, citations, references, and other details follow the* ***APA 6 style*** *as described in the Publication Manual of the American Psychological Association, 6th edition, available from http://www.apa.org* Aday makalenin başlıkları, tabloları, şekilleri, atıfları, kaynakçası ve diğer özellikleri tamamen APA altıncı baskıda belirtildiği şekildedir.
19	☒	*All illustrations, figures, and tables are placed within the text at the appropriate points, rather than at the end.* Aday makalenin şekilleri ve tabloları metin içerisinde bulunmaları gereken uygun yerlere yerleştirilmiştir. Makale sonunda sunulmamıştır.
20	☒	Citations in the text of the document include the author's surname, the year of publication, and, when there is a specific quote from a source used, a page number where the quote is lo-

		cated in the text. Example: Nothing seemed so certain as the results of the early studies (Tatt, 2001, p. 445). It was precisely this level of apparent certainty, however, which led to a number of subsequent challenges to the techniques used to process the data (Jones & Wayne, 2002, p. 879). There were a number of fairly obvious flaws in the data: consistencies and regularities that seemed most irregular, upon close scrutiny (Aarns, 2003; West, 2003, p. 457). With studies by two authors, always include both author names: (Anderson & Bjorn, 2003) As Anderson and Bjorn (2003) illustrated in their recent study As recently as 2003, a prominent study (Anderson & Bjorn) illustrated When a study has 3, 4, or 5 authors, include the names of all the authors the first time the work is cited: (Anderson, Myers, Wilkes, & Matthews, 2003) For all subsequent citations of this work, use "et al.": (Anderson et al., 2003) When a work has 6 or more authors, use et al.: (Bell et al., 2003) For unsigned works, include the title, enclosed in parentheses. Put quotation marks for short work titles, and italicize the titles of reports, books, and other significant works: ("Recent Developments," 2004) (Dictionary of Tetrathalocigistic Diseases, 2004) Metin içindeki atıfları üstte verilen örneklere uygundur.
21	☒	Three levels of headings are used: Level 1, Level 3 and Level 4. The headings are formatted as follows: Centered Uppercase and Lowercase Heading (Level 1) *Flush Left, Italicized, Uppercase and Lowercase Side Heading* (Level 3) *Indented, italicized, lowercase paragraph heading ending with a period.* Start writing after the period (Level 4). Aday makale içerisinde üç farklı düzey başlık kullanılmıştır. Düzey 1, Düzey 2, Düzey 3. Başlıklar bu düzeylere uygun olarak aşağıdaki şekilde biçimlendirilmiştir: Ortalı ve Her Sözcüğün İlk Harfi Büyük Yazılmış Başlık (Düzey 1) *Tam Sola Dayalı, İtalik ve Her Sözcüğün İlk Harfi Büyük Yazılmış Başlık* (Düzey 3) *İçeriden, itatik, tamamı küçük harflerle yazılmış ve nokta ile bitten başlık.* Noktadan sonra normal metin yazımına devam edilmeli (Düzey 4).
22	☒	References are listed in alphabetical order. Each listed reference is cited in text, and each text citation is listed in the References. Basic formats are as follows: Haag, L., & Stern, E. (2003). In search of the benefits of learning Latin. *Journal of Educational Psychology, 95*, 174–178. Bollen, K. A. (1989). *Structural equations with latent variables*. New York: Wiley. Johnson, D. W., & Johnson, R. T. (1990). Cooperative learning and achievement. In S. Sharan (Ed.), *Cooperative learning: Theory and research* (pp. 173–202). New York: Praeger. **Turkish References Only:** Çınkır, Ş., & Çetin, S. K. (2010). Öğretmenlerin okullarda mesleki çalışma ilişkileri hakkındaki görüşleri [Teachers' opinions about the professional working relationships in schools]. *Kuram ve Uygulamada Eğitim Yönetimi, 1 6*(3), 353-371. **Article in an Internet-only journal/Periodical, database** Fredrickson, B. L. (2000, March 7). Cultivating positive emotions to optimize health and well being. *Prevention & Treatment, 3*, Article 0001a. Retrieved November 20, 2000, from http://journals.apa.org/prevention/volume3/pre0030001a.html More information is available from: http://citationonline.net/CitationHelp/csg04-manuscripts-apa.htm#references Kaynakçanın yazımı üstte verilen örneklere uygundur.

23	☒	*Order of the main parts in the manuscript is as follows:* *Main title in English (max. 12 words)* *Structured abstract (min. 300- max.400 words length)* *Keywords (in English, min. four-max. six)* *Main text* *References* *Main Title in Turkish (max. 12 words* *Extended structured abstract (min.750-max.1000 words length in Turkish)* *Keywords (in Turkish, min. four-max. six)* Aday makaleyi oluşturan ana ögeler aşağıdaki düzendedir: İngilizce Ana Başlık (En fazla 12 sözcük) Yapılandırılmış İngilizce Abstract (En az 300, en fazla 400 sözcük) Anahtar Sözcükler (İngilizce, en az dört, en fazla altı) Ana Metin Kaynakça Türkçe Ana Başlık (En fazla 12 sözcük) Yapılandırılmış Türkçe Öz (En az 750, en fazla 1000 sözcük) Anahtar Sözcükler (Türkçe, en az dört, en fazla altı)
24	☒	**Structure of the Manuscript should be as follows:** Manuscript Title **English Abstract** (350-400 words) Sub-headings: *Problem statement:…* *Purpose of Study:…* *Method:…..* *Findings and Results:…..* *Conclusions and Recommendations:…* *Keywords:..* **Introduction Method** (sub-headings): *Research Design* *Research Sample* ♦*Research Instrument and Procedure* *Data Analysis* **Results, Discussion and Conclusion, References** **Extended Turkish Abstract (750-1000 words) Sub-headings:** *Problem Durumu:…..* *Araştırmanın Amacı:…..* *Araştırmanın Yöntemi:…* *Araştırmanın Bulguları:…* *Araştırmanın Sonuçları ve Önerileri:…..*
25	☒	***EJER editor reserves the right to reject manuscripts and not to publish it that do not comply fully with the EJER Manuscript Submission Guidelines.***

♦ Reliability and the validity of the research instrument used or adapted in the work must be provided, and explained in detail.